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THE
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VOL. LXXIII.

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THE

ARCHITECT

AND

Contract Reporter.

A WEEKLY

ILLUSTRATED JOURNAL

OF

ART,

CIVIL ENGINEERING,

AND

BUILDING.

*People built as soon as earth was made
Almost, because they might forget (they were afraid)
Earth did not make itself, but came of Somebody.
They laboured that their work might last, and show thereby
He stays, while we and earth, and all things come and go.
Come whence? Go whither? That, when come and gone, we know
Perhaps, but not while earth and all things need our best
Attention: we must wait and die to know the rest.—ROBERT BROWNING.*

VOL. LXXIII.

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THE ARCHITECT AND CONTRACT REPORTER. A JOURNAL OF ART, CIVIL ENGINEERING & BUILDING.

THE WEEK.

FROM time to time the subject of illicit commissions crops up for discussion. The remark of the Lord Chief Justice in a recent case has given one of the opportunities for which some people appear to be on the look out. His Lordship said:—"Unfortunately in commercial circles, in which prominent men played a part, extraordinary mistakes occurred. But a principal who employed an agent to do work for him employed him upon terms that the agent was not likely to get secret commissions. The sooner secret commissions were not approved by an honourable profession the better it would be for commerce in all its branches." A gentleman who claims to have been a Fellow of the Surveyors' Institution for many years declares that the practices consist not only of secret commissions on the accounts for printing, bill-sticking, advertising, &c., particularly referred to by the Lord Chief Justice, but they also include the secret commissions received, and in many instances demanded, by surveyors, auctioneers and estate agents of 10 per cent. and even 15 per cent. on builders' accounts for repairing, altering and decorating house property, and commissions received on private sales of property from both vendor and purchaser. The Secretary of the Institution has pointed out that by one of the by-laws "A member shall not accept or give any illicit or secret trade or other discounts, commission or allowance in connection with any works the execution of which he may be engaged to superintend, or with any other professional business which may be entrusted to him, or any goods he may order on behalf of clients." Mr. ROGERS also adds that "It is rarely that offences of this kind are brought under the notice of the Council of the Institution. When they are, they are at once investigated; but the difficulty in the way of action consists in the fact that these transactions, being in their nature secret, are not always capable of legal proof." What is desirable is that, instead of trusting to rumour, some person would have the courage to accept the risk and announce boldly and publicly the names of the culprits and the circumstances of the offence. Anonymous statements cannot mitigate the evil if it exists, while they create suspicion against honourable men who would forfeit their own self-respect by the acceptance of a "tip." As allegations of the kind are sometimes brought against Government officials, one would think it would be easy to set up a commission to inquire into them. If it turned out the charges were proved and the offenders were made to suffer, it would be an object-lesson which would strike terror among men of a different class.

It was not supposed that the Italian Government would allow any body of foreign archaeologists to undertake the exploration of Herculaneum. With a Government like that of Turkey, antiquity is of small account; and as the majority of valuable objects which are discovered become the property of the SULTAN, he

acquires something without paying anything for it. The archaeologists are supposed to be rewarded by the pleasure of excavation. The sites operated on do not involve any interference with property. But at Herculaneum the case is different. The ancient city has been built over, and researches may cause much injury to property if not the destruction of many houses. It is consequently necessary that Italy should keep a strict watch, although the international commission would consist of men whose motives were entirely unselfish. Apparently Dr. WALDSTEIN has been rather premature in announcing that he possessed authority to make arrangements. The Italian Government would no doubt be gratified if he could raise sufficient money to enable the costly work to be undertaken. But the control would necessarily be in the hands of Italian officials. Herculaneum was of greater importance than Pompeii at the time of the destruction, and it can be taken for granted that works of art which would be more precious than any found at Pompeii are still entombed beneath Portici and Rescina. The examples which many years ago were met with and which are now in the Naples Museum are sufficient to raise expectations to the utmost. But the exploration must necessarily be costly, for it would be, perhaps, more economical to purchase much of the property in the new towns than to undertake the expense of underpinning the buildings.

THE Government have evidently resolved that the clause in the Factory Act relating to "a reasonable temperature" is not to be inoperative. An important case came before the city justices of Manchester on Wednesday which exemplifies the lenient and the later and more severe manner of enforcing the Act. In March last a firm in Ancoats whose premises were not adequately heated were asked by the chief inspector to carry out the necessary requirements. As there has been laxity in the administration the request was unheeded. On December 9 it was necessary to make another visit, and it was found that in one room the temperature was 40 degs. and in another 42 degs. A summons was issued. Finding the authorities were in earnest, one of the defendants called on the inspector, expressed regret and promised to undertake the necessary work without delay. When the case came before the Court the inspector said he did not press for a penalty, and only a nominal fine and costs were imposed. It was stated that one of the reasons for the delay was that with additional means of heating occupiers have to pay a higher rate of insurance. As was explained that cause is insufficient. The Act has to be obeyed. It was the first case of the kind tried in Manchester, and the factory owners in the district should at once take steps to have adequate heating in their works. It should also be remembered that under the Act much more than cotton factories are comprised.

ARCHITECTURE IN 1904.

THE most prominent event of the year that has passed is, in the domain of architecture, the manifestation of the preponderance of opinion within the ranks of the Royal Institute of British Architects in favour of registration, that is, the statutory recognition of the qualified architect as distinguished from the charlatan and quack, whose only claim to the title of architect is a brass plate and impudence.

Undoubtedly the expression of the views of the majority has been stifled for some time by the clever tacticians who have so long held sway in the Council of the Royal Institute, but 1904 has seen, by the help of a very small amount of organisation, the epoch-making pronouncement by the voice of the premier representative body of architecture that registration is both necessary and desirable in the interests of the art, the profession and the public.

This vital step in progress we must not, however, suppose will suffice for the immediate, or even the proximate, attainment of the goal to which the majority of architects are pressing forward. The clever tacticians are still in evidence and using their best endeavours to retard the inevitably slow advancement of the movement. The shape which registration is to take, the means by which it is to be made operative, are matters that are not to be easily determined without much deliberation and discussion. The leaders of the majority, confident in the strength of their cause, have already shown an almost too generous desire to give every opportunity for the expression of their opponents' views. Only within the last month a resolution was adopted at a business meeting of the Royal Institute, "That the registration committee appointed by the general body be allowed to co-opt additional members." Now the registration committee as at present constituted is overwhelmingly in favour of registration. The members to be co-opted can therefore hardly be other than able and representative men who are opposed to registration. This of necessity means more talk and delay in the work of the committee, even if the co-opted members have the grace to abandon tactics intended to retard and happily wreck the movement, and confine their attention to depriving registration as far as possible of what seem to them objectionable features. The advance that has been made during the past year has, we may feel confident, made registration certain of achievement, but we must possess our souls in patience for its ultimate realisation.

R.I.B.A. FELLOWSHIP.

Of considerable importance in connection with the ability of the public to distinguish between the qualified and unqualified architect is the resolution of the Royal Institute, taken during the past year, to admit to the ranks of Fellows after the end of 1906, save in exceptional instances, only those who have passed a qualifying examination. When this resolution becomes operative the Royal Institute may justly pose as a body that admits as members only those who are qualified architects, and who undertake to act as honourable practitioners.

ANCIENT LIGHTS.

The past year has seen the momentous decision of the House of Lords in the appeal case of *COLLS v. The Home and Colonial Stores, Ltd.*, a decision that goes far to render clear the law of ancient lights and vitally affects, at least in towns, the practice of architecture, both as an art and as a profession. The value of the decision has been recognised by numerous expressions of appreciation of the public-spirited action of Mr. J. HOWARD COLLS in carrying the case to the highest legal tribunal in the country. The case of *KINE v. JOLLY* shows, however, that one at least of the judges of the High Court considers that the leading case does not in all cases negative the granting of a mandatory injunction. This decision has, however, been reversed on appeal.

LONDON BUILDING ACT AMENDMENT.

Amongst important legal matters of the year is the proposed amendment of the London Building Act, 1894, foreshadowed by the report of the Building Act committee of the London County Council. This amendment refers to several functions of the Building Act, the formation and widening of streets with limitations of the height of buildings, the determination of building lines and regulation of projections therefrom, the arrangement of open spaces, light and ventilation to buildings, the provision of means of escape from buildings in the event of fire, the construction of buildings to lessen the risk of conflagrations, the method of dealing with dangerous and neglected structures, dangerous businesses, low-lying land. These and a host of other minor matters constitute a revision of the present Act of a most drastic character, and not only drastic but in some instances retrospective, as, for example, the provision "that every building (both new and existing) of more than one storey and exceeding 25 feet in height shall be provided with means of access to the roof, and with a parapet or guard-rail where necessary to prevent persons slipping off the roof."

That the suggestions of the Council's Building Act committee make for the increased safety and improved health of the inhabitants of London must be admitted; but in face of the strong opposition that may be expected in the Imperial Parliament from the representatives and guardians of vested interests, one can hardly regard the proposal of the Council as other than a *ballon d'essai*.

OWNERSHIP OF DRAWINGS.

The ownership of drawings for buildings that have been erected has occupied the attention of the High Court in the case of *GIBBON v. PEASE*, in which the decision in *EBDY v. MCGOWAN* has been held to determine that such drawings are the property of the employer and not of the architect, albeit that in *EBDY v. MCGOWAN* the drawings implicated were those for a non-executed building. The case of *GIBBON v. PEASE* is, however, we understand, to be carried to the Court of Appeal, when mayhap the judicial mind may be brought to see that an architect is a man who produces buildings and not merely a draughtsman. Contributions have been made by the Royal Institute of British Architects, the Society of Architects and some few practitioners, to the cost of adequately fighting the appeal.

WORKMEN'S COMPENSATION FOR ACCIDENTS.

The operation of the law relating to workmen's compensation for accidents has been under the consideration of a departmental committee, whose report has been issued during the past year. This report establishes that on the whole the present law has worked satisfactorily, but that amendment is desirable, so that in all cases an injured workman shall receive a reasonable compensation for his pecuniary loss. The employer, who is to be the representative of the body politic in paying this compensation, must protect himself by insurance, and the committee appears to anticipate that for the protection of the workman from loss by the insolvency of employer or insurance company some system of national insurance may require to be established. The man who builds is, of course, the ultimate source of the compensation to the injured workman, and the cost of building generally is thus increased.

ELECTRICITY IN FACTORIES AND WORKSHOPS.

The prevention of accident, as well as the preservation of life and property, have received further assistance by the issue of regulations from the Home Office under the Factory and Workshop Act for the use of electricity, which has been certified to be dangerous in factories and workshops for the purpose of bringing it within the scope of the Act.

CATHEDRALS.

The past year has seen some memorable events in the history of our cathedrals. On July 19 His Majesty

the KING laid the foundation-stone of the new cathedral at Liverpool, and the foundations of the building are in course of construction. The tower and spire of Truro Cathedral have been completed, and the benediction ceremony took place in January last. The new west front of Hereford Cathedral has been dedicated by the Archbishop of CANTERBURY, although there still remains to be completed the renewal of the fronts of the north and south aisles. In the sister isle the nave and aisles of the new Belfast Cathedral have been so far completed that they are usable for service, and enable us to judge to some extent of the measure of success attained by Sir THOMAS DREW's attempt to deviate from the Mediævalism that is the prevalent flavour of our modern cathedrals down to Truro and Liverpool. In Armagh the Roman Catholic cathedral of St. Patrick has been consecrated by the papal legate, Cardinal VAN-NUTELLI, after being in progress for sixty-four years; it having been commenced in the year 1840.

On the other side of the picture we have had the report of Mr. W. D. CARÖE, architect to the Ecclesiastical Commissioners, on the appalling state of decay into which the central tower, or Angel Steeple, of Canterbury Cathedral has been allowed to fall. The Caen stone, of which the tower has been built, has crumbled and decayed to such an extent that the steeple was found to be actually dangerous, and an immediate commencement of repair has therefore had to be undertaken. The decay has been to a certain extent evident for some time; but on the urgent representations of Mr. CARÖE scaffolding was erected to facilitate closer inspection, from which resulted the knowledge of the even greater mischief than had been anticipated. The terrible extent of the detrition was evidenced by nearly a hundredweight of fragments falling on to the scaffold on one windy day.

Though not fully of cathedral character, the Abbey Church of Bath is, nevertheless, a national monument of sufficient importance for note to be taken of the fact that in this case also careful examination by an expert architect has revealed unrecognised, if not unsuspected, dangerous deterioration of the stability of the central tower. This was struck by lightning in August of last year, and although the damage from this cause was less than might be expected, Mr. T. G. JACKSON, R.A., found that from the expansion by rust of iron cramping the pinnacles of the tower and of the choir had been dangerously affected. Mr. JACKSON also found and called attention to an urgent necessity for the strengthening of the flying buttresses that were being overpowered by the thrust of the nave vaulting.

The example of Canterbury Cathedral and Bath Abbey Church point the necessity to the custodians of our national monuments for periodical examination by expert architects of the buildings under their care. Wise owners of freehold estates are accustomed to have inspections made of their property at regular intervals, though let on repairing leases, and those who have the charge of the architectural masterpieces of our country should exercise no less care in the fulfilment of their obligations as national trustees. In no instance, moreover, is the truth so evident of the proverb that "A stitch in time saves nine," as in the upkeep of buildings, and early attention would often render unnecessary those hysterical and frantic appeals for help from the public to repair the consequences of neglect.

DULNESS IN THE BUILDING TRADE.

The past year has seen a continuance and increase of that lessened demand for labour in the building trades which has been the unvarying theme of the Board of Trade reports since 1900. This is the infallible touchstone that tells of the decline in architectural activity which, though real enough, we might be inclined to doubt if we judged merely from the evidences of building going on around us. Yet we hear that architects, as a rule, have not been busy during the past year. Even though in general business there seems to

be some slight improvement in trade and money is a little cheaper than it was, the swing of the pendulum towards more prosperous times, if it has indeed commenced, has not gone far enough as yet to carry much benefit to the building trade, which as it is the last to feel depression, is also the last to experience a general revival of trade. The public has to make its money by trade before it can spend it, either for pleasure or profit, in bricks and mortar.

Necessary and utilitarian building goes on, but investment and speculation are reduced to a minimum, and municipal enterprise is stifled. Even the London County Council adopted the report of their improvements committee that it is inadvisable to seek powers in the next session of Parliament for the carrying out of "numerous important and desirable improvements." At the same meeting of the Council was approved the decision of the highways committee not to submit any fresh proposals for next session in connection with tramway work. As the Council had found itself obliged to issue a loan of five millions sterling at the low price of 90 earlier in the year, and had, moreover, been staggered by a proposal from the corporate property, charities and endowments committee to accept a rent of 3s. 2d. per foot for a plot of land in Kingsway for which members thought 5s. would be a fair price, it is hardly surprising to find that a check has been administered to the progressive instincts of the Council. The land to let in the Holborn to Strand improvement has again failed to find bidders at auction, and is still keeping unproductive millions of the ratepayers' money. If all the "important and desirable improvements" which have been for the present shelved are of like nature with the abandoned wild-cat scheme of buying up Charing Cross station and rebuilding Hungerford bridge, the ratepayers of London ought to be thankful that financial stringency prevents the autocrats of Spring Gardens from still further increasing the unproductive indebtedness of the Metropolis.

LONDON COUNTY HALL.

One improvement is undoubtedly necessary—the proper housing of the County Council and its ever-increasing staff. The actual money waste of the present haphazard want of system, with employes scattered in all directions, is beyond doubt enormous, to say nothing of the want of efficiency that necessarily results. Spring Gardens itself is a rabbit warren that would be a disgrace to the poorest or smallest borough council in the Metropolis, and we can only hope in the interests of the ratepayers that the task which has during the past year been entrusted to a committee of the Council may have a more fortunate ending than any of the past suggestions, which have for one reason or another been negatived, and that a suitable site may speedily be found on which an adequate building, worthy of the county of London, may be erected. So urgent is the necessity that almost any site, if only sufficiently large, should be acceptable without needless cavil. A perfect site is probably unattainable, and to any site that may be suggested objections will be possible. The one essential and indispensable condition, in our opinion, is that the site should be amply sufficient not only for present requirements but for future extension on a large scale.

The importance of providing for future extension is illustrated by the action of the Bradford Corporation, who have during the past year determined on an enlargement of their present town hall buildings at a cost of 70,000*l.* Bradford town hall is comparatively a modern building, but that of Sheffield is still more so, and yet nearly 40,000*l.* is to be spent on the extension of the latter.

ASYLUM, WORKHOUSE AND INFIRMARY BUILDING.

Of the architectural work which has been commenced in the past year a large proportion has consisted of such unfortunately necessary work as the provision of

asylum, workhouse and infirmary accommodation—lunacy, poverty and sickness are not checked by the dearthness of money or the decline of municipal credit.

The Bristol Board of Guardians have started to expend 160,000*l.* in the extension of their workhouses at Stapleton and Eastville, and the provision of a separate institution for the accommodation of all the imbeciles and epileptics chargeable to the Guardians.

The West Riding County Council having during the past year completed the first portions of their mammoth asylum at Storthes Hall, Huddersfield, at a cost of nearly 200,000*l.*, have started to provide accommodation for another 600 patients, thus advancing to the proposed goal of an asylum for 2,000 cases which, with the necessary staff, will probably mean a total population of 2,500 persons. The erection of these enormous institutions has, however, been adversely criticised by the Lunacy Commissioners in a recent report, pointing out that specific troubles, as "asylum dysentery," are to be feared in the aggregation of a large number of imbeciles in one asylum. The limit of size that appears to the Commissioners to be desirable is fixed at 800 to 1,000 inmates, any excess beyond which makes for a positive increase in the cost of maintenance per head.

The enlargement of the Bucks County Lunatic Asylum was completed during the year at a cost of about 55,000*l.*

The new Royal Infirmary, Manchester, has been commenced by the selection of the plans of Messrs. EDWIN T. HALL & JOHN BROOKE, after a competition limited to twelve selected architects. The infirmary is to contain 504 beds, and the estimated cost of the selected design is 324,000*l.*

A smaller hospital has similarly made the initial step by the selection of the designs of Messrs. H. H. & M. E. COLLINS for the rebuilding of the City of London Lying-in Hospital, in a limited competition of six firms of architects. The competition estimate of cost is in this case 20,000*l.*

The erection has been commenced of a new out-patients' department for St. Bartholomew's Hospital, London, from the designs of Mr. E. BLAKEWAY FANSON. The department is on an extensive scale, as may be gathered from the size of the out-patients' waiting hall, which will be 140 feet long and 45 feet wide, and capable of seating 850 people.

At Seacroft, Leeds, there has been completed during the past year a new fever hospital from the designs of Mr. E. T. HALL, at a cost of over 200,000*l.* and accommodating 452 patients.

VENTILATION.

A somewhat amusing incident in connection with hospital construction during the past year has been an acrimonious discussion between Messrs. HENMAN & COOPER on the one side, and Mr. G. H. BIBBY on the other. Messrs. HENMAN & COOPER are the architects of large hospitals at Birmingham and Belfast, both of which are ventilated on the "plenum" system. Mr. BIBBY is apparently the henchman of a well-known system of "natural" ventilation. The amusing part of the discussion, to the outsider, is the display of partisan spirit, in which each side endeavours to exalt the merits of its favourite system, and to belittle those of its opponent. The broad-minded architect recognises that each system has its merits and each its limitations, and that in ventilation as in most other departments of architectural activity there is no universal panacea for all cases. To sum up briefly, the plenum system is effective but costly, the natural system is cheap but of limited efficiency.

IMPORTANT BUILDINGS COMMENCED.

Amongst important buildings commenced during the past year have been the new public offices and town hall at Acton, Middlesex, for which the design of Mr. W. G. HUNT was selected in a limited competition. The competition estimate of Mr. HUNT's design was

52,946*l.* This, by the way, was a competition in which the award of the assessor, Mr. J. MACVICAR ANDERSON, has been very severely criticised, and has given much dissatisfaction in architectural circles. In fact, the assessor's selection seems to please nobody except the Acton Council, the assessor and the fortunate competitor. As these, however, are the parties most intimately concerned, others must put up with the reflection that once more it has been shown that the single assessor system is not the satisfactory solution of the competition problem, and that there is a good deal to be said in favour of the jury system, practically universal on the Continent.

Her Royal Highness Princess HENRY OF BATTENBERG has laid the foundation-stone of a National Nautical School at Portishead, near Bristol, which is being erected from the designs of Mr. EDWARD GABRIEL, at a cost of 30,000*l.*, to take the place of the training ship *Formidable*. Amongst the commendable features of the new building may be mentioned the construction of the floors of the dormitories of solid balks of timber tongued together, a method which may be regarded as the most reliable form of fire-resisting floor that can be constructed.

Additions to Sunderland town hall, at a stipulated cost of 30,000*l.*, formed the subject of an open competition, for which the designs of Messrs. WILLS & ANDERSON were successful.

A new Stock Exchange for Manchester has been started, the designs of Messrs. BRADSHAW & GASS being selected in a limited competition. The estimated cost of the building was 30,000*l.*

Liverpool, the rival of Manchester, has set out to add to the many fine buildings already to be found in the city by the erection of a new Cotton Exchange, at a cost of something approaching 150,000*l.*, designs by Messrs. MATEAR & SIMON having been selected in a competition restricted to local architects.

The new town hall at Stockport has been commenced and the foundation-stone laid. The design is that of Mr. A. BRUMWELL THOMAS, and was selected in competition. The amount of the builder's contract is 56,881*l.* At Tottenham the foundation-stones have been laid of the new municipal offices, public baths, fire station and coroner's court. The designs which are being carried out are those of Messrs. TAYLER & JEMMETT, which were successful in the open competition. The buildings will cost nearly 60,000*l.*

An important extension of the British Museum has been commenced on the south side of Montague Place, where is to be erected a building on the northern side of the old reading-room that will form an annexe to the old library and to the exhibition galleries. The architect to whom the work is entrusted was chosen in a somewhat novel manner. A list of suitable architects was requested and submitted by the Royal Institute of British Architects, and from the list the Government selected the name of Mr. J. J. BURNET, of Glasgow.

THEATRE BUILDING.

A considerable amount of activity has been manifested during the past year in the erection of theatres. A new theatre has been completed in Glasgow, styled the King's Theatre, from the designs of Mr. FRANK MATCHAM, at a cost of about 50,000*l.* The accommodation is intended for 2,000 persons. In London a new theatre with a seating capacity of 1,120 has been commenced on a site at the corner of Aldwych and Drury Lane. This is being erected from the designs of Mr. W. G. R. SPRAGUE for Mr. MURRAY CARSON. Another theatre and music hall, from the designs of Mr. SPRAGUE, has been commenced on a site at the corner of Tottenham Court Road and Great Russell Street. This will hold the large number of 4,000 persons. Within the last week the reconstructed Lyceum has been completed from the designs of Mr. BERTIE CREWE, and the former home of high-class drama has become a "two-shows-a-

night" music hall. Mr. CREWE is also the architect of a noteworthy illustration of the magnitude of the alien immigration, a theatre in Whitechapel wherein dramas will be performed in the Yiddish tongue. This is to seat 2,000 persons and will cost 45,000*l.* The close of the old year has seen also the completion of a remarkable theatre of varieties or music hall in Mr. OSWALD STOLL's Coliseum at the Trafalgar Square end of St. Martin's Lane, erected from the designs of Mr. FRANK MATCHAM.

In connection with theatre building, we may note that Liverpool has taken in hand the regulation of the details of theatre arrangement and construction, in order to safeguard the lives of playgoers.

NOTABLE BUILDINGS COMPLETED.

Amongst the notable buildings completed during the year has been the new wing of the Law Society's house in Chancery Lane. This was opened by their Majesties the KING and QUEEN, and has been erected from the designs of Mr. H. PERCY ADAMS. The new wing is remarkable for the clever treatment in detail both of the exterior and the interior. The Cartwright Memorial Hall, Bradford, erected from the designs of Messrs. J. W. SIMPSON & E. W. MILNER ALLEN, to the memory of Dr. CARTWRIGHT, the inventor of the power-loom and other machinery in connection with the textile industry, has been completed and opened. The most valuable site in the City of London, at the corner of Cornhill and Lombard Street, has received the recently-completed new offices of the London, Liverpool and Globe Insurance Company, erected from the designs of Mr. J. MACVICAR ANDERSON. Another important City building, the new London and Provincial Banking premises, at the junction of Lothbury and Old Jewry, has been finished from the designs of Mr. ARTHUR C. BLOMFIELD, at a cost of about 55,000*l.* The immense extension of the Savoy Hotel, from the designs of Mr. T. E. COLLICUTT, has also been brought to completion during the past year, and is a strikingly original addition to London's architecture. The first portion of the new buildings of the Leysian Mission, City Road, has been completed at a cost of 112,000*l.* from the designs of Messrs. BRADSHAW & GASS, of Bolton, and was opened by the PRINCE and PRINCESS OF WALES. At Southend-on-Sea there has been completed and opened the new Hôtel Métropole, which has been erected at a cost of more than 300,000*l.* from the designs of Mr. JAMES THOMPSON. In Finsbury Square, London, two striking buildings have been completed, the one at the west corner of the north side of the square, the other at the west corner of the south side. The former has been erected from the designs of Mr. JOHN BELCHER for the Royal London Friendly Society, and the latter from the designs of Messrs. GILBERT & CONSTANDUROS, as the head-offices of the London and Manchester Industrial Assurance Company. The new town hall of High Wycombe has been completed and opened. This has been erected from the designs of Messrs. BATEMAN, BATEMAN & ALFRED HALE, of Birmingham, which were selected in open competition.

LOCAL BY-LAWS.

The difficulty under the existing conditions imposed by the requirements of local by-laws in erecting cottages at prices commensurate with the rents that their occupants can afford to pay has raised a considerable amount of discussion during the past year, and the subject has been forcibly brought to the notice of the public by the apparently harsh treatment of Sir WILLIAM GRANTHAM. This has been emphasised by the appearance of a Judge of the High Court as defendant in a rural police court, the magistrates of which were hardly bold enough to do more than attempt to compromise the matter. A practical step towards the mitigation of the evil has been taken by the attendance of a very influential deputation before the President of the Local Government Board, as a result of which it is

to be hoped that some modification may be made of Section 276 of the Public Health Act, 1875, by which option is given to the rural district councils in their discretion to apply to the rural districts the by-laws suitable to the urban districts. This is the root of the trouble. The model by-laws for urban districts make for increased cost of building, and though this may be necessary for the welfare of the public in towns, the case is radically different in rural districts. It would be well if all rural district councils were to follow the example of that of Chertsey, who unanimously appointed a committee of farmers to consider their existing by-laws with a view to their alteration so as to permit, on the recommendation of their medical officer, of the erection of cottages in the rural districts of wood and corrugated iron, for letting to labourers at cheap rents. Wood and corrugated iron are not the only materials which might be employed for cheapness. The not yet extinct art of "cob" walling, for example, has much to recommend it, and new materials of useful quality are by no means few.

SCHOOL ARCHITECTURE.

The working of the new educational system of the country has by most of the county councils been made the occasion of a false economy in the appointment of officers to replace the experienced architects who have specialised in schools. As these officers are expected to devote their whole time to the work for salaries that average some 300*l.* a year, it may readily be understood that the school architecture of the future will hardly be marked by the exercise of the skill and experience that have been bestowed upon it in the past, and that in the interest of scholars, teachers and the standard of education it urgently requires.

LONDON TRAFFIC.

The problem of London's congested street traffic is still engaging the attention of the Royal Commission on London Locomotion, which has collected during the year a large amount of evidence from many who may be supposed to be experts in the subject. As practical steps of improvement may be noted the reopening after widening of London Bridge, the commencement by the London County Council of the new Rotherhithe tunnel by the acceptance of the tender of Messrs. PRICE & REEVES at 1,088,484*l.*, and the construction which is now proceeding of the underground tramway in Kingsway from Theobald's Road to the Strand.

CONFLAGRATIONS.

In fire prevention object-lessons have been afforded during the past year by three calamitous conflagrations in the United States. The burning of the Iroquois Theatre at Chicago, with a terrible loss of life, though comparatively little damage to the building, points to the paramount necessity for theatres of easy, direct and ample exits and automatic sprinklers for the stage. The conflagration at Baltimore, which practically destroyed a section of the city some three-quarters of a mile long by half a mile broad, has taught the necessity for the adequate subdivision of fire risks, and the utility of properly protected steel and concrete construction, whilst the weakness of terra-cotta, tile and stone as modes of fire-resisting construction has been overwhelmingly manifested. Similar lessons were enforced by the fire at Rochester, U.S.A., which, although not so serious as that at Baltimore, was sufficiently so to cause a loss of some half million pounds sterling.

In our own country we have had serious losses of important examples from "the stately homes of England" in Hanley Castle, Worcestershire; Earls Barton Grange, Northamptonshire, and Uffington House, Lincolnshire.

The lesson taught by the American conflagrations of the value of concrete protected steel for fire-resisting construction has added emphasis to the interest taken in architectural circles during the past year in the

subject of ferro-concrete, which requires only a modification of existing building by-laws to take the prominent position it deserves.

APPOINTMENTS.

Amongst appointments that may be noted during the past year are that of Mr. FELIX NEVILLE CLAY, as architect to the Board of Education, in succession to Mr. E. R. ROBSON; of Mr. WALTER L. SPIERS, as Curator of the Soane Museum, consequent on the decease of Mr. G. H. BIRCH; of Mr. C. H. REILLY to the Roscoe Chair of Architecture at Liverpool University, left vacant by the resignation of Professor SIMPSON, the lectures during the interregnum being delivered by Mr. F. R. FARROW; of Mr. JOHN MURRAY as Crown Surveyor, on the decease of Mr. ARTHUR GREEN; and of Mr. SYDNEY PERKS as Surveyor to the Corporation of London, on the resignation of Mr. ANDREW MURRAY.

HONOURS.

Honours allotted to members of the architectural profession include the addition of Sir HENRY TANNER, architect to the Office of Works, and Sir ASTON WEBB, R.A., past president of the Royal Institute of British Architects, to the scanty roll of titled architects; whilst the Royal gold medal was awarded to the distinguished French architect and savant, M. AUGUSTE CHOISY.

OBITUARY.

The obituary list includes the names of Mr. WILLIAM PAIN, Mr. H. SAXON SNELL, Mr. BARROW EMANUEL, Mr. PERCIVAL GORDON SMITH, Mr. PETER PAUL PUGIN, Mr. GEORGE HENRY BIRCH, Mr. WILLIAM ALFRED ROYLE, Mr. JOHN KELLY, Mr. JAMES WILLIAM BROOKER, Mr. EDMUND LAW, Mr. RICHARD KNILL FREEMAN, Mr. WILLIAM HARRY RAWLE, Mr. W. E. MITCHELL, Mr. J. S. STEWART, Mr. JOSIAH HUNT, Mr. CHRISTOPHER O. ELLISON, Mr. E. A. LANSDOWNE, Mr. HENRY ARTHUR HUNT, Mr. WILLIAM NAIRNE TAIT, Mr. J. LEWIS THOMAS, Professor ROBERT KERR, Mr. JOHN NORTON, Mr. W. H. F. SAMES, Mr. WILLIAM FREEMAN, Mr. CHARLES JOHN FERGUSON, F.S.A., Mr. FRANCIS W. BEDFORD, Mr. RICHARD MAWSON.

THE CATHEDRAL OF ST. ASAPH.*

WE have grown so accustomed to speak of St. Asaph's, St. Davids and St. Andrews as ordinary bishoprics, it is not always realised that they originally formed a peculiar designation. As a rule, not only in Great Britain but in other parts of Christendom, bishoprics are associated with the names of cities or territories. If we go back to the time of St. PAUL we find him directing the appointment of elders in every city. The city then included the *paroikia*, or suburbs. A bishop's diocese would therefore comprise not merely the city in which he dwelt, but the districts around it over which he exercised ecclesiastical jurisdiction. In other words, the ancient parish and the ancient diocese were conterminous. In course of time it was necessary to entrust authority over smaller districts to some of the clergy; as they grew more numerous they were formed into groups of ten—decem—and the superintendent of each group became known as the decanus or dean. Wherever Imperial administration existed, or Rome held direct or indirect sway, the names of dioceses were derived from cities in which the bishop lived. Ephesus, for instance, was a long-established city before St. JOHN settled in it.

In a country like Ireland, which had not in any way imitated Roman administration, there were no cities. Every clan, after the conversion of the country to Christianity, insisted on having its own bishop, and this explains how St. PATRICK is credited with appointing

over 360 bishops during his life. In Ireland the names of dioceses are in many instances those of districts rather than of cities, such as Meath and Clonmacnoise, Ossory and Ferns, and in some cases, like Kilmacduagh, they are supposed to commemorate individuals.

Wales recalls two of its saints in the names of dioceses, viz. St. Davids, after the patron who was supposed to have founded the see. It was, however, called at one time Menevia. St. Asaph's should have been known as St. Mungo's or St. Kentigern's if justice always prevailed in naming, just as, on a like principle, America should be called Columbia. St. MUNGO was one of the great missionaries of the sixth century. He founded a monastery at the place which is now known as Glasgow. Then there was some dispute with the king or chief of the region, and he went to Wales, where near another river Clwyd he established a second monastery. The monks of a later time gained a reputation for their discernment in selecting picturesque sites for their settlements. But it must be said St. KENTIGERN gave them an example, for the spot he selected is still recognised as a subject for landscapists. In a country like Wales, where there were rival chiefs, the establishment of a monastery must have been no easy task. But men like St. KENTIGERN accepted trouble as a blessing in disguise. Scotland had, however, claims upon him, and when the affairs which drove him from the North were settled he returned and lived at Glasgow until his death, which took place about the year 601.

Founders of sees and prominent ecclesiastics in those days appear to have had the right of nominating their successors. In that way ASA, or ASAPH, one of the monks, became head of the monastery and bishop of the district. There are some legends connected with him, but we do not live in the ages of faith, and there would be little use in repeating them. ASA and ASAPH are both Jewish names. There was an ASAPH who was one of DAVID's musicians, and to whom some of the Psalms are attributed. But St. ASAPH was, it appears, a native of Wales.

The church which was used in those days must have been of the simplest kind. It was probably constructed of timber. So remote a district was liable to be often invaded, and marauders were never deterred by the sanctity of a church or monastery. Over the history of St. Asaph there was a cloud for centuries, which no efforts appeared to be able to pierce through. Indeed, there are doubts whether at various periods any people, laymen or monks, were sufficiently courageous to live there. According to BROWNE WILLIS:—"The continuance of the church of St. Asaph in early times without a bishop may be further evidenced from its situation on the great road where all the armies took their route on making incursions from England into these parts of Wales; the inland parts being impassable by reason of the hills and forests, so that St. Asaph may, before the eleventh century, be not only supposed to be left without a resident bishop, but also without inhabitants." In the twelfth century there are records of men who are described as bishops of St. Asaph, but it is difficult to say whether they ever discharged any functions in the place. Among them was GEOFFREY OF MONMOUTH, the author or translator of the fabulous "History of Britain," which, if of little value as a chronicle, has exercised an important influence in supplying scenes which have been utilised by poets and dramatists.

It is not until 1282 that a light, if a lurid one, is thrown upon the cathedral of St. Asaph. The bishop of that time was known as ANIAN II. Originally he was a Dominican and a foreigner. When EDWARD I., before assuming the crown of England, resolved to journey to Acre and the Holy Land, the friar accompanied him. In 1268 he was consecrated Bishop of St. Asaph. It was a difficult period to hold the office. LLEWELYN, the Welsh prince, was bound as a vassal of the English throne to swear fealty to EDWARD, but he contrived to

* See Illustration.

evade the duty. He intended to assert the independence of Wales. The country was invaded by the English, and the prince was compelled to submit. He was ordered to pay a fine of 50,000*l.*, to cede tracts of land, and to do homage to the king at Rhudlan, now known as Ruthin, and London. Peace, however, was of short duration, and eventually LLEWELYN was slain. ANIAN was supposed to have sympathised with him, and in consequence was deprived of his see. Archbishop PECKHAM then stood in favour, and he was able to obtain Bishop ANIAN's pardon. The cathedral had been destroyed in the course of the war, and the king wished to have a substitute for it erected in Rhudlan. That project was, however, abandoned, and ANIAN was allowed to build a new cathedral. A pastoral letter was issued by Archbishop PECKHAM, in which he authorised the Canons of St. Asaph to carry the Book of the Gospels, called "Eveggulthen," belonging to the cathedral, through the dioceses of Lichfield, Hereford and Wales, to collect subscriptions to carry out the work.

It may then be assumed that the oldest part of the cathedral dates from the close of the thirteenth century. In 1341 there is a record of the construction of a new lady chapel. Apparently they were either additions, or the buildings commenced in the thirteenth century had fallen out of repair, for in 1381 we read of works in progress. The deacons—or monks in charge of ten other monks—and overseers were expected to find six competent workmen on every day, with the exception of Sundays and feast days, who were to be employed in a quarry called Rubram, in order to obtain stone for the works at the cathedral. In the reign of HENRY VI. there were more troubles in Wales, and "the church cathedrall of St. Asaph, with the steple, bells, quere, porch and vestiary, with all other contents, stalls, desks and alters was brent and utterly destroyed." The cathedral, after the partial destruction by OWEN GLENDOWER, was allowed to lie in ruins for years. Bishop REDMAN towards the close of the fifteenth century is said to have raised the walls and to have put on a new roof.

After the Reformation the cathedral was kept in decent condition. WILLIAM MORGAN in the beginning of the seventeenth century reslated the roof. JOHN OWEN destroyed the throne which Bishop REDMAN had erected, but he set up a new wainscot pulpit, as well as seats and forms for the congregation, in addition to a large organ. During the Civil War the cathedral was not respected. According to BROWNE WILLIS, a postmaster named MILLES seized on the episcopal palace and turned it into a tavern. He kept his horses and oxen in the body of the church, tied up and fed his calves on the bishop's throne and other parts of the choir, removed the font into his yard, set it in the ground and made use of it as a hog trough. After the Restoration GEORGE GRIFFITH expended money on repairs. The famous ISAAC BARROW restored the north and south aisles, covered them with lead and wainscotted the eastern end of the choir. WILLIAM FLEETWOOD repaved a great portion of the building. In February 1714 the upper part of the tower was blown down, causing great damage to the choir. The reparations were carried out by Bishop JOHN WYNNE. We obtain a glimpse of the cathedral in the eighteenth century from the diary of Dr. JOHNSON, who says:—"We went to church at St. Asaph—the cathedral, though not large, has something of dignity and grandeur. The cross aisle is very short. It has scarcely any monuments. The quire has, I think, thirty-two stalls of antique workmanship. On the backs were Canonicus, Prebend, Cancellarius, Thesaurarius, Precentor." Afterwards Bishop SHEPLEY removed the ruined chapter-house and introduced what was supposed to be improvements in the cathedral. The roof of the cathedral was lowered in 1810, and afterwards one of the WYATTS covered the building with stucco.

The late Professor FREEMAN visited St. Asaph in 1854. He described it as follows:—

The first appearance of St. Asaph is disappointing in two respects; first, because even with those who previously know what it is like, its title of cathedral causes an involuntary comparison with buildings of an altogether different class; secondly, because of its over-neatness and its faulty arrangements. But when these feelings are got over, there is much to admire in St. Asaph. If anyone came upon it suddenly as the parish church of a small Welsh town, it would excite as much rapture as it now does disappointment. Its outline, from most points of view, is perfect, and its details though very plain are highly interesting. The church with which it most naturally occurs to compare it is Brecon Priory. To that noble building it must, even in its best days, have been decidedly inferior; but, while its old choir and chapter-house were standing, it was probably by no means so immeasurably inferior as it appears at present. No corporation aggregate in the kingdom has less to be said against it on the score of repairing and keeping clean of churches than the Dean and Chapter of St. Asaph. No church was ever in more perfect repair, or in a more perfect state of cleanliness. In fact, it is overdone; the church is too neat and trim, the churchyard is too much like a garden and too scrupulously kept under lock and key.

Fourteen years afterwards, that is, in 1868, it was decided to have the building restored, and the task was entrusted to Sir GILBERT SCOTT. He removed the parts which were out of keeping with the original style of the church, and endeavoured to recreate a building belonging to the end of the thirteenth and beginning of the fourteenth centuries, with what success the illustrations will show.

THE WATTS EXHIBITION.

WHEN EMILE ZOLA visited Rome a few years ago, M. HÉBERT, who had been Director of the French School, acted as *cicerone* in the Sistine Chapel, and explained to him the paintings of MICHEL ANGELO. Politeness dictated that the novelist should ask to see some of the French painter's own works. The reply he received was:—"After visiting the Sistine Chapel one is not allowed to see works by HÉBERT. You can see them in Paris, where there is not so redoubtable a competition as here." The words were becoming in the mouth of a modern master who had spent a great part of his life in Rome. Between the sublimities of the Tuscan artist and the Italian peasant scenes of the Frenchman there was a wide difference. But M. HÉBERT understood the limitations of his powers, and, although a professor, he acted wisely in not attempting to cope with MICHEL ANGELO. If the executors of the late GEORGE FREDERICK WATTS, who have contributed seventy-seven out of the two hundred and forty-eight examples now to be seen and enjoyed at Burlington House, and the other contributors to the exhibition, were invited to send their pictures and drawings to an exhibition in the neighbourhood of the Vatican, they need have no fear they would suffer depreciation by the proximity of the great figures on the roof of the Papal chapel. What is no less remarkable is that the Englishman's works would hold their own in Venice. A more interesting assemblage of paintings was never shown in any winter exhibition. As a rule, an exhibition of "a deceased master of the English school" is rarely successful, owing to the general absence of unity. A painter is satisfied when a purchaser selects one of his works. Only in exceptional cases can he imagine that two or more will ever be seen together. It would be imprudent

to sacrifice temporary attractiveness to provide for their appearance in the Academy after he has passed away. But Mr. WATTS, either by the adoption of fixed principles or from some other causes which we need not investigate, produced works which, as we now see them, support one another in making a pleasurable impression. He preferred canvases of certain dimensions. The hangers were consequently able to dispose them in a more symmetrical manner than is usual in an exhibition. Each room becomes an interesting experiment in decoration which well deserves the notice of owners and conservators of picture galleries. Some connoisseurs are sure to maintain that a different arrangement would be more successful. In such a case it may be believed that a chronological order is necessitated, and undoubtedly it would have its advantage. But for the purposes of display and for a show that will be attractive, we doubt whether the present arrangement could be surpassed.

The large gallery and three other galleries are occupied with Mr. WATTS's oil-paintings, while the water-colour room is mainly devoted to his drawings. The examples comprise portraits produced at different periods, landscapes and imaginative subjects. They begin with his own portrait at the age of seventeen, and may be said to come to a close with the unfinished portrait of himself on which he was engaged in 1904. There is also the remarkable marble bust of *Clytie*, and in the courtyard is the mounted figure which was erected last year, and which we believe was intended for Rhodesia. It will thus be found that the painter's remarkable versatility is displayed. It would have been an advantage if works which are in other galleries in London could be lent for the occasion. But the collection at Burlington House, incomplete as it is, is calculated to impress the visitor with the greatness of the artist and his noble labours during seventy years.

We hope we shall not be considered captious or following the example of the Greek shoemaker if we begin by pointing to the remarkable absence of anything which could be considered in the least degree as architectural amidst so large a collection. We are only endeavouring, like POLONIUS, "by indirections to find directions out." The great painters of Europe have utilised architecture, not merely because it supplied noble forms like those we see in RAPHAEL's paintings, and offered contrasts to natural forms, but because architecture, whether great or small, is a human creation rather than an imitation like painting and sculpture. By endeavouring to present man as independent of it there is incompleteness. Mr. WATTS's indifference produced a worse result. Pictures which otherwise would be admirable are marred by his treatment of objects which were constructed. For instance, there is a portrait of himself dated 1853, which is invaluable as an indication of the direction towards Venice of his thoughts at the time. It is described as a "three-quarter figure, in a red robe, standing in front of a balustrade facing the spectator." The truth is the painter appears in the most ridiculous of all positions, *i.e.* when a man stands before a tailor to be "fitted on." Mr. WATTS's arms hang helplessly, he looks sheepish, and evidently he was apparelled in the Venetian robe for the first time. The incongruity of a modern collar and necktie might be pardoned, but the so-called balustrading is merely a wretched piece of wooden skirting painted white. It occupies half the background and makes the entire picture lose its harmony and become irritating to the eye. In another picture, entitled *Prayer*, belonging to the Corporation of Manchester, we see a delicate girl on her knees with her hands resting on a table. Her dress is that red-orange which the painter loved, heightened by red braid, and she wears a red fillet in her hair. This is not the prayer of a model but genuine devotion. Unluckily, the table employed is one of those with a spiral stem which hawkers consider to be indispensable in small suburban houses. The effect of

it is worse than the skirting in the portrait. We could point out other instances of the same crass inattention to details of building and furniture. In that way Mr. WATTS separated himself from the great artists of the past. Worse still, he imposed a limitation on his powers. Man is a social animal, and therefore in all schools "interiors" are common. In the collection at the Academy that fact is ignored. Occasionally we see a portrait of a mother and a child, or two sisters standing as if there was no relationship between them. But from the majority of the paintings the conclusion must be drawn that man is a solitary being. Domestic life appears to be unknown, and there is no case of a number of men or women coming together for any purpose. With such a subject as *Paolo and Francesca* he could not avoid depicting two ghostly figures in an embrace; in painting *Britomart* it was necessary to introduce the nurse, and the Redcross Knight would be incomplete without UNA. JACOB required ESAU as a foil and a few figures in the background, but evidently Mr. WATTS felt he could express his thoughts sufficiently by single figures. To show men in social life, in council, in united labour, or in worship, it would be necessary in most cases to represent a building or part of one, and that was not a task he cared to undertake. In the small picture, *When Poverty comes in at the Door, Love Flies out at the Window*, he was compelled to show an interior, but the model of it might have been derived from a toy-shop. We have no desire to disparage Mr. WATTS's great ability. But when he is to be compared with other painters it is only fair that the conditions should be equalised. He endeavoured to be original and he succeeded, but he shirked many of the difficulties which his predecessors and contemporaries encountered.

The exhibition also shows that he was not always superior to his time. There are a great many of his earlier portraits which are no better than those by men who gained no fame. His own portrait representing him at the age of seventeen is unfinished, and it might have been inspired by one of the engravings after a portrait of SHELLEY, the poet. The portrait of his father produced two years afterwards is unpretending. *The Wounded Heron* of 1837, as a study in white and greys, is a very remarkable work. It would be interesting to know whether it was copied from reality, for if not the painting becomes still more remarkable. *Aurora*, showing "a partially draped female floating in the clouds surrounded by amorini," might have been suggested by one of FROST's paintings. In the same year, however, he attempted the subject of *Caractacus* in the competition for the cartoons. It was believed at the time that the efforts to deal with epic subjects on a large scale would have a beneficial effect, and in the portraits which followed we see an improvement in WATTS's style. He was enabled by his premium to travel to Italy, and the view of Fiesole shows a susceptibility to nature, but an indifference to buildings. We see too in *Time and Oblivion*, which belongs to 1848 and which measures 6 feet 5 inches by 9 feet 5 inches, that he had come under Florentine influences and was not afraid to grapple with abstractions on a very large scale. His own description of the picture is:—"The forms of Time and Oblivion, rising above the sphere of the terrestrial globe, are poised in mid-air betwixt the orbs of day and night. Time, as the type of stalwart manhood gifted with imperishable youth, holds in his right hand the emblematic scythe, while Oblivion, with bent head and downcast eyes, spreads her mantle of darkness over all." This work was the beginning of a long series of attempts to deal with abstractions.

The years which followed are represented in the Academy by portraits. In 1859 there is one of Lord TENNYSON, and in 1861 one of MOTLEY, the American historian, which in size and treatment correspond with works which were presented to the nation. In 1862 we have the *Sir Galahad*, a full-length figure standing

beside a white horse, and apparently in mute astonishment at the vision revealed to him. This might have been suggested by the mysterious etching of DÜRER, *The White Horse*, which remains one of the puzzles of art. The position of Mr. WATTS could not fail to be assured by his figure of the Arthurian knight. But it was not until 1867 that he was elected an Associate of the Royal Academy.

There is no date attached to *The Mother of Giorgione*, which abounds in so many of the characteristics of the Venetian master it might well pass for a work by him. But *The Eve of Peace*, produced in 1863, reveals how well Mr. WATTS had assimilated the qualities of the best Venetians. The warrior, who is in armour with a richly-adorned surcoat and his sword in his hand, bows his head as if in supplication for peace. It is a noble figure with splendid colour. But *Choosing*, which belongs to 1864, shows that the painter, if he pleased, could easily have become a popular artist. It is a half-length of a little girl with some rose-buds in her hand, but who seems to have found a rival charm in a bush of camellias. To the following year must be credited the *Esau*, a three-quarter length figure, clad in very heavy drapery, part of it being a sheepskin, and holding a spear in his hand. There is nothing particularly Biblical about it, and it is one of the least important of the works exhibited. That in the same year the *Fata Morgana* was seen—a nude figure flying low and accompanied by a sprite—is a revelation of the diversity of WATTS's thoughts at the time. He was one of those men the character of whose next work could not be anticipated. His *Aspiration*, a young man in armour holding a standard, was evidently a portrait of ARTHUR PRINSEP, who was afterwards a general. In the same year was seen his marvellous likeness of Dr. JOACHIM, the violinist. A small landscape, *All the Air a Solemn Stillness Holds*, would be admirable and fully expressive of the subject if it were not for a haystack and farm-buildings on one side. If he had intended to suggest that man's works disfigure the beauty of earth, he could not produce a stronger example.

It was about the same time he executed the likeness of JOHN STUART MILL. In it, as in the TENNYSON, we seem to have an expression which is intended to suggest the working of the mind over complex problems. In the effort broken colouring counts for a great deal, but it is evident that both faces were worked out by a vast number of delicate strokes. It is remarkable that a painter who had resolved to confute the statement that it is impossible to find the mind's construction in the face should never have attempted the production of poetic characters. A HAMLET or a LEAR, a MERCUTIO or a JAQUES, if painted by him, would be of more worth than many pages by commentators. It was not only perplexed philosophers he was capable of presenting. There is no more characteristic portrait of MILLAIS than that painted by WATTS in 1871. His Dean LIDDELL is a marvellous revelation of an aristocratic Don who was also possessed of intellectual power, while his Sir JOHN SIMEON might serve as a type of an Anglo-Saxon gentleman. His head of Mrs. LANGTRY will hereafter be more convincing of her loveliness than any of her later portraits or innumerable photographs.

The following explanation which Mr. WATTS gave of one class of his works has been reprinted in the catalogue:—

The great majority of these works must be regarded rather as hieroglyphs than anything else, certainly not as more than symbols, which all art was in the beginning and which everything is that is not directly connected with physical conditions. In many cases the intention is frankly didactic; excuse for this, generally regarded as exasperating, being that it has been found, not seldom, that the attempts to reflect the thoughts of the most elevated minds of all ages, even in an unused and halting language, have not been without interest at least, if without profit. Whatever type may have been used, Classical, Mediæval or other, the endeavour has been to impress distinctly the

direction of modern thought, and in all except two cases, reference to spiritual dogmas has been purposely avoided.

In the old days an attempt to point a moral generally required several figures. Mr. WATTS generally contrived to express his thoughts by means of two. *Love and Death*, *Love and Life*, *Jacob and Esau*, *Death and Innocence*, *Diana and Endymion*, and so on, have a subtlety of meaning in addition to their attractions as figures. He evidently thought out his subjects completely, for when he made a second version the difference between it and the first is very slight. Thus in *Love and Life* the man's forward foot in one is only partly pressed against the rock, while in the other both feet serve as a base. In the larger *Love and Death* a dove is introduced in the foreground cowering before the figure "feared of man," and there is a slight variation in the steps to the house. Mr. WATTS's love of duality is so marked that his representations of the Three Graces or the Three Virtues become rather remarkable.

It cannot be said that at any time his powers began to fail. It might even be supposed that in his last years he was progressing. There is no trace in discordant colours of that affection in the eyes from which TURNER and MULREADY suffered. The *Trifles Light as Air*, in which amorini are ascending and rivalling birds and butterflies, is one of the most delightful works exhibited. He was not afraid to introduce an iridescent bubble in it which is a *coup de main*. The version of DIANA and ENDYMION, a favourite subject with him, which he painted in 1903, is superior to those produced at an earlier time. *The Two Paths* of the same year is his most successful landscape. His *Lilian* in last summer's exhibition was by some considered to be below the artist's average standard, but that was owing to its surroundings. In the present exhibition it appears among relatives, and must be accepted as a masterpiece. It has some of the characteristics of a fresco, and there is a pathetic interest in finding a similar treatment recurring in so many of the artist's works, although the opportunities offered to him for fresco were extremely limited and one of his two attempts was a failure. Another remarkable circumstance is that so many works should be seen which have not found purchasers. No doubt in some cases the painter declined to part with his works. But he was too great an artist to be admired by the multitude, and buyers of pictures may have thought his works would have a disturbing effect in a small gallery. Fortunately he was not a man whose inspiration depended on popularity. Whether under other circumstances the character of his works might have been more or less varied it is impossible to tell, but the 248 works which are to be seen in the galleries of the Royal Academy form a whole of which England may well be proud.

THE PUBLIC AUTHORITIES PROTECTION ACT.*

By Professor W. S. HOLDSWORTH, D.C.L.

IN these days of municipal trading the determination of the exact scope of the provisions of the Public Authorities Protection Act is a matter which nearly affects all classes of the community, and none more nearly than the classes of architects, engineers and builders. The title of the Act indicates its object. It is an Act "to generalise and amend certain statutory provisions for the protection of persons acting in the execution of statutory and other public duties." The Act does not apply to proceedings by any department of the Government against any local authority; but it does apply to all proceedings taken in the United Kingdom against any person "for any act done in pursuance or

* 56 & 57 Vict. c. 61.

execution or intended execution of any Act of Parliament, or of any public duty or authority, or in respect of any alleged neglect or default in the execution of any such act, duty or authority." It gives to persons sued under these circumstances the following advantages:—(1) The benefit of a short period of limitation. The action does not lie unless it is begun six months after the act complained of, or, in the case of a continuing injury, within six months after the cessation of such injury. (2) If the defendant is successful he gets not merely party and party, but solicitor and client costs—the plaintiff must pay the whole cost of the litigation. (3) There are other provisions giving to defendants similar advantages as to costs where they have made a sufficient tender before action brought, or where the plaintiff, before beginning proceedings, has not given to the defendant a sufficient opportunity of making such tender.

Some points arising on the construction of the Act have already been judicially settled. It is clear that the Act does not apply to bodies such as a railway company or a pier company. It is true that such bodies as these are constituted by Act of Parliament, and often perform public duties laid upon them by statute; but they are essentially commercial undertakings, and carry on their duties to earn a profit for shareholders. The Act applies to public bodies who carry out their duties not simply in order to make a profit, but because they are a part of the established government of the country. Such bodies, if a profit is made, apply it to public purposes. For practical purposes we can draw the line by asking whether any given body is established primarily to trade or primarily to govern.* Again, it is clear that the provisions as to costs do not take away the discretion of the Court to disallow costs if it sees fit,† and that the provision giving to the successful defendant solicitor and client costs relates only to the costs of the original action, and not to the costs of an appeal.‡

The most important question of all arising upon the construction of the Act has not yet been settled. This is the question whether all the acts and defaults of public bodies come within the Act, and, if not, where the line is to be drawn between the cases which fall within the Act and the cases which do not. In other words, can any public authority for any act demand the privilege of the short period of limitation, and the privilege of getting, if successful, solicitor and client costs conferred by the Act? It is admitted that this is an unsettled question upon which opinions may differ.§

The actual cases decided upon the construction of the Act have shown that the Act affords protection to public authorities in a great variety of instances. Thus it has been decided that it applies to an action against a municipal corporation for an injunction to restrain the corporation from allowing water to escape from their aqueduct and flood the plaintiff's land;|| that it applies to an action against the Corporation of Preston for negligence in their management of the navigation of the Ribble;¶ and that it applies to an action against a municipal corporation for obstructing a stream in the course of the erection of an electric-generating station, and thereby causing the plaintiff's land to be flooded.** None of these cases, however, necessarily go the full

length of deciding that all proceedings against public authorities come within the Act. But in the case of *The Ydun** Sir FRANCIS JEUNE's dicta clearly point in this direction and give to the provisions of the Act the most extensive interpretation. "The question is," he says, "whether the protection of this section of the Act is given to municipal bodies in the execution of duties not strictly municipal or official, but duties arising in connection with a commercial enterprise which they are empowered by Parliament to undertake. . . . Even apart from authority I should have entertained little doubt on the point. It has been and may be questioned whether, and to what extent, municipal authorities should be authorised by Parliament to engage, possibly in competition with private traders, in what would otherwise be the subject of private commercial enterprise. But if Parliament decides that a public authority should be so authorised, if it confers on a municipality the right and duty to assume the functions of a trader, it clothes those functions with a public character, and makes them just as much public duties of a public authority as those for the performance of which that authority was created. If a municipality is authorised to supply water or gas, I can see no distinction between its acts, its contracts and its defaults in supplying those articles and its acts, contracts and defaults in repairing roads and maintaining street lamps. The analogy of the State itself may be invoked to negative any such distinction. The transmission of letters and telegrams, if not monopolised by the State, would doubtless be performed by private enterprise. But surely the State acts just as publicly and officially in its administration of the Post Office as of any other of its departments." This extensive view of the interpretation of the Act has been followed in two cases. In the case of *CHAMBERLAIN and HOOKHAM v. Bradford Corporation*,† the Corporation was sued by the plaintiffs for the infringement of their patents for electric meters in the course of their installation of electric light under their statutory powers. The plaintiffs having failed to prove their case, KEKEWICH, J., held that the Act applied, and that the defendants were entitled to solicitor and client costs. In the case of *PARKER v. London County Council*‡ the Act was applied to an action against the County Council for negligence by a passenger in one of the Council's trams.

This extensive view of the interpretation of the Act has not yet had the sanction of the Court of Appeal. In the case of *JEREMIAH AMBLER & Sons, Ltd., v. Bradford Corporation*,§ *VAUGHAN WILLIAMS, L.J.*, pointed out that though the case of *The Ydun*|| was affirmed by the Court of Appeal, nothing was said by the Court which involved an approval of the very wide grounds upon which the decision of Sir F. JEUNE was based. "I mean," he says, "that the judgments in the Court of Appeal do not necessarily affirm the proposition that the Act applies to municipal trading under the authority of a special Act or order which a corporation or other public body chooses to obtain, just as any private person might do without being under any obligation so to do. The public authority in regard to such trading is, in fact, a mere volunteer, and it may be urged that, as the public authority is under no obligation to exercise the statutory authority which it has obtained . . . there is no reason why a public body trading in competition with private traders should be protected as to either costs or the time within which an action should be brought."

The Lord Justice pointed out, however, that this narrower view of the scope of the Act was in conflict with the case of *CHAMBERLAIN and HOOKHAM v. Bradford Corporation*. It is clearly also in conflict with *PARKER v. London County Council*, but in the latter case *CHANNELL, J.*, though he held that he was bound by

* *The Ydun*, L.R. 1899, pp. 236, 237; Attorney-General v. Company of Proprietors of Margate Pier and Harbour, L.R. 1900, 1 Ch. 749; Jeremiah Ambler & Sons v. Bradford Corporation, L.R. 1902, 2 Ch. 585.

† *Bostock v. Ramsey Urban District Council*, L.R. 1900, 2 Q.B. 616.

‡ *Fielden v. Mayor of Morley*, L.R. 1900, A.C. 133.

§ *Lindley, M.R.*, in the case of *Fielding v. Morley Corporation*, L.R. 1899, 1 Ch. at p. 4, said:—"It is not necessary to consider what cases, if any, do not fall within the Act, though apparently within the words. I add that by way of precaution, because some day there will probably be a great discussion as to what acts or defaults do or do not come within it."

|| L.R. 1899, 1 Ch. 1.

¶ *The Ydun*, L.R. 1899, p. 236 (C.A.).

** *Jeremiah Ambler & Sons, Ltd. v. Bradford Corporation*, L.R. 1902, 2 Ch. 585.

* L.R. 1899, C. at pp. 239, 240.

† (1900) 83 L.T. 518.

§ L.R. 1902, 2 Ch. 585.

‡ L.R. 1904, 2 K.B. 501.

|| L.R. 1899, p. 236.

authority to say that the Act applied, confessed that he might have taken the less extensive view of the interpretation of the Act had he been deciding the matter apart from authority. "If," he said, "I were construing the Act for the first time, I should have been inclined, although bearing in mind the decisions of other judges upon the Act I should no doubt have been wrong, to say that, although a municipal body might be entitled to the protection of the Act in regard to matters done by them in the course of the construction of a tramway, they would not be entitled to it in regard to matters subsequently arising during its working, and that they would not be brought within the words 'neglect or default in the execution of such duty' merely because the act which they were doing would have been *ultra vires* unless done under statutory authority."*

It has been reserved for FARWELL, J., whose decisions have been before now noted for a happy combination of bold reasoning and sound law, to adopt this less extensive interpretation of the Act in the case of *SHARPINGTON v. Fulham Guardians*.† In that case he has decided that the Act does not apply to liabilities under a contract made by a Board of Guardians with a builder, incurred by reason of the negligence of the Guardians, and by reason of alterations made by them in the plans of the buildings which were the subject-matter of the contract. The learned judge adopted the view that the Act applies only to acts or contracts directly and immediately occasioned by the carrying out of public or statutory duties; and that it does not apply if the Act or the contract is only indirectly occasioned by, or incidental to, one of their public or statutory duties. In other words, if a public authority is authorised by statute to run a tramway or to instal a system of electric lighting, the Act will apply to all acts or contracts incidental to the work of constructing the tramway or installing the light, because they are under a duty to the public to do the work. But if they are authorised to guard the poor the Act will not apply to contracts to build houses for the poor because the duty to the public is not to build houses but to maintain the poor. "The public duty which is here cast upon the Guardians is to supply a receiving house for poor children; a breach or negligent performance of that duty would be an injury to the children, or possibly to the public, who might be injured by finding the children on the highway. In order to carry out this duty they have the power to build a house or alter a house, and they accordingly entered into a private contract. It is a breach of this private contract which is complained of in this action. It is not a complaint by a number of children or by a member of the public in respect of the public duty. It is a complaint by a private individual in respect of a private injury done to him. The only way in which the public duty comes in at all is . . . that if it were not for the public duty any such contract would be *ultra vires*. But that would apply to every contract."

Now it is a little difficult to see how this case can be reconciled with the dicta in the case of *The Ydun*, or with the decisions in *CHAMBERLAIN and HOOKHAM v. Bradford Corporation* and *PARKER v. London County Council*. On the other hand, it is not contrary to any decision of the Court of Appeal, and it is in accordance with what CHANNELL, J., would have considered to be the right interpretation of the Act had he not thought himself bound by authority to decide differently. It is certainly desirable that a decision of the Court of Appeal or the House of Lords should clear up this doubtful point of law.

On the general question as to which interpretation of the Act would be most expedient, it can hardly be doubted that there is far more to be said for the less extensive interpretation than for the wider interpretation. As was said in argument in one of the cases cited above,

"It is now becoming a matter of common occurrence for a corporation to enter into these quasi-commercial enterprises, and it is a serious thing if they can recover costs of litigation conducted, it may be, in the most expensive style." We must add, too, that it is a serious thing if persons are to be debarred from recovering by the lapse of the short period of six months. It may be that it is proper that public authorities should be protected from vexatious legal proceedings as to matters which fall directly and immediately within the scope of their public duties. It is a very different thing to extend that protection to all the various kinds of complaint which may arise from the manifold activities and enterprises of the modern public authority. Persons no doubt will differ largely as to the proper sphere of the activity of the State, according as their views tend in the direction of individualism or socialism. It cannot, however, be denied that the "municipal socialism" of the present day is on its trial. We do not as yet know enough of its results to give a final judgment as to its merits or defects. We cannot as yet define its limitations. If we are ever to come to a clear conclusion upon such vital matters we must be able to compare the results of municipal enterprise in various spheres of activity with the results of private enterprise in the same spheres. No trustworthy comparison can be made if, owing to the very great procedural advantages conferred upon public authorities, a severe handicap is put upon the ventures of private individuals.

WESTMINSTER CATHEDRAL.

ON Tuesday Archbishop Bourne delivered an address in the new cathedral, in the course of which he referred to the finances of that important work. He said he did not feel ready to make any appeal for the fund of the cathedral until it had been proved that the late Cardinal Vaughan was right in thinking that a metropolitan cathedral was really needed for the due development of the Catholic faith in England, and that the cathedral which he had erected was actually meeting that need. There was now no room for further hesitation, and he felt fully justified in echoing the appeal which the Cardinal made. Heavy liabilities had been incurred apart from the cathedral fund. The actual debt on the cathedral fabric was about 7,000*l.*, and since the Cardinal's death only 605*l.* had been received towards the building fund, excluding donations promised to Cardinal Vaughan, but not actually made until after his death. The Archbishop named some of the works which he desired to see carried out. At present they were engaged in completing the clergy house and the offices for the administration of the diocese, and soon they must begin to build a choir school. For those objects they made no public appeal. The baldachino over the high altar would be erected this year, and the other works as rapidly as the architects could complete designs. There must soon be a permanent installation of the electric light, the organ must be completed, and the approaches to the cathedral called for a considerable outlay. He earnestly appealed to Roman Catholics to liquidate the debt and provide for the furnishing and decoration of the cathedral.

THE NATIONAL GALLERY.

THE following additions have recently been made to the National Collection, and are hung in the Gallery at Trafalgar Square:—A portrait of Dr. Péral, by Francesco Goya, presented by Sir George Donaldson. It is hung in Room XIV. A portrait picture of Mr. and Mrs. Edwards, by Henri Fantin Latour, presented by Mrs. Edwin Edwards. Placed temporarily on a screen in Room XVI.

The following are placed in the Gallery of British Art, at Millbank:—A portrait bust in bronze of the late G. F. Watts, R.A., O.M., by Alfred Gilbert, R.A., presented by Mrs. Watts. This is placed with the Watts collection of pictures in Room VII. A small sketch in burnt clay of *A Nymph Reclining*, by Sir Francis Chantrey, R.A., presented by Miss Tye. Placed in Room VIII. A picture entitled *Outward Bound*, by Sir Edward J. Poynter, P.R.A., bequeathed by Mr. Henry Evans, of Derby. Hung in Room III.

* L.R. 1904, 2 K.B. at p. 505.

† L.R. 1904, 2 Ch. 449.

NOTES AND COMMENTS.

THE annual convention of the American Institute of Architects will be held on Wednesday, Thursday and Friday in Washington. The convention will open with an address of welcome by one of the commissioners of the district of Columbia. This will be followed by another from Mr. W. S. EAMES, president of the Institute. Reports from the standing and special committees will be read. The report on municipal improvement, prepared by Mr. FRANK MILES DAY, will be illustrated by lantern slides, showing the progress made in systematic municipal work throughout the country. It is proposed to give a brief outline of the work, illustrated by lantern slides, of the candidates who will be proposed for honorary and corresponding members of the Institute at the convention. Several amendments to the constitution, notices of which have been sent to all members of the Institute, will be acted upon at this meeting. A series of papers will be read during the convention on phases of architectural practice. "The Relation of the Architect with the Government" will be given in the report of Mr. GEO. B. POST, chairman of the committee on Government architecture. "The Selection of an Architect for Government Work without Competition" will be discussed by Mr. C. F. McKIM, Mr. THOMAS HASTINGS and Mr. J. C. HORNBLOWER; "The Selection of an Architect for Government Work by Competition," by Mr. JAMES P. JAMESON and Mr. IRVING K. POND; "Relations of Architects with Municipal School Work," by Messrs. R. CLIPSTON STURGIS, WM. B. ITTNER and WM. B. MUNDIE; "Financing Building Operations," by Mr. W. H. RUSSELL. Papers on "Office Organisation" are also expected. "Relations of Specialists to Architects" will be discussed by Mr. C. T. PURDY and Mr. EDGAR V. SEELER. There may also be read one or two papers relating to the lessons taught by the Baltimore fire.

THE compilers of the "Year-Book of New South Wales" do not hold out encouraging prospects for emigrants who are architects. In the colony, as in England and other places, there must be a peculiar fascination in architecture, for we are told "the number of architects in New South Wales is out of all proportion to the demand for their services, despite the steadily increasing activity in the building trades." Architects in practice have pupils, and other aspirants are receiving instruction in the Sydney Technical College and in private classes. The following advice is given:—"Professional architects intending to settle in the colony would find the ground almost wholly covered. Even in interior decorative work there is no lack of designers or artists, but the expenditure in this direction in Australian buildings is comparatively limited. Stained glass is mostly imported, but some is manufactured locally, although not to an extent sufficient to encourage the immigration of designers or skilled workers." Painters are likewise superfluous. Even among the teachers few attain more than a modest competence. There exists a subsidised society in Sydney, but although in the exhibitions there are many works, few are sold, and in consequence there is a tendency on the part of the more competent members to quit the Colony and seek their fortunes in Europe or America. There are also few openings for a black-and-white artist. Judging by the "Year-Book" the arts and sciences and literature are at a discount in New South Wales.

AN important arbitration case has been determined in Manchester, and the result cannot be satisfactory to either of the parties. The Municipal School of Technology is a large and important building, and the contract was confided in 1895 to Messrs. ROBERT NEILL & SONS, whose reputation is not confined to the city. A claim was made, arising out of extra work and delays caused by the Corporation and other contractors, which amounted to 38,483*l.* The question of prices was

referred to Mr. M. H. YOUNG, quantity surveyor, of London, and the whole claim was considered by Sir WILLIAM EMERSON. According to the award of the latter, the Corporation are to pay Messrs. ROBERT NEILL & SONS 19,920*l.*, together with their own costs and the taxed costs of Messrs. NEILL. The arbitrator's fees, including those of Mr. YOUNG, which are put down at 988*l.*, will have to be paid by the Corporation. Application will have to be made to the Local Government Board for authority to borrow 20,000*l.* to pay the sums awarded. The chairman of the education committee expressed regret that the subject should be the first that came before them in the New Year, and said he was surprised and disappointed with the result. But the surprise, we think, is likely to be shared by the contractors, who must have expected larger damages.

IN the latest number of *L'Art* there is a reproduction of a drawing by DAUBIGNY, the French landscapist, of the Houses of Parliament at Westminster. It was made during his visit to London in 1866. At that time the works were in progress for the Thames Embankment, and he was evidently struck by the contrast between the ground and the building. He selected a point of view from which he could see the Clock Tower, the great ventilator and the Victoria Tower, as well as the smaller towers fronting the Thames, and in the distance the four towers of St. John's Church, which must have puzzled him. It was a curious subject for an artist like DAUBIGNY to select. The article is by M. EMILE MICHEL, of the Institut. Among other articles we may point out one on the French opera by M. ADOLPHE JULLIEN; the Paradise of Ostend, by M. JEAN ROBIE; and a tribute to the oldest of French writers, M. PHILIBERT AUDEBRADÉ, by M. PAUL LEROI. We have referred to several of the large plates which were given during past years to the subscribers. Five of those for 1904 have just been issued. They comprise *A Lawn-Tennis Party*, after Mr. JOHN LAVERY; *Envoi de Fleurs*, after M. DE TOULMOUCHE; *Le Labourage Nivernais*, after ROSA BONHEUR; *Une Recluse dans la Vallée d'Optevoz*, after DAUBIGNY; and *Primavera*, after M. JULIUS ROLSHOVEN. When we remember that these large etchings, each of which would cost a good sum if sold by a printseller, with all the numbers of *L'Art* for a twelvemonth, can be obtained for a couple of guineas the liberality of the conductor appears incredible, and, *L'Art* might be taken for a philanthropic institution for the gratuitous dissemination of works of art of high class.

OVER sixty paintings and drawings by the late FREDERICK SANDYS are to be seen in the Royal Academy. Among them are the *Medea*, which in 1868 was rejected at the Academy, and the *Helen of Troy*, *Vivien*, *Morgan-le-Fay*, *Cleopatra*, *Penelope*, *Persephone*, and other works which, to some extent, have an historic sense, for they were admired by ROSSETTI, and were often referred to in his letters and in various other works relating to art. SANDYS can be claimed as belonging to the Norwich school, and if not one of the early pre-Raphaelites, he may be considered as one of the later members of the brotherhood. The famous parody of the *Sir Isumbras at the Ford*, by MILLAIS, was by him. He was a marvellous draughtsman, and classical and northern legends afforded him subjects which none of his contemporaries surpassed. But the studies he drew for his illustrations in magazines reveal that, in spite of his power, he made the most elaborate preparations. In one case we can see no less than six studies for a small wood engraving. It must be difficult to decide whether he worked best in oils, chalk, or in pen and ink. The *Judith and Holofernes* is a marvellous pen drawing; *Lady Greensleeves* in chalks is incomparable; while the *Mrs. Stephen Lewis*, an old lady in a black dress with a white laced cap, would assert itself in any collection of portraits. Certainly the SANDYS collection of drawings and paintings by themselves well repay a visit to the Academy.

ILLUSTRATIONS.

FRIEZE FOR NEW GAIETY RESTAURANT AND MESSRS. SHORT'S PREMISES, LONDON.

THE frieze consists of twenty-five panels with windows alternating. It comprises over forty figures 7 feet high each. They illustrate various subjects. On the Strand front is a series of panels representing Britannia and her Colonies, and another representing the Spirit of Progress with the Sciences and Industries on either side of her. The Aldwych front has a series of panels in which figures of SHAKESPEARE'S Comedy and Tragedy heroines are represented; these are terminated at either end by figures of Comedy and Tragedy on the Garden Thoroughfare front. The Strand end, Messrs. SHORT'S premises, has figures representing the Arts of Architecture, Sculpture and



Painting, and on either side are figures personifying Poetry, Literature and Music, instrumental and vocal. The Aldwych end of the Garden Thoroughfare has figures representing War, Justice, Charity and Peace, in the order named. The whole frieze is in Portland stone. The figure surmounting the dome of the theatre is a winged representation of Fame holding a laurel wreath and blowing a trumpet. The total height from base to tip of wings is 15 feet, the figure being 10 feet high. It is in teak wood, painted, and may possibly be gilded. Mr. HIBBERT BINNEY, St. John's Wood studios, is the sculptor, Messrs. ERNEST RÜNTZ & FORD being the architects.

NEW ROYAL COLLEGE OF SCIENCE, SOUTH KENSINGTON.

VIEW IN PALERMO.

THE excellent illustrations for which *The Architect* was indebted to Mr. AXEL HAIG have been unobtainable for a long time. We therefore intend to reproduce some examples of plates which, although

necessarily less elaborate than Mr. HAIG'S large etchings, are perhaps better adapted as examples for the architectural draughtsman. In his description of the plate now published Mr. HAIG wrote:—

Those who are in the habit of dispensing with the services of cicerones may stroll about and get lost in the out-of-the-way places in such a curious town as Palermo, and come upon sights, in their perhaps perverted ideas, fully as interesting or characteristic as any of the "Lions"; and it was in one such pilgrimage that this view was encountered and noted down. Here you have a glimpse of the old Duomo, and most prominent in the view the great belfry crowning a part of the Archbishop's palace. A suggestion is given of the western façade with its flanking towers, and a very small portion of the north side, altogether too slight to show the curiously mixed, but not unpleasing, *tout ensemble* of a building which exhibits externally a strange combination of Saracenic, Norman, Gothic and modern work. Two towers similar to those of the west end flank the east end of the Duomo, which terminates in a semi-circular apse. . . . Two lofty arches, seen in the sketch, span the street separating the Duomo from the Archbishop's palace, and correspond nearly with the width of the belfry tower, which forms part of the palace. A massive building, stretching north and south, forms the base of the tower, which rises from the northern end. The corners of the building terminate in angle turrets. The pinnacles of the tower above are, similarly to those of the four towers of the Duomo, very curious and unlike Gothic work. A tower has stood here from very early times, for it is recorded that when in 1169 the Palermitan insurgents pursued the Chancellor Stephen he took refuge in this tower, or its immediate predecessor.

CATHEDRAL SERIES.—ST. ASAPH: GENERAL EXTERIOR, FROM SOUTH-WEST CORNER, LOOKING NORTH-EAST.

ST. MARY'S, NOTTINGHAM.

ON Christmas Day the bronze doors by Mr. H. Wilson, which are the gift of Mr. Sydney Morse, as a memorial of his father, the late Canon Morse, who was vicar of the parish from 1864 until 1886, were formally opened in St. Mary's, Nottingham. The doors are in the south porch, which has already been restored in Canon Morse's memory. According to a description which has been prepared by the architect, the general intention has been to illustrate the life of Our Lord in its relation to the Virgin Mary (to whom the church is dedicated). "In the tympanum, enclosed within a vesica, the Holy Mother supports and cherishes the body of Christ, while in the spandrels, on either side, the gates of death and life are suggested; the Dove, typifying the Spirit, enters weary into the one and issues strong-winged from the other, thus symbolising the unending round of life and death." Each door consists of five panels, in relief, illustrating the life of Christ. On the left door the subjects are:—The Annunciation, the Visitation, the Nativity, the Epiphany, the Crucifixion. In this last the Cross is a branching vine, and at its foot "stand our first parents, conscious of the Fall, while the doves of peace and pardon hover overhead." The subjects of the panels on the right door are:—The Flight into Egypt, the Baptism in the Jordan, the Entry into Jerusalem, the three Marias at the Sepulchre, the Resurrection. In this panel the Saviour is shown emerging from the tomb, and, while still bound with the grave-clothes, the Spirit of Life in the form of a dove flies to His breast, and overhead the birds sing at the coming of the new dawn. The inscription, which divides the tympanum from the doors themselves, is, "In Loving Memory of Francis Morse, 1818-1886, Father, Pastor, Friend."

Jules Raeymaekers, a Belgian painter, who recently died in the village of Houffalize, in the north-east of the province of Luxembourg, has bequeathed his house in that place to the Government, together with an endowment, to be used as a residence for landscape painters who desire to study the scenery of the Ardennes. The residents will be chosen by the Belgian Royal Academy, and no painter will be allowed to live in the house for more than two years.

COTHELSTONE.

By the HON. J. DUTTON.

TOWARDS Bridgwater, at the foot of the Quantock Hills, are the interesting remains of the ancient manor-house of Cothelstone, formerly the seat of the STAWELS, but now turned into a farmhouse. The STAWELS had been settled in Somersetshire since the time of the Conquest: the first was ADAM DE STAWEL, who took his name from Stawell, in the parish of Moorlinch.

Sir JOHN STAWEL, the owner of Cothelstone at the time of the Great Rebellion, was a zealous adherent of his sovereign, and he paid for his loyalty by seeing his noble mansion despoiled and devastated, his woods felled and many of his estates sold. Lord CLARENDON wrote of him as "a gentleman of the largest estate that any man possessed in the West, who, from his very great affection for the person of the king and for the Government that was settled both in Church and State, engaged with singular courage both his own person and two sons in the most active part of the war, and had rendered himself as odious to Parliament as any man in that condition had done."

He lived to see the Restoration, and was one of the hundred knights who welcomed CHARLES II. at Charing Cross. There is a very fine monument with recumbent figures of him and his wife in Cothelstone Church, on which there is an epitaph recording his loyalty and sufferings for the king. His eldest son RALPH was created Lord STAWEL in 1683. The male line became

extinct in 1755 on the death of EDWARD, fourth Baron STAWEL, but his daughter MARY, who married the Right Hon. HENRY BILSON-LEGGE, was made Baroness STAWEL in her own right, and was succeeded by her son. He, however, died leaving only a daughter, and the title became again extinct. The representative of the family in the female line is the present Lord SHERBORNE.

One of the wings of the house was rebuilt and other parts restored in 1873, the original features of this singular Jacobean house being carefully preserved. The mullions of banister design dividing the windows and the twisted pillars of the entrance are very curious, and probably unique. The great stone arch of the gateway originally occupied a position on the road nearer to the house than where it now stands, and the inner gatehouse is an excellent and almost untouched example of Jacobean work.

Tradition says that Judge JEFFREYS hanged two men, Colonel BOVET and Mr. BLACKMORE, on the stone arch in front of Cothelstone House to avenge himself on Sir JOHN STAWEL, because, notwithstanding his being on the side of the king, he was so disgusted at Judge JEFFREYS's brutality in the Bloody Assizes that, though he was high sheriff, he would not go to meet him when he came to Taunton, nor would he speak to him, but turned his back on him when he saw him.

In Cothelstone Church there are two very fine monuments with recumbent figures of two of the STAWEL family and their wives, one of the time of EDWARD II. and the other the Sir JOHN STAWEL of whom mention has already been made.



COTHELSTONE MANOR-HOUSE.



OUTER GATEWAY, COTHELSTONE.



INNER GATEHOUSE, COTHELSTONE.

THE NATIONAL MEMORIAL TO QUEEN VICTORIA.

THE central hall of the Royal Academy is now occupied by a model of the design for the national memorial which is to be erected in front of Buckingham Palace. It will be executed in marble and bronze. The following description is given of it:—

The model is 8 feet high, and being on a one-tenth scale, represents a total height, from the base to the top, of 80 feet. The statue of the Queen, which, as she sits enthroned, is 13 feet high, is draped in robes of state. On her right is a group representing Justice, on her left Truth, and at her back Motherhood. Above the cornice of the upper pedestal are eagles with outstretched wings, emblematic of Dominion; and on either side are figures, on the right of Courage and on the left of Constancy, qualities which, with the others, bring about the triumph of Victory, surmounting the whole. Round the base are fully-treated ships' prows, two bearing trophies suggestive of the Army and Navy, and two fruits and flowers, suggestive of Commerce and Prosperity. On each side of the platform is a great fountain discharging down steps into a basin 160 feet long by 28 feet across. The fountain on the right typifies Power, with figures representing the Army and Navy; below them is a sea nymph. Corresponding with this *motif* of Power, there is on the other side Intelligence, with figures representing Science and Art; below them reclines a triton. On the retaining wall, which is 8 feet 6 inches high, are reliefs symbolical of the British people as Children of the Sea. Flanking the steps leading up to the central feature are lions with figures representing respectively Peace, Progress, Manufacture and Agriculture.

It is not clear from the model how the memorial will stand as regards the point of view of an ordinary spectator. There is no doubt the curved lines are pleasing. But in such a dreary place as that which will be the site of the memorial so large a basin and such an expanse of marble platforms will not be a cheering spectacle on a winter's day. The old rule in this country was to allow people to approach close to royal memorials. In the Albert Memorial, although it is of unusual size, there is a slight departure from what was usual. Abroad the same principle was adopted. There might be a wide space separating the allegorical figures at Versailles from the visitors, but the statues of Louis XIV. were not inaccessible to the crowd. In Berlin every inch of the famous memorial of FREDERICK THE GREAT can be closely studied. The recently erected memorials of the Kaiser WILLIAM reveal a new intention, and by the size of the work a spectator is made to feel his own insignificance. Before the memorial of Queen VICTORIA we expect the prevalent impression will be one of aloofness, for royalty will be unapproachable. The two great fountains will be barriers. In such works we suppose there must be allegorical figures and there is a large stock from which a sculptor can select. But in such a case it would seem to be necessary to suggest the sources from which the funds were derived for the creation of the memorial. If India and the Colonies contribute, why should they not have their representative figures? Then, again, is there not a little overdoing of Courage and Power? We can understand the fitness of the enraged lions which flank the Emperor WILLIAM's memorial in Berlin. Indeed, the number of wild animals and wilder women which are found there are almost enough to deter a peaceable man from studying the work. If a child from a Sunday school were to ask a teacher, after looking on Mr. Brock's figures, why are lions made the representatives of Peace, Progress, Manufacture and Agriculture, it would be found difficult to give an explanation. To ordinary folks they would appear to be embarrassments rather than auxiliaries. Besides, would not fewer figures, or those of a different class, become more suggestive of the relations between the late QUEEN and her subjects during sixty years?

THE MEMORIAL OF THE ETRICK SHEPHERD.

WHEN Walter Scott was appointed Sheriff—a position corresponding with an English judge of a County Court, it was necessary that he should frequently visit Ettrick Forest, which was part of his district. There he became acquainted with James Hogg, whose enthusiasm, says Lockhart, "about the minstrelsy of the Forest was equal to his own, and whose mother, then an aged woman, though she lived many years afterwards, was celebrated for having by heart several ballads in a more perfect form than any other inhabitant of the Vale of Ettrick." Hogg was enabled to furnish Scott with a number of copies of old ballads which subsequently appeared in the "Border Minstrelsy." About the same time Hogg published some of his original poems, and with the profits, together with the money received for a couple of prize essays, he was enabled to take a farm which turned out a failure. He was afterwards able to obtain one from the Duke of Buccleuch. But his mind was divided between pastoral



MEMORIAL OF JAMES HOGG, THE POET.
(A. G. Heiton, Architect.)

and literary pursuits, and for the greater part of his life he was in financial difficulties. That he was a true poet could not be questioned, but he was of a different school to Burns. It was truly said by John Wilson that Burns with a pen and Burns with a flail were identical; for as the thresher is never concealed, Burns was always revealing himself in his songs. Hogg, on the contrary, sought to be representative of other men. It seemed, too, as if fairy-land had been revealed to him when he was watching sheep as a boy, for his "Kilmeny" is unique. During his lifetime he was so general a favourite, and was so complacent and good-humoured that many people took advantage of him, and he was made to exhibit himself as if he were made up of foibles for the general amusement. He was utilised for the "Noctes Ambrosianæ," and was expected to be always setting tables in a roar. But there is no doubt he was capable of writing exquisite poetry, and under happier circumstances his reputation would be more extended. His countrymen have not forgotten his genius, and the site of the cottage in which he was born in 1772 has been marked by the memorial which we illustrate. It was designed by Mr. A. G. Heiton, architect, of Perth.

ST. MARY'S CATHEDRAL, EDINBURGH.

IN last September the congregation of St. Mary's Cathedral, Edinburgh, was able to celebrate the twenty-fifth anniversary of the dedication of the building. The opening of a new cathedral must necessarily be a rare event in this country, and there was a time in Scotland when it would appear to be an impossibility. It is owing to the generosity of two ladies, the Misses Barbara and Mary Walker, that the building is an ornament to Edinburgh. Originally their intention was to erect a "chapel" at a cost of 30,000*l.* It was afterward arranged

to expend a sum of 45,000*l.*, which was increased to 65,000*l.*, on a cathedral.

As there was a difference in ritual between the Established Churches in Scotland and England, it was supposed that if the competition were restricted to Scotsmen the designs might not be so well adapted for Episcopalian purposes as those obtained from English architects. The trustees, therefore, settled that there should be three Scottish as well as three English competitors. The choice fell on Mr. Alexander Ross, of Inverness; Mr. Lessels, of Edinburgh; Messrs. Peddie & Kinnear, of Edinburgh; Sir



ST. MARY'S CATHEDRAL, EDINBURGH. (SIR GEORGE GILBERT SCOTT, R.A., *Architect.*)



DESIGN FOR ST. MARY'S CATHEDRAL, EDINBURGH. (By GEORGE EDMUND STREET, R.A.)



DESIGN FOR ST. MARY'S CATHEDRAL, EDINBURGH. (By WILLIAM BURGESS.)

G. G. Scott, R.A., Mr. G. E. Street, R.A., and Mr. William Burges. In the instructions they received it was stated that sittings were to be provided in the nave and choir for 1,500 persons. Provision was also to be made for a small congregation at daily services. There was to be a chapter-house capable of holding 150 persons.

Speaking of the designs as a whole, the late Mr. Ewan Christian, who was appointed judge, in his report to the trustees, said:—"The care and skill which have been bestowed on the preparation of the respective designs, and the beauty of many of the drawings, is very remarkable, and it can hardly be doubted but that by judicious selection from amongst them you can scarcely fail in securing a building not only well calculated for the purpose in view, but one that shall be a noble addition to the ornamental structures of your city."

There was nothing mentioned in the instructions about the style to be adopted. In 1872 Gothic was considered to be the only appropriate style for ecclesiastical buildings. The examples which survive in Scotland of the old Episcopalian churches were all in that style. It is believed in the North that local Gothic has sufficient peculiarities to be recognised as a distinct variety. French influence is supposed to have had something to do with imparting character to it. The competitors found some difficulty in dealing with the subject. Mr. Ross said of his design:—"A severe and comparatively early style of French Gothic was selected, so as to avoid excessive detail and carving, and as approaching more nearly the best period of Scottish Gothic, which in much of its massive and severe character is more nearly allied to the early French than any other, and many details may be found identical in both." Messrs. Peddie & Kinnear stated:—"Scottish Gothic is quite distinct from English Gothic. There are noble examples of it in the cathedrals of Elgin and Dunblane, the abbey of Sweetheart, &c., buildings which owe their effect to the grandeur of their general design and the simplicity of their details, rather than to elaborate ornamentation and minute carving. It has been sought to make the cathedral, which, from its position and size, will be the cathedral of Scotland, thoroughly Scottish in character." Sir Gilbert Scott said:—"In selecting the variety of architecture on which to found my design I have met with some little difficulty. I desired that it should not, at the least, be discordant with the finest of the Scottish examples; but here we have an *embarras de richesses*, for we find in Scotland noble examples of nearly every period. Putting aside the Norman, we have glorious examples of the Transitional style, as at Kelso, Jedburgh, St. Andrews, parts of Holyrood, &c. We have the developed Early Pointed, as in the greater part of Holyrood, the whole of Glasgow, Elgin and many other grand examples; the earlier Decorated, as at Dunblane, Sweetheart Abbey, &c., and the later styles in very many others. I have myself, however, been most impressed by the earlier phase of the Early Pointed, a style which especially unites the architecture of Scotland with that of the North of England, and is one capable, as I think, of the greatest possible degree of dignity, united with a reasonable amount of simplicity and any amount of beauty." Mr. Street said:—"In choosing to limit my studies for this work to the Scotch churches of the thirteenth century, I am running no risk, for I believe that it would be difficult to find buildings more pure in detail, more graceful in design, or more suited to our wants in their comparatively modest scale in any part of Europe. The country which can boast of such examples as Glasgow, St. Andrews, Dunblane and Elgin cathedrals, or the abbeys of Pluscardine, Sweetheart and Dundrennan, Melrose, Kelso, Jedburgh, Dryburgh and Holyrood, has no need that her architects should leave their own country in search of what is most appropriate and most beautiful. All these buildings, with one exception, are of very nearly the same date—the first half of the thirteenth century, and it is in the style of this period accordingly I have made my design." Neither Mr. Lessels nor Mr. Burges described the process they adopted in the selection of a style.

Mr. Christian concluded that in arrangement of the ground plan Mr. Street's came first, and he added, "I do not think it would be possible to design a better or more suitable arrangement for the purpose in view." In respect of construction, the first place was assigned to the design by Mr. Ross, partly because vaulting was not employed in the loftier and larger portions of the church. For architectural character the designs by Mr. Ross and Mr. Burges were said to be "so beautiful in general design that it would be hard to balance their respective merits." On the whole, partly for constructive reasons and for general

solidity, Mr. Christian preferred the design of Mr. Ross. He said there was perhaps more general richness and picturesqueness of effect in Mr. Burges's design; the eastern and western fronts were richer and more beautiful, while the western front was a most finished and beautiful composition. Mr. Street's design was described as "one of great excellence in respect of detail, and although perhaps more severe in its general character than either of those first mentioned, yet it is wrought out in a bold and vigorous style, combined with much elegance, and would undoubtedly if executed produce externally a dignified and noble result, whilst the interior would be remarkably light and elegant." As regards Sir Gilbert Scott's design, it was said:—"The design is throughout bold and simple in its character externally, but internally decoration is more freely introduced. The most striking feature is undoubtedly the central tower, the massiveness and noble proportions of which would be of the greatest possible value on a site like that on which it is proposed to build in giving a general dignity of effect to the whole structure. The tower for this purpose is designed with very considerable power. Other portions of the exterior, and notably the western front, are much less happy and forcible; but the eastern end of the choir is a fine and dignified composition." Mr. Christian informed the trustees that their selection would have to be limited to one of the four designs he described. The advice was fatal to the designs by Messrs. Peddie & Kinnear and Mr. Lessels.

After Mr. Christian's report there was much surprise when it was announced that Sir Gilbert Scott obtained the commission. Mr. Street, in a letter to *The Architect*, wrote to say that he had taken part in very few competitions, and always acquiesced patiently in the finality of a decision when given by a fair tribunal, but he would not be tempted again. His reason was:—"If in the case of so important a building, where so much caution was shown in drawing up the conditions, and where so eminent a professional referee was called in, both the conditions and the referee's report are treated as so much waste-paper, it is to be feared that no precautions which architects can devise will give any reasonable certainty of a fair result." Mr. Christian also wrote to us saying that he could not agree with Mr. Street that the trustees were bound in such a case to exercise no power of selection, for "no body of deliberating men, and especially Scotchmen, could be expected to relinquish such a right, and no consulting architect in the presence of so many excellent designs could, in my judgment, ask them to do it." We also received a letter from one of the trustees, in which it was remarked that although they had the greatest confidence in Mr. Christian's judgment, there was an unanimous vote in favour of the acceptance of Sir Gilbert Scott's design. Some were at first in favour of the design by Mr. Ross, but "none considered that Mr. Street's design, with all its great merits and its exceeding beauty, would be suitable to the site without considerable modification, which would have been equivalent to a new design."

Afterwards it was stated that Mr. Ross had obtained the assistance of Mr. George Freeth Roper. Mr. Ross promptly denied this, and declared that "the designs were prepared by myself and worked out in detail in my own office here, under my own direction and superintendence by regularly paid draughtsmen, who, except one (Mr. Roper) were young men trained in my own office." The view taken in our columns of the unpleasant subject by Mr. Edmund Sharpe, who, it may be mentioned, preferred Mr. Street's design, was that "it is not possible in this or in any other age for an architect in large practice either to execute himself a fifth part of the drawings that pass out of his office, or to do more, often, than to pass most of them in hasty review." But he hoped the incident would have a beneficial effect in checking the tendency to employ hired assistants in the preparation of competition designs—of draughtsmen who had been brought up at the feet of teachers of a different class, and whose ideas might be foreign to those of their temporary employer.

There can be no question that the competition brought forth three excellent designs, which we republish in connection with the recent celebration, and especially on account of their intrinsic interest as examples of the work of three renowned English architects.

The Manchester City Art Gallery committee have resolved that it is desirable that an exhibition of the works of the late G. F. Watts, R.A., should be held in the City Galleries in the approaching spring.

FRENCH SCHOOLS OF ART.

A DEPUTATION consisting of the chairman, Mr. James Fleming, with two others of the Governors, Mr. W. Forrest Salmon, F.R.I.B.A., and Mr. John J. Burnet, A.R.S.A., F.R.I.B.A., and the headmaster, Mr. Fra. H. Newbery, were appointed, at a meeting of the Governors of the Glasgow School of Art, to visit and report upon the working of some of the more important of the national and municipal schools of art in France. They were further charged with the mission of obtaining, if possible, the services of a professor for the department of design and decorative art in the school. In this latter commission they were successful. The Chairman and the Governors, whose names are given above, travelled at their own expense; the headmaster alone received a grant from the school funds to cover his outlay.

The schools visited were the Ecole Nationale de Beaux-Arts in Lyons; the Ecole Nationale et Spéciale of Paris; l'Ecole des Arts Décoratifs in Paris; l'Ecole Nationale des Arts Industriels at Roubaix, and l'Ecole Municipale des Beaux-Arts at Lille. It was not found possible, as at first intended, to visit the School of Art at Toulouse. The proposed visit of the deputation had been notified by the Minister of Public Instruction in France to the directors of the schools in Lyons, Paris and Roubaix, and the Prefect of the Nord was instructed to notify the Mayor of Lille. These most useful introductions were obtained through the French ambassador in London, M. Cambon, by the kind action of the Scotch Education Department. The following remarks relate to the Paris schools:—

In Paris the deputation visited (1) the Ecole Nationale et Spéciale des Beaux-Arts; (2) the Ecole Nationale des Arts Décoratifs; (3) the Palais du Trocadéro, to purchase casts for the school.

(1) The Ecole des Beaux-Arts, Rue Bonaparte. This institution is practically the university of art, not only for France (although the educational facilities there afforded are primarily for Frenchmen), but of the whole world. All nationalities are represented on the roll of students. French students, sent as they are as bursars by practically every city and town in France, form by far the majority, and among other countries contributing students perhaps America sends the most. Male and female students are alike eligible for admission. Instruction throughout is free, and there is no registration fee. No students above twenty-five years of age are admitted. Entrance examinations are held twice yearly, and these are very exacting. From painter, sculptor, architect and engraver candidates alike, admission work is demanded. Should this gain acceptance, other proofs follow to be executed before the candidate is permitted to be enrolled. Thus painting students submit a drawing from the life and a drawing from the antique. These being accepted, the candidate has further to execute and submit:—(1) An anatomical drawing (two hours allowed); (2) a perspective drawing of an object in relief showing principal perspective lines (four hours); (3) an antique fragment, modelled (nine hours); (4) a study in elementary architecture (six hours); (5) an examination in general history (written or oral at choice of candidate).

Sculpture and engraver candidates have to pass a similar test, differing only from the above in that preliminary modelling works are submitted, and drawing from the antique takes the place of (3) above.

Architect candidates have to submit to, instead of submitting, a test of their powers of design, and have further to execute a work in drawing from the antique and ornament; modelling; calculations and logarithms; arithmetic; algebra and elementary geometry; descriptive geometry applied to architecture; descriptive geometry; oral proofs of history knowledge and a written composition.

The Ecole des Beaux-Arts is directly controlled from the Ministry of Public Instruction of the Fine Arts. The teaching administration is vested in a director and the body of professors known as the Superior Council. The official business is conducted by a secretary and staff. The subjects taught are drawing, painting, sculpture, architecture and engraving. The subject of engraving in copper is attached to the painting section, and to sculpture belongs that of engraving on medals and precious stones. There is no section for decorative art, as commonly understood, nor does design for the manufactures form part of the curriculum.

M. Henri Mayeux, architect, gives an annual course of lectures on the decorative arts to students of the Ecole Nationale et Spéciale des Beaux-Arts.

There are three ateliers for painting, three for modelling and three for architecture. Each atelier receives visits from a professor three times weekly between the hours of eight and twelve. Lectures are given at hours in the day other than these. A week of twenty-four hours is the time generally allowed for each study in painting and modelling. The sizes of works are rigidly fixed, and these are, as a rule, small. Larger studies are allowed for the annual competitions.

The teaching comprises courses of study, exercises set by the professors, examinations and competitions. There are eighteen distinct courses of study, and the programme for these courses is determined by the Superior Council of the school and approved of by the Minister. The whole system of teaching and study is based upon examinations for awards, competitions for prizes, and the submission of specified work for prizes and bursaries. All judgments are made by juries special to each section of school work. These juries are chosen by the professors among themselves. The Director is president of all juries and an official inspector acts as secretary. Marks are awarded upon the basis of a fixed official value. There is an annual exhibition following upon the completion of the work of the juries. Students are encouraged to take all branches of art study. Certificates of study are issued to painters and sculptors.

The architectural school is divided into first and second courses. A diploma of architecture is granted to students who successfully complete the work of these two courses.

Besides the Grand Prix de Rome, belonging to the Institut de France and entitling the winner to a four years' residence at the Villa Medici or French State art school in Rome, the school is very rich in gifts and legacies. These are granted generally for special studies in the three arts respectively, as also for anatomy, history, perspective, and in each case are distinguished by the name of the donor.

The Foundation Chenavard is specially for poor students, and is divided among painters, sculptors, architects and graveurs. The number of foundationers, as also the value of each respective bursary, is determined by the School Council. The Société Centrale des Architectes Français appears as a donor, and a prize is given by American architects educated in the school. These gifts and legacies are outside the prizes and medals offered by the school itself.

In connection with the school there are:—(1) A museum of casts (all styles and periods); (2) a museum of copies of pictures of the Old Masters; (3) works that have obtained the Prix de Rome; (4) a collection of works that have obtained medals; (5) material for study of anatomy, geometry, stereotomy, physics, chemistry and construction; (6) objects of art given or bequeathed to the school; (7) library.

The deputation visited an atelier for architecture, Professor Paulin; painting ateliers taught by Professor Gérôme (the late) and Professor Cormon, and ateliers for modelling presided over by Professor Barrias and Professor Chaplain. Order and discipline is maintained in the ateliers by a body of surveillants. A visit was also paid to the female painting and drawing studio. In each studio the macier or senior student in charge, and who is elected to the post by his fellows, courteously gave any information that was asked for as to the work and working of the studio, and the deputation had further the pleasure of a short interview with Professor Cormon.

The Ecole Nationale des Arts Décoratifs in the Rue de l'Ecole de Médecine is, as its sub-title implies, a school for the application of fine arts to industry. The institution is housed in a building formerly a school belonging to a religious order. Its classes are open day and evening. Students under thirteen are not admitted to the day classes, nor under fourteen to the evening courses.

Candidates for admission submit either a study of ornament in light and shade, a modelled study or an exercise in architecture, according as they wish to be enrolled in either one of the courses of drawing, modelling or architecture. Should any one of these proofs be considered worthy, the candidate is admitted at once to the superior division of the course. Any student admitted into one particular section can at the same time attend two other sections, as room permits. The hours are from 8.30 A.M. till 10.30 A.M., 1 till 4 P.M. or 1 till 5 P.M. according to the season, and from 7.30 till 9.30 P.M. Unjustifiable absences render the student liable to dismissal and the same punishment is made to students whose work is considered inefficient or insufficient. All instruction is free.

The subjects taken are drawing, modelling, geometry, plant study, architecture, mathematics, ornament and architectural composition, history of art, perspective and anatomy. There are special studios for ornament applied to industry (painted and modelled), as also a special atelier for architecture. In the absence of the director the deputation was shown over the building by the sub-director, and various studies in process of execution were shown. Gas and coke fire are used for lighting and warmth. The authorities are considering the removal of the school to other and more suitable premises. Notwithstanding the adverse circumstances under which the work is carried on, the school has turned out some very notable decorative artists. Its influence, however, is most felt in the general excellence of the workmen it supplies to the various artistic industries of Paris and of France.

At the Museum of Architectural Casts installed in the Palais du Trocadéro the Governors ordered a collection of casts for the use of the Glasgow school. These consisted of figures from the Porte Royale of the cathedral of Chartres; Corbeil, a complete doorway from Toulouse, Barye's Lion and Serpent and other smaller specimens.

In France education is free, but no student may enter a school of art until he has passed an entrance examination. This examination demands preparatory instruction, which is provided for in special preparatory schools. The entrance examination is such that candidates applying must exhibit both skill and earnest endeavour in order to obtain a pass. The ordinary French student is compelled to follow a definite and rigorous course of training, which insures a thoroughness that has not as yet been possible to reach in Scotland. One of the reasons for this is that art education is felt everywhere in France to be an absolute necessity. It is encouraged alike by the State, by the civic authorities and by the manufacturers.

The gratuitous instruction that everywhere prevails may partly account for the organisation and methods to be found in the French schools. The French people take art and art instruction much more seriously than is the case in Scotland.

In all the schools the discipline was maintained by a special class of men called "surveillants." The work begins at 8 A.M., and the classes are, with few exceptions, all held during the day. The artisan student receives his instruction in district evening classes, and the central school is reserved for students intending to devote their lives to the profession of art.

The deputation feel they have got much useful and practical good from their visit, and have gained an experience of work and methods which should be of great service to the Glasgow School of Art. It is hoped that by the aid of the continuation classes of the School Board and by the establishment at some early date of a preparatory school the thorough preparation of students for the Glasgow School of Art may be insured. The accommodation for work afforded by the Glasgow School of Art compares favourably in many respects with that existing in the French schools. The general excellence of the work of the Glasgow School of Art in drawing and painting will bear comparison with that produced by the continental schools, but in architecture, advanced design and figure composition there remains much to be accomplished in Glasgow.

THE ART INSTINCT.

A LECTURE by Mr. J. B. Yeats, R.H.A., was delivered in the Royal Hibernian Academy, Dublin, on "The Art Instinct."

The lecturer, in the course of his remarks, said that in Dublin the artist had to bear his cross meekly amidst much scornful criticism. He deplored the absence of a modern art gallery in Dublin, where there were schools of divinity, engineering, classics and science. There was, of course, a National Gallery, and all honour to it, but in it nothing modern could be seen. The modern painter was the magician who unlocked ancient art. One of the reasons why Dubliners did not care about pictures was that they themselves were naturally noisy, and as pictures were for silent people they in Dublin could not put their minds to this silent study. There was no peace like that of the gallery of the Old Masters. The silence of a Roman Catholic church was immensely enhanced by the silence of holy pictures. There was another reason why paintings got such scant favour in Dublin; pictures had been called the poor man's books, but as Dublin was a university city

they did not appreciate them. People talked so much about truth and made such a brag about it that they became dupes to their own words, but the sober fact was that no one sought truth. The man who saw facts as they were would be sad and disappointed. In this great business of artificial illusion people could delightfully deceive themselves. The art instinct was like a Divine voice, which summoned out of the void innumerable worlds. Portrait-painters were the true chroniclers of history, and when the historians of the future required to know their heroes it was to the portrait and not to the photograph they would go. The true connoisseur liked natural beauty and that which forced him to reflect. It was a common idea that the artist who painted what was beautiful was the only artist worthy of the name. Poets were allowed to please themselves with what was ugly—Shakespeare gave us "Falstaff" and Homer contributed his type—but artists must restrict themselves to beauty. To paint pretty faces had become a profitable industry with English artists. These artists had stamped their faces with insipidity, he supposed, lest they should alarm their patrons. Mr. George Moore had called Millet a sentimentalist, but he (the lecturer) thought Millet not to be a sentimentalist, but the chief of sympathetic painters. Artists regarded the sentimental painter as the black sheep of their flock, and it was not because he falsified facts, but because he painted without connection and against connection. In a painting all its merits lay in the way it was painted and not in the subject, yet the subject was of great importance, since everything depended on the degree to which the painter was moved to exert himself. Referring to Sargeant and Millet, Mr. Yeats said the former was the greater painter, but Millet was invariably the greater artist. The lecturer then drew attention to a picture, "The Beheading of St. John," and said the Protestant mind demanded literalness in its religion as in everything else—it must have the literalness of the counting-house, the ledger and the police-court. This was not so with the Catholic taste at all, as the Catholic religion was like the prayer of Dante, and that was the point of view he (Mr. Yeats) most liked. In conclusion the lecturer referred to France as being the motherland of all artists, no matter of what nationality. In her they had their own friends and relatives, but here in Ireland they were strangers, little better than foundlings.

BOYLE ABBEY.

IN their last annual report the Commissioners of Public Works in Ireland refer to the works of preservation and repair which have been carried out at Boyle Abbey, co. Roscommon. The Cistercian abbey of Boyle was founded in 1161, and was finally completed in 1218. It was an affiliation of Mellifont Abbey, founded in 1142. Maurice O'Duffy was the first abbot of Boyle; it was dedicated to the Blessed Virgin Mary for the monks of the Cistercian Order, first introduced to Ireland at Mellifont by Malachy, Bishop of Armagh. The abbey was endowed by the MacDermots, one of whom, Cornelius MacDermot, died there, and was buried in the abbey in 1197. He was king or chieftain of Moylurg, which territory is nearly coterminous with the present barony of Boyle. The structure passed through a series of vicissitudes and suffered greatly at various times. In 1235 the forces of the Lord Justice Maurice Fitzgerald encamped within its walls, and it was again pillaged in 1315. In 1569 it was granted to Patrick Cusack, of Gerardstown, co. Meath, and again in 1589 to William Usher. In 1595 it was besieged by the Earl of Tyrone, and in 1603 it was given to Sir John King, ancestor of the Earl of Kingston and Viscount Lorton, eventually coming into possession of the late Colonel King-Harman, by whose successor it was vested in the Board as a national monument. During the military occupation from 1599 to the end of the eighteenth century, when the monastery was known as Boyle Castle, the chapter-room walls on the east side were removed or had fallen, and a new range of buildings utilising the west wall of the chapter-room was erected in the cloister garth. The soldiers filled up the southern and eastern cloister walks with *débris* to about the level of the kitchen floor, and formed windows to suit their requirements. They also made a flagged passage, level with the kitchen floor, along the southern cloister walk. From this passage they entered the long range of new buildings on the eastern side of the quadrangle and the refectory on the southern side.

The ruins were repaired by the Board in 1894, but the

greater part of the ivy which covered the walls, including the tower and east gable, had not been removed. During the past year the ivy roots had grown to such dimensions as to become dangerous to the safety of the structure, and it was necessary to remove the ivy and repair the walls where the masonry had been dislocated by the large roots growing out of the walls. Shrubs and saplings were growing amongst the ivy in profusion. The tops of the walls throughout were cleaned down and concreted, the floors over the chapels and chancel repaired and made good, a concrete floor on the bell-loft at the west end was laid, the clerestory windows were made secure, and the defective joints in the masonry throughout stopped with concrete to prevent wet entering the walls. The loose masonry of the four buttresses at the northern wall of the nave was taken down and rebuilt with concrete, and they were carried up several feet higher in order to support the top of the nave wall, which was leaning over.

The removal of the ivy from the eastern gable of the church revealed the jambs and arches of the three early Pointed windows which lighted the chancel, and also disclosed the series of horizontal string-courses carried across the gable, which, though quite unmeaning in connection with the early Pointed windows, would be a fitting adjunct to windows of the roundheaded Romanesque type, such as are in the transept adjoining. These strings across the gable go to prove that the present east windows are not part of the original design, but are later insertions, and that the original windows were Romanesque of the twelfth century, such as are still to be seen in the Cistercian House of Abbey Knockmoy, co. Galway, and similar to those which formerly existed at Jerpoint Abbey, co. Kilkenny, before the fourteenth-century tracery window was inserted in the east gable of that church.

TESSERÆ.

"The Good Shepherd" Mosaic, Ravenna.

THE masterpiece among all the mosaics in the Orthodox Baptistery of Ravenna—if, indeed, it may not claim supremacy over all the works of the mosaic art since the time of Constantine that have come down to us—is the picture of the Good Shepherd, above the entrance at the end of the lower limb. In every sense it is a remarkable work. In drawing and in beauty of composition it rivals the best wall paintings found at Pompeii. It may, with a fair degree of probability, be considered the earliest pictorial representation of the Saviour. It marks distinctly the religious development or change which, at the time when the Pagan religion was still a living creed, unconsciously influenced the artist to merge and lose the milder glories of Apollo in his representation of the divinity of the Son of Man. The direction of the Christian sentiment of the time is also shown in the Saviour being depicted as He whom all could seek, instead of the inexorable Judge, represented in not much later works, who required to be entreated through others. It is one of the most noticeable characteristics of the many pictures of the Saviour at Ravenna that, almost without exception, He is represented in the flower of youth. It is easy to understand how the legend arose according to which a hermit was told in a dream that at Ravenna he could see depicted the veritable presence of the Son of God. At first sight this picture in the Mausoleum looks like a lovely rendering of the youthful Apollo or of Orpheus, but it is only necessary to dismiss all classic recollections to recognise nothing but the art production of a mind fully impressed with the inexhaustible love of the Good Shepherd for His sheep. Anything more purely classic in art, imbued with the deepest sentiment of the Christian religion, it would be difficult to imagine.

Gothic Architects and Irregular Sites.

Mediæval architects nearly always erected their buildings upon the ground just in the state in which they found it, and did not go to the trouble and often unnecessary expense of levelling it. One of the grandest examples of the way in which Mediæval architects treated a thoroughly unlevel site is the great abbey of Mont St. Michel in Normandy. Here all the buildings are made to fit into the irregularities of the great granite rock; each crag is made to form the foundation of some buttress or projecting turret, and each hollow forms a crypt. On the summit of the vast granite cone stands the magnificent apse of the abbey church surrounded by a forest of pinnacles; so grand and striking is the whole mass, and so inseparably united

are the buildings and the rock upon which they stand, that it is difficult to distinguish where the work of nature ends and that of man begins. Another grand example of the same kind of treatment is the cathedral and surrounding buildings at Limburg, on the Lahn. Here the size of the cathedral is very circumscribed, owing to the small space at the top of the rock upon which it stands, but in order to give dignity and grandeur to the whole group the beautiful church is crowned by seven spires, the one capping the central lantern rising far above all the others. At a distance both Mont St. Michel and Limburg bear a striking resemblance to some great dolomite rock. In each case the peculiarities of the site are strongly accentuated and exaggerated by the buildings erected upon them, and both look far steeper rocks when crowned by their beautiful churches than they would without them. In England the castle and cathedral of Durham are splendid examples, and must have been still more so when the western towers of that cathedral were crowned with spires. In treating one of these grand hill sites the Mediæval men carefully avoided anything that would have the effect of marking the junction of the hill or rock with the building placed upon it. They very rarely used terraces, and when they did use them they reproduced or continued the vertical lines of the building below the terrace, so that at a little distance the terrace looked like a part of the building.

Later Greek Vases.

On the Greek fictile vases belonging to the period of decline (ranging from about B.C. 330 to B.C. 100, or later) the figures are generally painted in red, or opaque white on a black ground, the details being picked out in crimson or yellow; gold is used occasionally in accessories. On some few vases we find figures and objects painted in their natural colours, and occasionally there is an attempt to represent those colours not absolutely as in the older polychrome art, but in their true gradations, as modified by light. This innovation, however, is hardly ever consistently maintained throughout a design; figures painted in the old conventional manner, without local colour or chiaroscuro, being strangely combined in the same composition with figures and objects rendered in their natural colours. Wreaths and other details are sometimes raised and gilt, and on a few vases some or all of the figures are in relief. The drawing in the earlier specimens of this style is very free and masterly, but with a tendency to mannerism and theatrical exaggeration. In the latter specimens the forms are effeminate or clumsy, the drawing coarse and careless. The compositions present a marked contrast to the severe simplicity which characterises the finest period of Greek ceramography; complicated and difficult foreshortenings are sometimes attempted; the face, which in the earlier style is almost always drawn in profile, is frequently given in front view, and an attempt is made to impart more expression to the features. The scene is no longer rigidly confined to one plane, as in the earlier period; there is often a rude attempt to indicate a landscape background, but without any application of aerial perspective. The compositions are often crowded, and sprawl over the surface of the vase, instead of being carefully adapted to its shape, as in the earlier style; and in many instances we meet with designs more suitable for mural or easel pictures than for the decoration of the convex or concave surfaces of vases. This change of style in ceramography was doubtless caused by the desire of the artist to reproduce on vases the refinement of colour and chiaroscuro which had been attained in the mural and easel pictures of Apollodorus and other great masters; but this attempt failed on account of the limited technical means which fictile art had at its disposal, and these ambitious innovations gradually led to its degradation and extinction. Very large vases were made in this period, especially in Southern Italy, and these do not seem to have been intended for domestic use, but rather for the decoration of the houses of the rich. But the finest of these ornamental vases cannot be compared for beauty of form and perfection of material and fabric with the fictile art of Nola and Vulci in its best period; the clay is thicker and heavier, and the black varnish which forms the ground less lustrous and less durable. A large proportion of the designs relates to Dionysiac subjects, to Aphrodite and Eros, or to sepulchral rites. It is probable that some of these subjects relate to the Dionysiac or Eleusinian mysteries; but as the names of the figures represented are seldom inscribed on vases of this period, it is often difficult to ascertain the import of these compositions.

The Reformation and English Architecture.

The Reformation brought about a disposition to break with precedent, to adopt change and to welcome novelty. In the preceding times men were content to follow in the footsteps of their immediate predecessors; they were accustomed to take their architecture, as they did their religion, on trust; gradual alterations of detail might be allowed in either, but in no case could any radical change be permitted. The effect of this spirit may be witnessed in almost any of our great historical churches, in which may be traced with precision the modification of mouldings, tracery and sculpture, that mark the successive phases of Mediæval art, so clearly as to enable us to fix without difficulty the dates of the erection of each portion of such buildings. The clergy, being the great church builders of the time, were the keepers and preservers of architectural traditions. A certain uniformity of plan and proportion was maintained, subject, of course, to limitations, due to local or peculiar circumstances in certain cases. The workmen knew only the forms of art which they saw around them, and were therefore ready to submit to the authority which claimed their obedience. Originality was not sought for its own sake, and the whole progress of architecture resembled the gradual growth of natural objects. The change which came with the Reformation broke with all this. It was not only a change in the forms or even in the essentials of religion. It was a great uprising of the human intellect, demanding reasons where formerly it was contented with commands. Can we wonder if a revolution such as this has left its mark on architecture? It led, naturally, first to an indifference towards the old forms of Mediæval art, and then to a hatred and contempt for all that seemed to speak of a yoke that had been once broken, never again to be imposed. Such feelings soon manifested their destructive tendencies, and the spirit of iconoclasm was let loose. Destruction and demolition followed in its wake. Fortunately for us in this country, the native moderation and prudence of the English people prevented the occurrence of extravagance on the scale witnessed elsewhere, and their conservative instincts were readily enlisted on the side of preservation after the first whirlwinds of enthusiasm had somewhat spent their fire.

GENERAL.

The King has graciously consented to lend the International Society of Sculptors, Painters and Gravers his collection of 150 etchings from the royal library at Windsor for the Whistler Memorial Exhibition.

The President of the French Republic has specially authorised the picture of "My Mother's Portrait," now in the Luxembourg Gallery, Paris, to be exhibited in the Whistler Memorial Exhibition, to be held in the New Gallery, Regent Street, London, from February 21 to March 31.

The Liverpool Corporation Library in William Brown Street is to be enlarged at a cost of about 90,000*l.* by the erection of a room for the accommodation of the Hornby bequest.

Mr. W. E. Willink, architect, Liverpool, having been appointed to act as assessor of plans to be received in competition for the Carnegie Free Library, Wrexham, has received the approval of the Council for his scheme for submission to the competing architects. The site selected will be 682 square yards, with a frontage of 67 feet, an average depth of about 80 feet, and affording library building area of 54 feet by 60 feet.

An Exhibition of Paintings in oils and water-colours of India by Mr. R. Gwelo Goodman will be opened on Saturday next at the Leicester Galleries, Leicester Square. This collection should be of considerable interest to the large number of Anglo-Indians resident in this country, as Mr. Goodman has spent many years in the East and has obtained a particular knowledge of the atmospheric effects of the Orient. Colonel Sir Francis Younghusband has consented to write an introduction to the catalogue of this exhibition.

The Chancel of Brighton parish church is to be rebuilt from the designs of Mr. J. T. Micklethwaite, at a cost of between 5,000*l.* and 6,000*l.*

Alterations are in progress at the Aberdeen Art Gallery. A sum of about 2,000*l.* has been subscribed by the citizens and friends for casts for the equipment of the gallery. The committee have accepted a bequest of six pictures bequeathed under the will of the late W. A. Sandby, of Windsor.

The Royal Scottish Academy of Painting, Sculpture and Architecture have fixed as their receiving day for works, Monday next. Works in sculpture will be received on January 20.

Mr. Justice Grantham has sent a donation of 100*l.* to the Southwark Diocese fund as an expression of his thankfulness for the support given him by all classes in his recent action with regard to cottage housing.

Lady Elcho has presented to All Saints Church, Evesham, what is believed to be the old processional cross of Evesham Abbey, which is of fourteenth-century workmanship.

The Belfast Harbour Board have appointed Mr. Redfern Kelly to be chief engineer to the Commissioners in place of the late Mr. Giles.

Count Walsingham's House at Reading is in course of demolition to make room for business premises. According to tradition, Queen Elizabeth stayed here as the guest of Count Walsingham. Some efforts were made by local antiquaries to save this Elizabethan building from destruction, but without success. It was almost the only relic of ancient Reading, besides the abbey ruins and the old churches.

The Church History Exhibition will be held at St. Albans from June 27 to July 8. Sub-committees have been formed to deal with church plate, church furniture, church paintings, vestments and brasses, manuscripts or printed matter and pictures illustrating the most striking epochs in Church history.

The Board of Directors of the American National Episcopal Cathedral at St. Albans, Washington, have selected the Gothic style for the new buildings that will soon be erected. The first of these will be the choir building, situated on a part of the cathedral close already selected. It will cost 100,000 dollars.

The Villa which Napoleon occupied at Porto Ferrajo, in the isle of Elba, from May 1814 until February 1815, is to be offered for sale.

The Autumn Exhibition in the Manchester Art Gallery was visited by 87,000 people. Thirteen works have been sold for 953*l.* 19*s.* Last year the sales amounted to 829*l.* 9*s.*

The Liverpool School of Architecture and Applied Art (connected with the University) reopened for the Lent term on Wednesday in both the day and evening classes. The studios have to be divided at present, the modelling classes being carried on at the University, while the drawing, painting, design, metal and woodcarving classes are held in specially fitted studios at 5 Myrtle Street. The metal classes include practical work in brass and copper, enamelling and wrought-iron. A special feature of these classes is the reduction in fees offered to artisans, thus enabling them to obtain advanced instruction in the various handicrafts allied to architecture, especially modelling, woodcarving and wrought-iron work.

The Society of Beaux-Arts Architects in New York announce that a free course of study has been established, open to draughtsmen and students of any city modelled on the general plan pursued at the Ecole des Beaux-Arts in Paris, and comprising frequent problems in orders, design, archæology, &c.

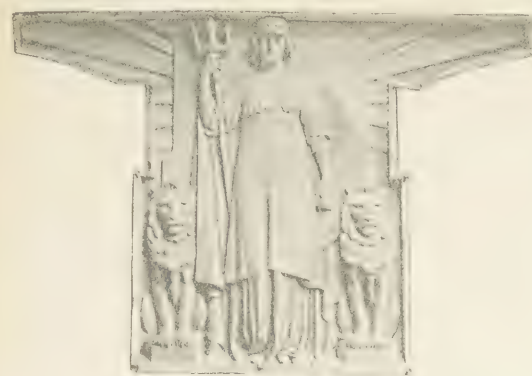
Mr. Brock's statue of the late Lord Russell of Killowen, Lord Chief Justice, which the Earl of Halsbury is to unveil on the opening day of the ensuing term, is now placed in position at the Royal Courts of Justice.

Ayr Auld Brig has been restored to the condition in which it stood prior to the slight damage sustained by the structure, and the washing out of part of its temporary wooden supports by the flood of last month, with the exception that the bed of the river has been scoured out to a considerably greater depth between the piers. Mr. D. Kirkland, the contractor, in whose hands the temporary supporting works still are, has restored the wooden supports washed out; and Mr. Young, the burgh surveyor, has restored with concrete the large slice torn out of the north side of the foundation of the north pier. In the meantime the Town Council have under consideration the question as to how the legacy of 10,000*l.* or 11,000*l.* left and now available for the "rebuilding" of the bridge is to be applied, the decision to be come to being whether the structure should be repaired if that is possible, whether it should be partly rebuilt, or whether it should be wholly rebuilt, using for reconstruction all the visible stones of the bridge.

Panels composing Frieze, New Gaiety Restaurant and Messrs. Short's Premises Strand Front.



Colonies of Canada, Australia, and South Africa.



Spirit of Progress.



Sciences: Astronomy, Electricity, Chemistry.



Industries: Engineering, Mining, Weaving.

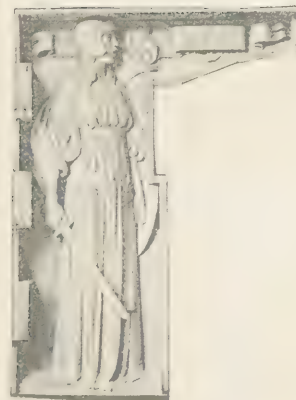


Spirit of Progress.

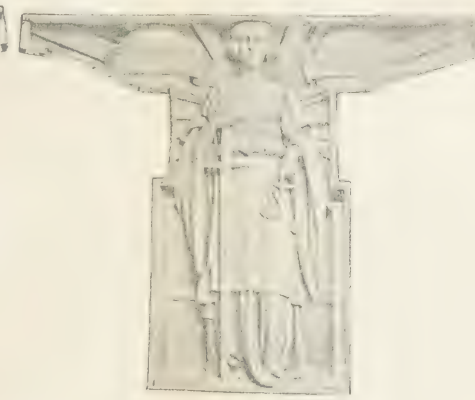


Sciences: Astronomy, Electricity, Chemistry.

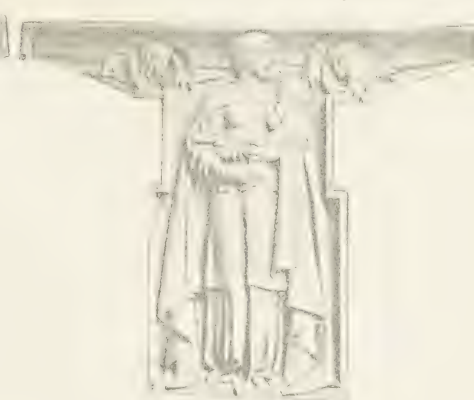
Panels composing Frieze, New Gaiety Restaurant: Garden Thoroughfare, Aldwych End.



Justice.



Justice.



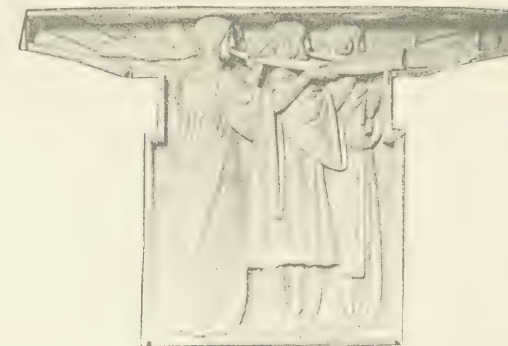
Charity.



Panels composing Frieze, New Gaiety Restaurant Aldwych Front.



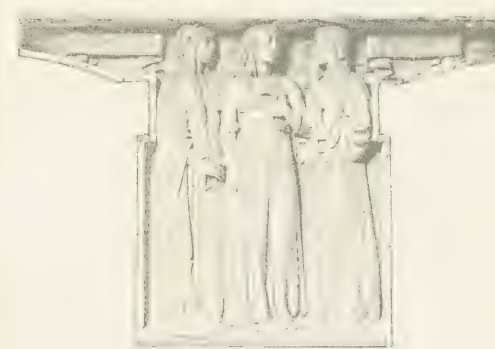
Heralds.



Heralds.



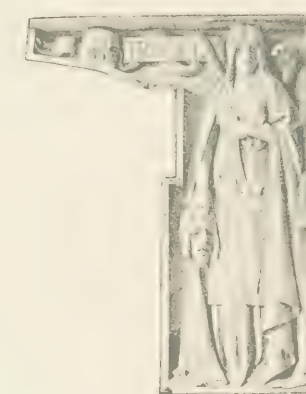
Heralds.



Shakespeare's Tragedy Heroines: Ophelia, Cleopatra, Juliet.



Heralds.

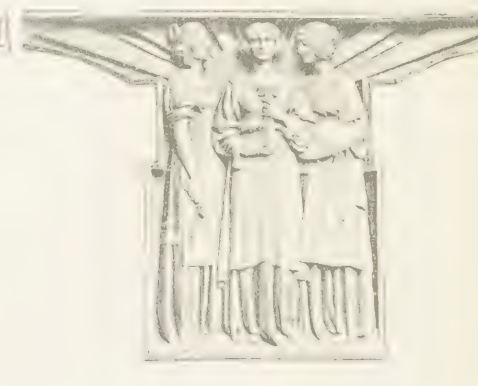


Tragedy.

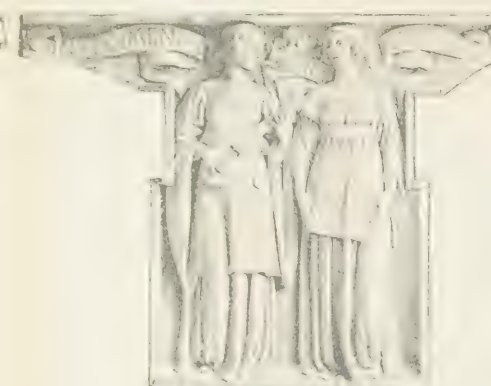
Panels composing Frieze, Messrs. Short's Premises: Garden Thoroughfare, Strand End.



Poetry and Literature.



Sculpture, Architecture, and Painting.



Music: Instrumental and Vocal.

Front.



Egypt, Burmah, and India.



Sciences - Astronomy, Electricity, Chemistry.



Peace.

SCULPTURE

W. GAIETY RESTAURANT, and



Comedy.



Shakespeare's Tragedy Heroine



Poetry and Lite

DECORATION:

MESSRS. SHORT'S PREMISES, S



PHOTOGRAPHED BY BEDFORD LEMERE & CO. 147, STRAND, W.C.

NEW ROYAL COLLEGE OF
SIR ASTON V

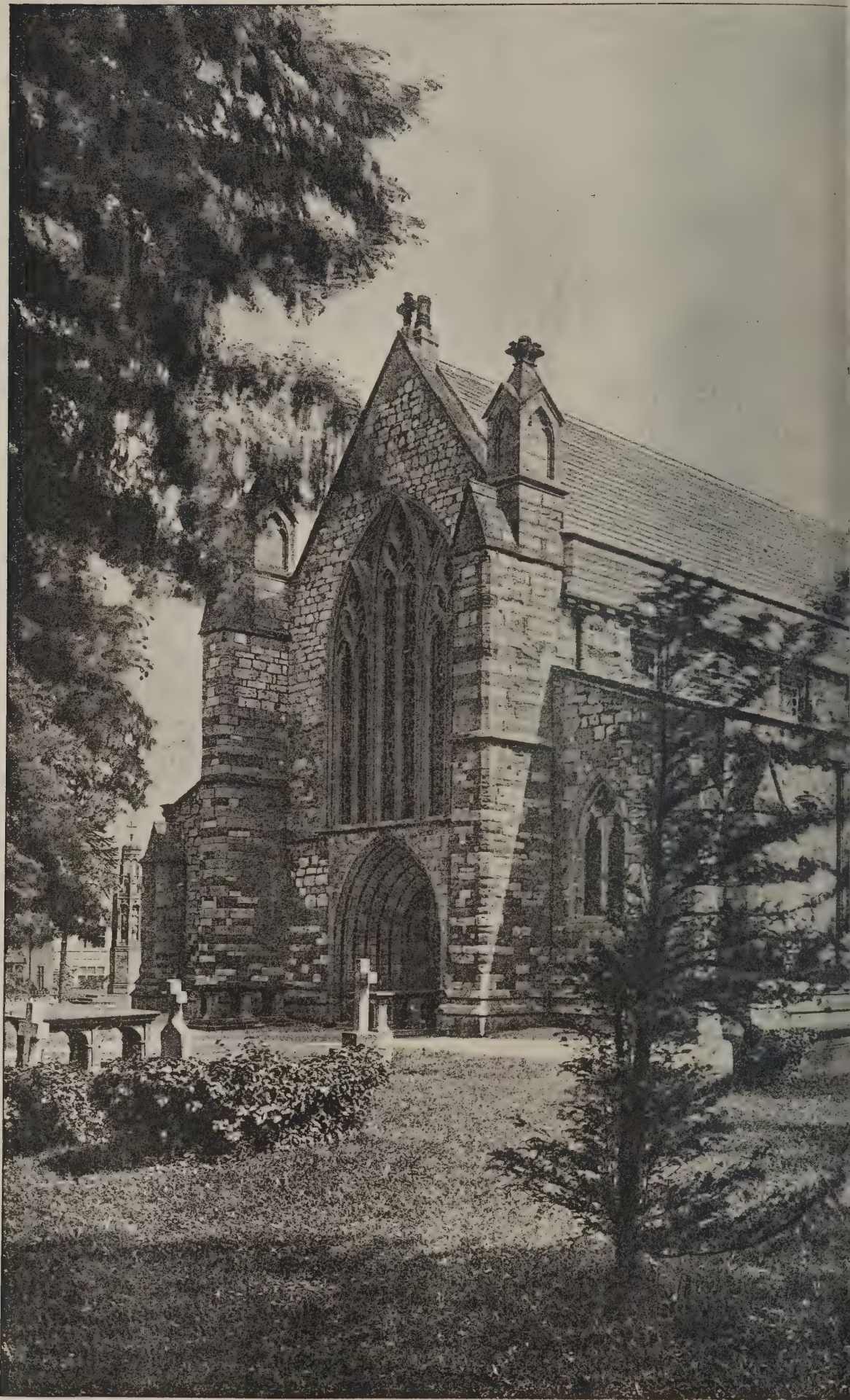
Jan. 6th 1905



INK-PHOTO, SPRAGUE & CO. LTD. 4 & 5, EAST HARDING STREET, FETTER LANE, E.C.

ENCE, SOUTH KENSINGTON.

R.A., Architect.



PHOTOGRAPHED BY CHAS. R. H. PICKARD, 5 PARK LANE, LEEDS.

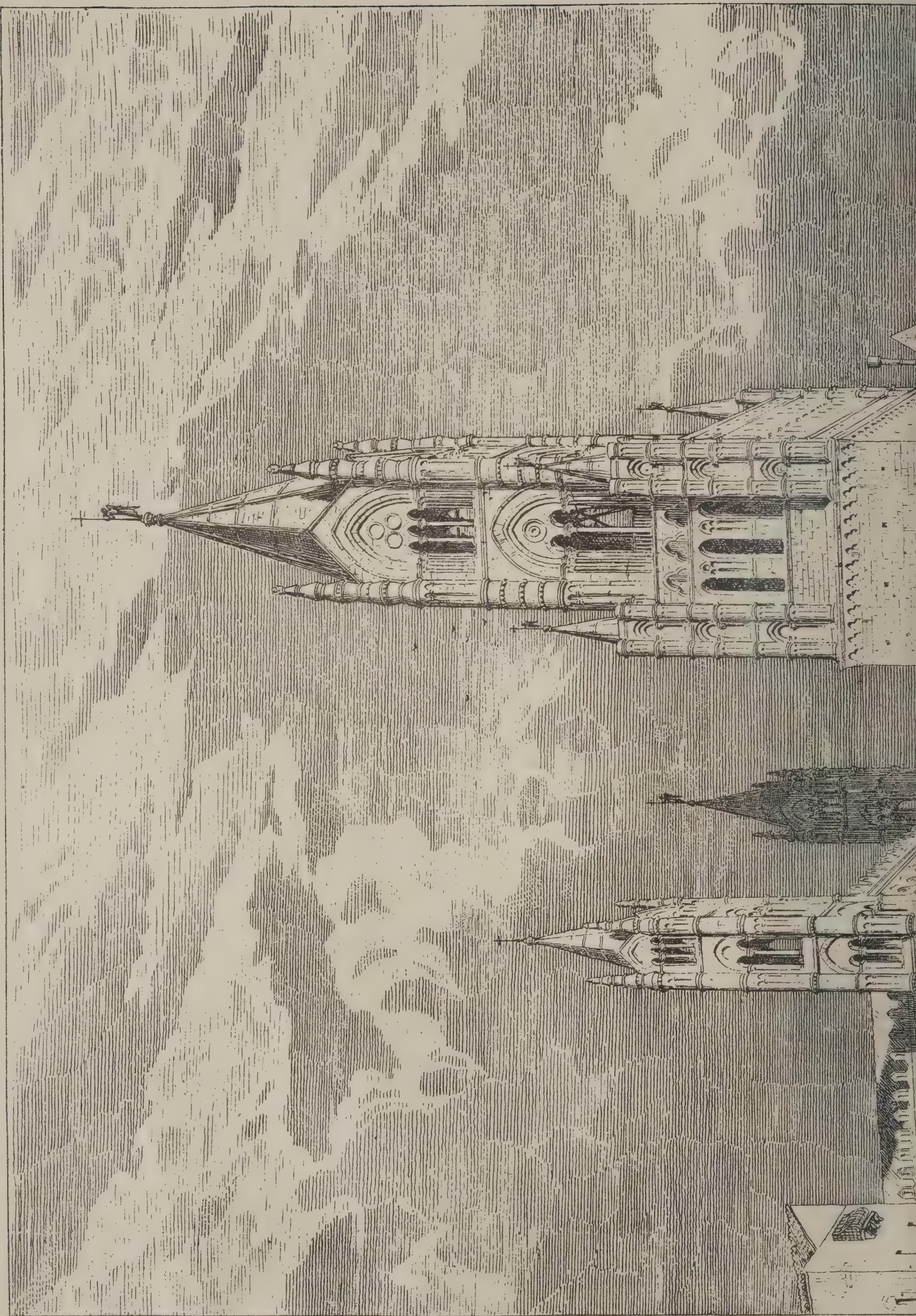
6th 1905



"INK-PHOTO," SPRAGUE & CO. LTD. 4 & 5, EAST HARDING STREET, FETTER LANE, E.C.

EXTERIOR, FROM S.W. CORNER, LOOKING N.E.

Chr. Anfahrt. Jan. 6th 1905



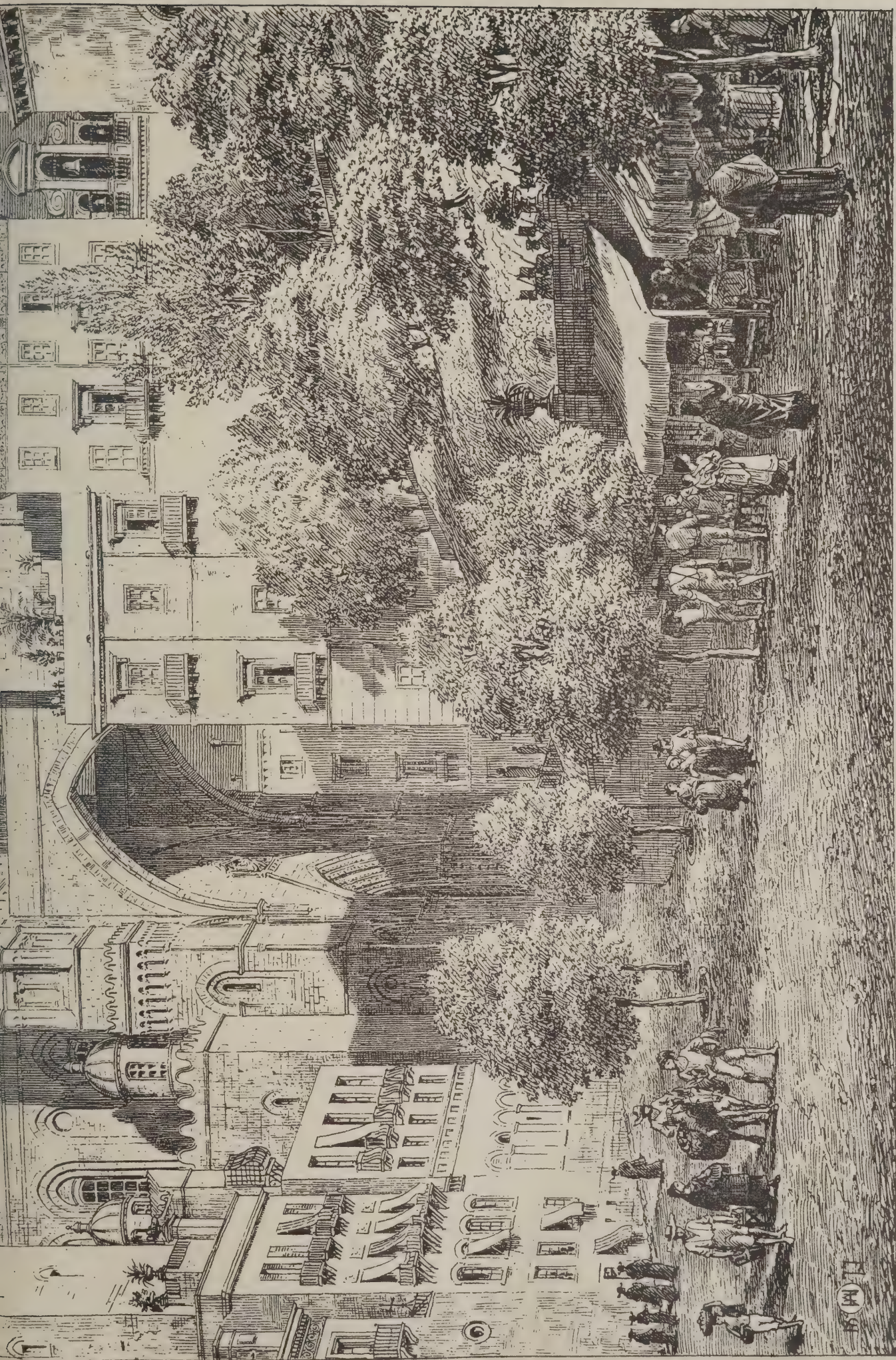


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Continued Sketches by A. H. Young

The Architect.

THE WEEK.

DURING many years Berlin possessed a reputation for its iron castings. They could be obtained of all sizes, from colossal war trophies to ladies' brooches. They were so sharply executed it seemed impossible that time could have any effect upon the surface. When that noble philosopher, JOHANN-GOTTLIEB FICHTE, died on January 27, 1814, no material seemed more appropriate for his monument than cast-iron. In the struggle against NAPOLEON he had inspired the people with enthusiasm through his addresses and university lectures. Although he was not a native of Berlin, he had taught in its new university, and, indeed, a man of his class could not be said to belong to any of the separate States. He was buried in the Old Dorotheerstadt Cemetery, and a tall cast-iron obelisk was erected to mark the grave, with the inscription, "The Teachers shall shine as the brightness of the firmament, and they that turn many to righteousness as the stars for ever and ever." The condition of the obelisk at the present time does not testify either to the endurance of cast-iron or the admiration for FICHTE. No doubt, in common with all philosophies, his system has been supplanted. But the earnest man who laboured so hard during the War of Liberation is deserving of longer recognition. It may be mentioned that in the same cemetery are buried SCHINKEL and STÜLER, the architects, and RAUCH, the sculptor.

In the neighbourhood of Saumur is a great rude stone monument known as the Dolmen of Bragneux. A description of it, furnished by the Rev. J. E. SOMERVILLE, was read at the meeting of the Scottish Society of Antiquaries on Monday. This dolmen, or chamber constructed of immense slabs placed erect in the ground and close together, forming the walls and supporting other great slabs laid across as a roof, is the largest in Europe, and is situated a short distance to the south of the town of Saumur on the lower Loire in France. Its megalithic structure is 65 feet in length, 24 feet in width and 15 feet in height. The whole consists of fifteen stones, of which four compose each side, one closes in the back, one partially closes the front, four form the roof, and one in the interior supports the largest of the roof-stones, which is split. The largest roof-stone is 24 feet in length, 22 feet 9 inches in width and nearly 3 feet in thickness. The stones which formerly made a passage leading up to the chamber were demolished and broken up for road metal when the neighbouring road was made. The dolmens of France are chiefly found to the west of a line drawn from the Mediterranean through Nîmes and Auvergne, sloping westwards to Bretagne; and on the east of this line circles and barrows are the common form of sepulchral monuments. Articles on the French prehistoric monuments written by the late Professor ROGER SMITH appeared some years ago in *The Architect*. In one case where the stones were ornamented by curling lines he suggested they were intended to recall the waves of the ocean. There is, however, he said, a veil of mystery over these objects which has not yet been lifted. By whom, and when, and for whom was all this done, and what does all this mean?

SIGNBOARDS are an essential in business, but care should be taken that they are not fatal or injurious to the people they are intended to attract. A woman was killed last week in Derby by the fall of a stone which was overthrown by the swaying of a sign measuring about 10 feet by 5 feet. The building inspector said the by-laws ignored signboards, and the jury at the inquest on the woman added the following rider:—"That we are of opinion that these signs should not be allowed to be

erected without proper authority from the Corporation, and if the Corporation do not possess that authority we consider they ought to take steps to obtain it, for the protection and safety of the public and in order that such a case as this will not occur again." It is unnecessary to say that Derby does not stand alone in having insufficient power to deal with the danger. In the majority of towns signboards are beyond official control. The big board in Derby was not the proximate cause of the woman's death, and that makes the case more important, for it shows there is more risk than would arise from the fall of a piece of timber. The mainstay had rotted and the sign was controlled by only two wire guards. In a gale which arose the signboard moved in such a way as to act as a lever on the parapet wall and to loosen the stones. The victim might have escaped the signboard, even if it fell, but a piece of the coping was deadly.

It would be difficult to convince a Parisian that the Pont des Invalides is to bear the name of our English monarch. If a new bridge were to be erected it would be a compliment to England to call it after EDWARD VII., for that would be equivalent to what was done in the case of the neighbouring bridge, which is known as Pont Alexandre III. But the present bridge has been known as the Pont des Invalides since its erection half a century ago. The bridge, too, is not suggestive of permanency, and everybody desires that the friendliness between France and England shall be continuous. Paris is always eager to exemplify the latest forms of construction. When in 1828 it was resolved to have communication with the Esplanade of the Invalides it was decided that it should be a suspension bridge of one span. That system was not represented in Paris at the time. When tested after its completion it could not meet the official requirements, and had to be removed. It was then decided to erect another suspension bridge, but with three spans. On fête days and when there were military evolutions the bridge used to be crowded and alarms were excited. A catastrophe would have been fatal to the Imperial Government, and accordingly in 1854 the masonry bridge, which we now see was constructed. The foundations may have some defects, for in 1880 it was necessary to carry out extensive repairs. The centre pier has a figure of terrestrial victory on one side and of maritime victory on the other. The designs for the masonry bridge were prepared by MM. DE LA GALISSERIE and DARCEL.

THE heights of buildings in American cities depend upon the peculiarities of the authorities as representing the spirit of the population. The new Times Building in New York is 430 feet above the footings, the Ivins Building in Park Row is 386 feet above the footway, and there are many buildings over 300 feet in height. In Philadelphia the Land and Title Building has twenty-two storeys, and is 317 feet high. In Chicago the Fischer Building is 235 feet high. Boston is more restrained, for the Ames Building has no greater height than 186 feet. Apparently there is a strong desire among Bostonians to avoid competition with the builders of Babel in endeavouring to reach the sky. A Commission lately reported that legislation is urgently needed to keep buildings within limits. In one part of the city, where there are trades which need lofty buildings, it is proposed that the maximum height shall be 125 feet, while in another part, which is mainly residential, the height is not to exceed 80 feet. But the Commission would prefer a uniform height, for they say:—"We are so thoroughly convinced that a general and uniform limitation of buildings to a reasonable height is neither an injury to real-estate values nor a hindrance to the growth of the city, we should recommend a maximum limit for the entire city of 100 feet." A conclusion of that kind suggests there is no hustling for offices in Boston.

SWEDISH ARCHITECTURE.

A VARIETY of causes have combined to make Norway possess more interest for Englishmen than Sweden. In the first place, the influence of the ancient romances has to be considered. During several years English scholars have popularised the legends, and the climax was reached by WILLIAM MORRIS, who not only endeavoured to tell us all about the Wolfings and the Niblungs, but in his "Earthly Paradise" relates how "certain gentlemen and mariners of Norway" set sail to find that happy place, but came to a western land instead. Then the magnificent scenery could not fail to be an attraction in an age of tourists. The political economists also found conditions of life in Norway which were novel to them, and many reformers wished to introduce a similar system. The modern efforts to promote trade have, however, had the effect of drawing more attention than formerly to Sweden, which may be regarded as the dominant partner in the dual kingdom of the north. To a great extent Sweden will bear comparison with Switzerland. It is a country where patriotism prevails, but it is of a kind which inspires self-reliance. By utilising its resources Sweden is in a condition which is enough to excite the envy of larger States. Everything depends on industry, but the people also patronise the arts and literature, and it can be said that no department of knowledge is without native-born representatives.

That architecture should be so well exemplified is remarkable, because Christianity was not established until a comparatively late period, and prior to that event there is no reason to suppose that building received much attention. It is believed the King INGJALD, by fair means or foul, obtained supreme power in Svealand about A.D. 700, and that is accepted as the beginning of the kingdom of Sweden.

About A.D. 830 St. ANSGARIUS endeavoured to convert the Swedes to Christianity. But, as in Norway, considerable opposition was raised against the new doctrines, and it was not until 1248 that the Church in Sweden became fully recognised as a national institution and as united with the Roman Church. There are some small country churches which are supposed to date from the eleventh century. The church at Varnhem is prized as being the chief memorial of Romanesque architecture in Sweden. However, the most important structure of the period is the cathedral of Lund, which will sustain comparison with any of the Rhenish ecclesiastical edifices. Throughout Gotland there are buildings suggestive of all varieties of Gothic with the exception of the latest. The thirteenth century was productive in Sweden as in other parts of Europe, and a union of Romanesque and Gothic is claimed to be peculiar to the country and is known as the Gotland style.

The cathedral of Linköping was commenced during the Romanesque period, but the greater part is Gothic. The cathedral at Skara is another excellent Gothic building. But the chapel attached to St. Bridget's nunnery at Vadstena is genuine Gothic, though of a simple type. There are no capitals to the piers, but a plain moulding at the springing of the arches, and which also marks the termination of the ribs of the roof. The windows are long and narrow, and the tracery not intricate. Stone was generally used in preference to brick. Under German influence, however, brick architecture was largely employed in the southern part of the country. The cathedral of Uppsala, which is the most important ecclesiastical building in Sweden, is constructed partly of stone and partly of brick. It is supposed to have been derived from a French prototype. The design was obtained from ETIENNE BONNUEILL, and he took some part in carrying out the works. But as the erection was in progress for a couple of centuries there must have been other architects engaged, and this is confirmed by the inconsistencies to be seen in it. The cathedral is about 330 feet in length; it has two western towers with spires, and a lofty *fliche*.

Sweden is deficient in secular architecture of the Gothic period. The remains in Visby of the great town wall, with towers at intervals, are enough to suggest the importance of the place at an early time. The so-called Pharmacy has greatest interest as a relic. It is possible that the timber which abounds in the country was used in the erection of houses and civil buildings. But the material was not enduring. A wooden building known as the Ornässtugan, or house of ORNÄS, survives at Dalarne from the fifteenth century; it was a period of disturbance, and the building might be described as a very long blockhouse, the upper storey projecting widely over the lower part.

A new era began for Sweden with the appearance of GUSTAVUS VASA. He was born in 1496. In his youth he was a leader of the opposition against Denmark, which then exercised power over the country. He was able to obtain the independence of Sweden, and had it recognised as one of the European States. It was during his reign that OLAUS PETRI, one of LUTHER'S disciples, introduced the Reformation. One of the first acts of GUSTAVUS was to persuade the Riksdag to pass a resolution by which not only the administration of ecclesiastical affairs but the whole of the Church property was transferred to him. A great many monastic institutions were demolished in order to provide materials for castles which were erected by GUSTAVUS and his family. Some of the buildings which were then erected in that way are of great interest. Among them are Kalmar Castle, Gripsholm Castle and Vadstena Castle. The palace at Stockholm was the most important example of Swedish Renaissance. Unfortunately it was destroyed in 1697. At first it is believed the architects were Germans and Dutchmen. But afterwards a number of Swedish architects arose. In the secular buildings of the Renaissance period as well as in the churches particular attention was bestowed on the doorways, and the combination of architectural and sculptural forms in them is often pleasing. It is also characteristic of the time that as much notice was given to timber construction as in the Gothic period. The material was used in houses and in the belfries of churches.

Sweden had also its Baroque period. In the beginning of the seventeenth century both secular buildings and churches presented examples of it. Evidently German types were preferred. In the latter part of the seventeenth century preference was shown for models from France and Italy. The House of Nobles (Riddarhuset) in Stockholm, of which JEAN DE LA VALLÉE was architect, a building of two storeys with a basement with pilasters dividing the windows, is one example of seventeenth-century work. Others are the palace of OXENSTIERN, the Bank of Sweden and the cathedral of Kalmar, which are to be credited to the elder TESSIN. The well-known royal palace of Stockholm, by the younger TESSIN, suggests Italian influence. FERGUSON says that for simplicity and grandeur it stands unrivalled among European palaces, with the exception of the Farnese, in Rome. He adds:—"It is true the material here is only brick and plaster, but the parts are so large and so well balanced that we forget this defect, and it is crowned by a cornice so well proportioned to the mass below that the eye is charmed and the feelings satisfied from whatever point of view the palace is regarded."

We have not the space to show the connection between the architecture and the history of the country. Sweden was well adapted to be a nursery of military power, and for a long time it exercised control over the destinies of Europe. Every reader of romance remembers how the brave Major DALGETTY served as "lieutenant and ritt-master under that invincible monarch, the bulwark of the Protestant faith, the Lion of the North, the terror of Austria, GUSTAVUS THE VICTORIOUS." But the redoubtable soldier of fortune found that GUSTAVUS was not a liberal paymaster, and he testified to having seen whole regiments crying out "Gelt! Gelt!" The

compensation was found in the number of victories which were gained and the contributions which had to be levied, when the worthy DALGETTY did not fail, as he said, to lick his fingers as became a good cook. Much of the spoils of war was spent by the nobles in the construction of castles. They also received grants of land in Sweden, and before long the nobles had a monopoly of political power. CHARLES XII. made a reputation as a warrior, and VOLTAIRE considered him of so much importance that he wrote his life. But his death accomplished a great change in the constitution of Sweden. It was recognised that peace had its victories as well as war, and science, art and literature were encouraged. The unfortunate GUSTAVUS IV. thought that he also had to make a name as a conqueror, but his attempts excited the enmity of Russia and the loss of Finland. Finally he was deposed, and the French soldier, BERNADOTTE, ascended the throne.

It was not to be expected that in a period of commotion like the early part of the nineteenth century, which was marked by a change of dynasty, that much attention could be given to architecture or the other arts. Half the century had passed away before there was a revival of architecture. One of the first buildings erected was characteristic of the new aims of the country, for it was the technical high school in Stockholm. The architect was F. V. SCHOLANDER. Another of his designs was the synagogue in the capital. Although episcopacy is not recognised, the old cathedrals are respected and attention was bestowed on their restoration. Most of the work was entrusted to H. ZETTERVALL. Besides Romanesque and Gothic, he studied Renaissance examples and reintroduced a free Classic, which is now more practised than any other style. Of late years it might be said that the best modern works of all countries in Europe, as well as of the United States, are being used by Swedish architects to gain inspiration. Efforts have even been made at emancipation from older styles and to design buildings which will be examples of the application of rigorous logic. It is not peculiar to Sweden that its oldest works are derived from other countries, for neither Romanesque nor Gothic can be called a home growth. But by regarding Sweden and Norway as equal representatives of Scandinavian art, something is obtainable which may serve as the nucleus of a style. There are deep thinkers in Sweden, and both archæology and æsthetics have been considered. Early in the seventeenth century DALIN wrote about the principles of art, and he was followed by other authorities. Indeed, a number of writers have treated of the science of the beautiful. One most interesting work, "Roman Days," by the late VICTOR RYDBERG, was noticed in *The Architect* soon after its appearance. He delivered a great many lectures in the Private University at Stockholm about the theory of art, its origin and development. He has had several successors. In painting, sculpture and music, Swedish artists have been successful. Although it may seem likely that science will be more attractive than art in our time, yet there are enough inducements for Swedish artists to prefer the beautiful to the useful.

THE "YELLOW PERIL" IN ART.*

IT was not anticipated when the collections at South Kensington were first gathered that a time would come when handbooks relating to Chinese and Japanese objects would be necessary. They were supposed to be outside the pale of what was applicable in England. In art as in scholarship the Mediterranean exercised an influence of which connoisseurs were not always aware. The Phœnician traders at an early age made the products of Greece, Italy and Northern Africa familiar to

various parts of Europe. Occasionally examples by Persian and Assyrian craftsmen formed part of the merchandise. It is doubtful whether India came within the purview of the Phœnicians, and it is now difficult to decide whether Greece was indebted to India, or India to Greece, for some of its forms. China appears to have closed its gates against the most enterprising traders of antiquity, and whether the islands now known as Japan could have furnished objects which would be interesting to Europeans is a question which is not easily solved. All that can be said was that the Mediterranean was the great highway for transferring works of art, and countries which could not easily be connected with it were outside the current of affairs, or, in other words, of civilisation in the ordinary sense of the word. Afterwards systems of various kinds were established. But the East remained as much ignored by philosophers as by the earlier traders. The great books of India and of China display wonderful wisdom. But it was only in a recent time that Western Europe became aware of their existence. Some ornamental forms like the fret may have been derived from the Chinese, and there is much that is remarkable in the old work of India and Japan. But whenever art was looked on as a whole the products of a circumscribed area were alone taken into account. The Phœnician merchant determined the kind of productions which for centuries were to be accepted as beautiful. Chinese and Japanese pottery began later to be sought after by collectors, but the interest attached to the pieces was mainly due to the circumstance that they were so remote from what was accepted as true art by Europeans. Many years passed away before it was supposed that the ornamentation of the Chinese and Japanese could have been inspired by any system. The representations were sometimes utilised for the purpose of showing what absurdities could be committed from ignorance of theory, as in the case of landscapes, where distant objects were made as large as those which were near. It was supposed the artists were devoid of imagination, and assembled objects without any respect for scale and proportion. The effect of prejudice is seen both in the works of OWEN JONES and DIGBY WYATT at the time when South Kensington was in course of formation. The latter could write about art applied to industry in ancient times with scarcely a reference to what was doing for ages in the remote East. He could speak of the Portland and Auldjo vases as wonderful examples of the glass-maker's skill, and then add, "It is curious to find an exactly similar process of glass-working and cutting in use from the earliest ages in the East, particularly in China." Why should it be more curious in the East to cut through layers of glass? But the spirit of the expert is suggested by his remarking that the Chinese, unlike the Greeks and Romans, were led by "chance." If Sir DIGBY WYATT had followed out the subject he would have discovered that it was a principle, and a wise one, of Chinese artists to take advantage of accidents, and consequently there is a spontaneousness obtained which differentiates their work from that of artists in Greece and Rome. The question for moderns is not, however, the relative superiority of different schools of art, but whether each of them cannot contribute something which modern people will be able to utilise. If we consider ourselves to be the heirs of the ages, there is no reason why we should ignore our relationship to Japanese and Chinese artists, while we recognise kinship with the designers of prehistoric times.

In the small volume by Dr. BUSHELL, an authority who has resided some thirty years in Pekin, we are brought back to a very remote period. In a bas-relief, which will hereafter be considered as one of the most interesting documents in the world, we are introduced to Fu Hsi, the reputed founder of Chinese polity. He is represented as "the first of the three ancient sovereigns known as SAN HUANG, holding a mason's

* (1) *Chinese Art.* By S. W. Bushell. (2) *Japanese Colour Prints.* By E. F. Strange. (His Majesty's Stationery Office.)

square, in company with a female personage wearing a coronet and holding a pair of compasses." The inscription records he was the first to rule as king; he traced the trigrams or mystic symbols and introduced knotted cords, which seem to have been primitive aids to the memory of historical events, and of which a survival appears in the practice of tying knots in handkerchiefs as mnemonic aids. Of another ruler who appears in the same relief we are told "he fabricated weapons, dug wells in the fields, lengthened the official robes, built palaces and dwelling-houses." The Chinese, it will be seen, at a remote age anticipated those Eastern monarchs who considered building to be an art worthy of the attention of kings.

It is remarked by Dr. BUSHELL that China has kept in all ages to a single architectural model, and the monotony of the arrangement is increased by the precept that every important building must face the south. He considers that the Chinese realise the poverty of their normal type, and endeavour to break the plain lines by decorative details. Symmetry is incumbent except in summer residences, where license runs riot, for "we have pagodas and kiosques elevated at random, detached edifices of the most studied irregularity, rustic cottages and one-winged pavilions dotted down in the midst of surroundings of the most complicated and artificial nature, composed of rockeries, lakes, waterfalls and running streams spanned by fantastic bridges, with an unexpected surprise at every turn." Arches, however, can only be erected by special authority. They are generally of wood with a tiled roof, and are usually intended as memorials. Colour has a symbolic value. Sometimes only blue is seen in a temple, as in the Temple of Heaven. "At the Temple of Earth all is yellow, at the Temple of the Sun red, at the Temple of the Moon white, or rather the pale greyish blue which is known as *yueh pai*, or moonlight white, pure white being reserved for mourning."

Sculpture in China would appear to be at one time of great use in connection with records. Not only are inscriptions prized, and a good calligraphist is esteemed as a superior artist, but incised figures on stone are found which date from the first century, B.C. In them we see that chariots were in use which were sometimes drawn by four horses harnessed abreast, and the animals are represented with remarkable spirit. Figures of dragons and other strange animals are also introduced. Photography has been invaluable in rendering the character of the early examples, and the illustrations alone would confer importance on Dr. BUSHELL's book. By the process it is also possible to have details of bronzework, lacquers and carvings in jade, which, from their intricacy, would try the patience of an artist. In speaking of bronze vessels used in religious ceremonies the author says:—

The principal forms go back to a far distant antiquity and have become gradually moulded into fixed lines under the influence of that convention and routine which prevail in Chinese art. The introduction of Buddhism in the Han dynasty was the first impulse from an outside civilisation on an art which threatened to become stagnant from constant repetition, in the absence during so many centuries of rival schools to inspire progress. Some vases, it is true, have a certain grace of form and purity of outline, but the majority are heavy, barbaric, of ill-balanced proportions; and even the happiest models are not free from a vague impression of clumsiness, of hieratic stiffness. The preoccupation of the artist, or rather the craftsman, has evidently been to respect the ritual canons by which he is bound down, to measure exactly the swelling of the body, the profile of the neck, the flare of the mouth and the spread of the foot, so as to reproduce faithfully every line of decoration and symbolic design. The slender vases with trumpet-shaped mouths and some of the plain wine cups reveal a high plastic sense, and come within a shade of being perfect works of art; the touch that is wanting betrays the absence of the free spirit and love of pure lines which inspired the hand of the ancient Greek modeller in bronze. The motives of decoration of Chinese primitive bronzes are of two kinds, geometric and natural.

Rules and regulations were so long operative in China, it is not always easy for the superficial inquirer to distinguish between antiquity and modernity. The similarity suggests relationship with Egypt. Among the Japanese, on the contrary, there is so much individuality, or what appears as such, we can hardly imagine the Japanese artists as troubling themselves about ritual. If the love of the beautiful world in which we are placed, and the delight in endeavouring to represent what it contains, can be considered as virtues, the Japanese well deserve to be rewarded. No other people on any part of the globe have considered it to be so much of a duty to put on record their admiration of what is to be seen, and among the artists the humble authors of the colour prints hold a prominent place. In spite of the flimsiness of the material their work has been preserved. We have only to glance through the journal of the DE GONCOURTS to realise the amazement of fastidious French amateurs when they were able to obtain a glance at M. HAYASHI's collections. His prints were dispersed without any of them coming to South Kensington. But the Museum collection is of great importance, and in the Handbook no less than eighty-four examples are shown. They are deprived of colour, but as the photographic process was employed the details are given with the utmost fidelity. Their interest is enhanced by the excellent chapters which Mr. E. F. STRANGE has written. To obtain such a work for the small sum of 1s. 6d. does credit to the Stationery Office.

It is difficult to say when colour-printing became general in Japan. Some would say it is not older than the sixteenth century. The Jesuits may have had something to do with the employment of it. With their customary foresight they realised the capabilities of the people, and their great missionary, St. FRANCIS XAVIER, laboured in the islands. In the Roman Church coloured prints were at the time used as a means of instruction, and there was skill enough in Japan to be independent of importations from Italy. But an origin of a different kind has been suggested.

There have been several schools of painting in Japan as well as several generations of families who were artists. Drawing on wood for engraving was among the supplementary callings of painters. In Japan the drawing appears to be made not directly on the wood, as formerly in England when the art was practised among us, but on tracing paper which is pasted face downwards on the block. The lines were left in relief. Additional blocks were afterwards made for each colour, and, according to M. RÉGAMEY, the following colours were employed during the best period, viz. clear yellow, dark chestnut, dark blue, lettuce green, clear orange, mastic white, silver white, vermilion, red brown, black and red. It is not pleasing to learn that the old colours are now almost unobtainable in Japan, and that aniline colours are generally used. Some of the artists are, it appears, no higher in grade than men of the artisan class, and earn from a shilling to one and sixpence a day. They also follow other occupations. HOKKAI used to sell fish. The classes of subject which seemed to be most general were pictures of women, theatrical scenes and portraits of actors, illustrations of legendary and historical stories and landscapes. Concerning the last class Mr. STRANGE writes:—

Japanese colour prints devoted to landscape form a class apart in the art of the world. There is nothing else like them, neither in the highly idealistic and often lovely abstractions of the aristocratic painters of Japan, nor in the more imitative and, it must be said, more meaningless transcripts from nature of European artists. The colour print, as executed by the best men of the Japanese popular school, occupies an intermediate place, perhaps thus furnishing a reason why we Westerners so easily appreciate it. Its imagery and sentiment are elementary in the eyes of the native critic of Japanese high art. Its attempts at realism are in his eyes mere evidences of vulgarity. On the other hand, these very qualities endear it to us. We

can understand the first, without the long training in symbolism which is the essential of refinement to an educated man of the extreme East. And the other characteristic forms, in our eyes, a leading recommendation. In short, the landscapes of artists such as the Hiroshige approach more nearly to our own standards, and are thus more easily acceptable to us than anything else in the pictorial arts of China and Japan, while they have all the fascination of a strange technique, a bold and undaunted convention, and a superb excellence of composition not too remote in principle from our own.

In criticising these prints Western canons are insufficient. The novelty of the human figures is amazing to most Europeans. They are ready to praise the flowers, birds, fishes and grotesque animals which are introduced. But if one class of subjects is satisfactory either wholly or partially, it is difficult to believe that another class which is likewise a product of the same system can be wrong. The Japanese allow more importance to costume than Western artists, for they draw not only every fold into which a garment falls, but the patterns on it. Phenomena are also suggested in a manner which is peculiar to them. In fact, it would need a revolution to make Japanese art popular with all classes in Europe, and apprehensions of the Yellow Peril need not afflict manufacturers as much as it does politicians and warriors. It has, however, already rendered service in emancipating ornamentists from an excess of geometrising, and in suggesting that economy of strokes may become effective if there is a right selection and arrangement of them.

THE LATE GEORGE AIKMAN, A.R.S.A.

A WIDE circle of artistic and other friends will hear with regret of the death of Mr. George Aikman, A.R.S.A., which took place, says the *Scotsman*, at his residence, Scotland Street, Edinburgh, on last Sunday morning. He had an attack of pleurisy about a year ago, the result of a chill caught while painting out of doors, and from the effects of which he never recovered. Born on May 20, 1830, in a house at the top of Warriston Close, Mr. Aikman came of an artistic line, his father having been a lithographer and engraver. He was educated at the High School in the time of Dr. Boyd, and had among his class-fellows the late Professor Calderwood, Dr. Wallace and Bailie Colston. He learned engraving and lithography with his father at his place of business in North Bridge Street, where the plates for the first edition of the "Encyclopædia Britannica" were engraved and printed; and during his apprenticeship he attended art classes in the Trustees' Academy, then under the direction of Mr. R. Scott Lauder. He also began to exhibit pictures at the Royal Scottish Academy, and by-and-by, about 1872, he gave up engraving and took to painting, and as a painter of landscape and of landscape with figures he has since been known. His subjects were for the most part Scottish, but he also painted in the Severn Valley, and exhibited pictures of the scenery of that district. To the Royal Scottish Academy's exhibitions he was a constant exhibitor, and his pictures were also hung at the Glasgow Institute. Now and again he reverted to engraving and etching, and produced plates chiefly of his own pictures, though a well-known portrait by Lawrence was engraved by him some years ago. He has been an Associate of the Royal Scottish Academy for the past quarter of a century. For many years he was an enthusiastic Volunteer. On the formation of the City Artillery Volunteers he became a member, and was for a time quartermaster of the regiment. When a younger man, Mr. Aikman was a good deal associated with an art coterie which comprised within its circle such men as the late G. Paul Chalmers, J. M. Barclay, the portrait-painter, W. F. Vallance, and Mr. James Gow, banker, and to the end of his life Mr. Aikman had many friends among the artists of the city. At the Scottish Arts Club he was one of the most popular members, a circumstance due to his kindly nature, genial disposition, bright intelligence and great store of information about engravers and engravings, and generally about Scottish artists and their works. Very few men had a better knowledge of engraved portraits and of the old mezzotinters, and a talk with him on his favourite

subject was always enjoyed. His father had served his apprenticeship with the Lizars family, and of these eminent Edinburgh engravers and artists he could speak with much interest. His wide range of knowledge about engravers and artists was in a way unique, and Mr. Aikman had also the faculty not only of speaking but of writing about what he knew with much acceptance. He also took a great interest in everything pertaining to Old Edinburgh, and it was his invariable practice when he heard that a historic old house was to be demolished to make a sketch of it. Several paintings of his Old Edinburgh houses hang in the City museum. He is survived by a widow, two sons and three daughters. His eldest son, Mr. William Aikman, is the artistic head of a stained-glass establishment in London, and of his decorative work examples have from time to time been exhibited both in Edinburgh and Glasgow.

ANCIENT MONUMENTS.

THE dangers to which ancient remains in Ireland are exposed under the new conditions of ownership have been often pointed out in this Journal. We are glad to see a letter from an Irish archæologist, Mr. Richard Kelly, in the *Irish Times*, referring to a recent address of his, in which he says:—

I had then in my mind two recent instances where a neglect of the precaution of nationalising our historic monuments led to the particular ruins being put to purposes not calculated to render them in the future attractive objects of antiquarian interest, and where in one instance a fine old De Burgo castle was turned into a cattle shed, and in your issue of the 15th you referred to and commended my references on the occasion. It is unnecessary to argue on at length or at all go into the general question as to the advisability of some steps being taken to have every structure capable of being described as "an ancient monument," whether castle or church, cross or tomb, rath or liss, preserved to the country as a national possession and maintained free from future possible injury or neglect. The historic and artistic ruins of every country are a national asset, and as such are so regarded by every civilised people. In our country probably less has been done by direct protective action of the law to preserve our ancient monuments than anywhere else. Still, the relatively little which the existing law permits must be at once done or serious injury and loss to the nation of these priceless national treasures will result.

The suggestion I ventured to make in Galway to meet this case was that the Estate Commissioners, the Congested Districts Board and the Land Commission, in every case where land passes through their hands, upon which land an ancient monument exists, should transfer the particular monument to the county council of the particular county where it is situated. This body, under section 19 of the Local Government Act of 1898, is specially empowered to take measures for the control of, and preservation of, these monuments. I see no other effective course open under the existing law.

It may be thought that in suggesting this county custody one is recommending something exceptional. A reference to what, in this same direction, is being done in other countries may not, therefore, be out of place. France, Italy, Hungary, and even Roumania have each of them passed a series of restrictive and protective laws dealing with their respective national monuments, which are far in advance of anything ever yet seriously suggested here. Recognising, as these progressive countries do recognise, that the historic and artistic ruins of their country are a national heritage and possession which must be preserved and protected, they have taken steps accordingly. Thus we find in Italy a law imposing a maximum fine of about 400*l.* (10,000 lire) upon any person "who demolishes or alters any object dealt with by the law," that is the catalogued monuments, which practically comprise all of any historic value. In France penalties for similar offences are impossible, though not so heavy in amount; 200*l.* is the maximum penalty in Roumania, and in Hungary about 41*l.* is the amount which may be imposed for any infringement of the laws regulating the preservation of any ancient monument. Even the Finnish law is not silent on this subject. Both in that code and in the Hungarian one a curious proviso, however, is introduced, absolving a person from liability to report any discovery of an historic or artistic monument (the penalty for non-compliance being a fine from 5 to 100

florins) if his degree of education does not render it likely that he could have appreciated the value and importance of the discovery (Article 15 of the Hungarian code). Article 7 of the Finnish code exempts also from wanton destruction in such cases of undoubted ignorance.

The Hungarian law on this subject dates from 1881; the Finnish law from 1883; the French law from 1887; the Roumanian law from 1892; and the Italian law from 1902. The Hungarian of all these is the only one that does not deal with the case of objects of a movable character detached from the soil, and the French and Finnish laws do when such objects are in the possession of municipalities, ecclesiastical bodies, or such like corporations, and do not interfere with private possessions. A change in the English law in the direction of protecting movable articles would be very advisable, and particularly useful as regards "finds."

In France a catalogue of all objects of historic and antiquarian interest worthy of preservation is made out, and not only are the particular objects, but the land upon which they stand is appropriated by the State, and put under the control of the Minister of Education. In Hungary and Roumania the Minister of Public Worship is the protecting authority.

In France a commission of experts, of which he is the President, assists the Minister in these cases, and without their aid he does not act. Thus we find a Commission des Monuments Historiques was so far back as 1839 appointed for this purpose. By article 3 of the Hungarian law the authorities decide for purposes of preservation what monuments possess an historic or artistic value. Articles 1 and 2 of the law of the Grand Duchy of Finland forbid the owner or occupier of land upon which certain specified antiquities are to be found, including ruins of ancient castles, churches, tumuli, from demolishing or in any way injuring such monuments without notice to the public authorities, and allowing them, if they do so desire, to expropriate them for the State. Once an object in Italy is catalogued the owner cannot exercise any rights over it without the permission of the Minister, nor can even its sale be authorised without such authority, the State retaining a right of pre-emption. No corporate property can be alienated, changed or altered without such leave. In Hungary there is no catalogue or classification, but article 4 allows no alteration, addition, or modification in connection with any monument whose preservation has been decided upon without previous leave. The Italian and Roumanian laws forbid the clandestine sale or exportation of movable objects of such a character. The State in these countries also exercises another power—that of the expropriation or compulsory purchase of the object and of the land upon which it stands, including the approaches thereto.

In asking for some steps to be taken within the existing law to preserve our ancient and historic monuments I am not asking for any exceptional treatment of those national possessions or suggesting any undue interference with future proprietary rights in what were never intended to be objects of such individual rights against the higher claim of the State. I am but suggesting while it is time, and before something more active, potent than "decay's effacing fingers" set to work to injure the old castles, abbeys and other ruins of our country—"its history in stones"—their nationalisation and preservation for future generations and all time. It is needless to add that now when the land is finally passing from one class to another is the appropriate and appointed time for most effectively doing that, and it is plain that under the existing official machinery of transfer the Estates Commissioners are the authority to best carry out that national trust, and take steps to have the ancient monuments of the country handed over in each county to the county councils. In Galway, to facilitate that work of definition, separation and preservation of our ruins, our Archaeological and Historical Society made out a very comprehensive list of all the castles, abbeys and ancient monuments of our historic county and the townlands upon which they are situate. I would suggest, however, that the several county councils direct their county surveyors to make out such a list from the Ordnance Survey maps, and that they forward them to the Estate Commissioners. It then remains to be seen how far by instructions to their surveyors, inspectors and otherwise will co-operate, as I am sure they will, with the general desire to preserve and nationalise the ancient monuments of Ireland.

The Burnley Town Council decided, after a long discussion, to appoint Mr. Pickles, the borough surveyor, to act as architect for the proposed new technical school at a fee of 600l.

TRUTH TO NATURE AND STYLE.

LAST year Mr. Clausen's lectures drew crowds of exceptional magnitude to Burlington House, and the large audience that greeted the pastoral painter on Monday showed, says the *Morning Post*, that his popularity among his fellow artists and students remains undiminished. The professor of painting varied his subject slightly from that in the syllabus, and instead of dealing only with "Truth to Nature" devoted part of his address to a consideration of "Style." Mr. Clausen impressed on his hearers throughout that the one thing needful was the study of nature—that study which was, as Reynolds said, the beginning and end of theory. Only in nature can we find any source of beauty, but the artist can enlarge his view by looking at the work of others and noticing in what they have done that which has escaped his own observation. But it was not always the best works that had the largest number of admirers, nor were the best works always appreciated at once. Reynolds, for example, was unable to appreciate Raphael the first time he saw him, because the impressions of nature in the mind of Reynolds had no correspondence with those in the mind of the great Italian. Yet if Raphael's pictures had not been founded on a deep study of nature they could not have gained the esteem of the world. His truthfulness to nature could perhaps be seen best in his portraits, in the Pope Julius in our own National Gallery, in the Lady in the Uffizi, and in the Castiglione in the Louvre. The last, which was illustrated on the lantern screen, had qualities that rank it with the National Gallery portrait of Philip IV. by Velasquez. It had an atmosphere that one does not find in all Raphaels, and showed in the finest way what we call a sense of style.

Style is something beyond mere manner; it shows a grasp of the greater truths, something that comes nearest to the profoundest impression of nature. The Ilyssus, a model of style, is yet nature itself. Style does not depend on symmetry or proportion, for a Tanagra figure may be clumsy and yet fine in style. Style depends on expression, action and structural rightness. Mr. Clausen said that he ought to apologise for referring to sculpture in his lectures, but the quality of style belonged to form rather than to colour, and in sculpture he could more easily give examples of this. A beautiful Greek coin with a reverse, in composition not unlike the "Hope" of Watts, was shown on the screen, and this illustration was followed by photographs of two bas-reliefs from the "Throne of Venus" in the National Museum at Rome. In these reliefs, said the lecturer, the drawing is as good as a fine life drawing. The sculptor had gone as far as he could in leaving out; all had been cleared away except the actual essentials. Next a bearded head from the same museum was shown, and this, in Mr. Clausen's opinion, was even finer as an example of style than the reliefs. Everything in it was brought down to the simplest, yet, with all its severity, expression and character were perfectly given, and nothing essential was left out.

After the Greeks the chief masters of style are the great men of the Renaissance. One of the earliest and one of the best was Pisanello, in whose medals, one of which was illustrated, we find the same grasp of structure and essentials that are displayed in Greek work. Again, there was no closer student of nature than Leonardo, another master of style, but greater even than he was Michel Angelo. By the courtesy of Professor Colvin he was enabled to show them a reproduction of a splendid drawing of an undraped figure by Michel Angelo in the British Museum. Michel Angelo has been accused of exaggeration, but this drawing, so far from being exaggerated, is even modest. It has been searched out to the last truth—never carried beyond the point needed for expression, but taken right up to the limit of that point. After pointing out how great art can be shown in the commonest and simplest of things, illustrated in the pictures of Rembrandt, De Hooche, Jan Steen, and notably Chardin, whose beautiful still life study in the National Gallery was held up as an example to the students, Mr. Clausen turned to the work of a painter with whose art he is in special sympathy. Millet, he said, drew all his impressions from the nature around him, yet his style is that of the Greeks. There was something of their simplicity and feeling for the essentials in the drawing of a youth bathing which he showed them on the screen, and a second picture of a girl churning had the "rightness" of a Greek gem. Millet said, "An artist must be moved himself if he is to move others," and that was the secret of it all. Some years ago, when Mr. Clausen was in a difficulty because he could

not get a model to pose as he wanted, he told his trouble to Watts, to whom he explained that he had to rely on memory for what he wanted. "Well," said Watts, "memory is very good, but knowledge is better." He took a piece of chalk and drew the bones of the knee. "There," said the veteran, "when you know that it doesn't matter in what position you want to draw a knee." That is the difference between skill and knowledge. Skill we learn in the schools, knowledge from nature, and the latter should control the former. If an artist has knowledge of nature he knows that his utmost skill is as nothing compared with the beauty of the nature he wishes to express. Nature never suggests effort, nor does the masterpiece. The effect of a great painting is that you feel that you can go home at once and do something like it—but you can't.

OLD LIVERPOOL CHURCHES.

A GLANCE at Liverpool's earliest map, which is dated 1650, shows, says the *Liverpool Courier*, that this "good old town" was at that time composed of two lines of narrow streets running up from the river and one line cutting across them running north and south. The thoroughfares running from the river were Water and Dale Streets, while the other was formed of Chapel and Tithe-barn Streets. The thoroughfare in the north to south direction comprised the line of Oldhall Street, High Street (formerly Joggler, Juggler or Jogleur Street, which was about the oldest in local street nomenclature) and Castle Street. The northern extremity of the town was marked by the White Cross, while in High Street, about the point where Water Street line passed it, stood the High Cross, which was considered the centre of public activity in business and everything else. About this spot stood the first town hall (in pre-Reformation days St. Mary's Hall), which combined the purposes of a civic mansion-house, a lock-up for prisoners and the customs house. In this modest building municipal banquets were held at a cost of about 20s., though when Lord Derby was entertained with lavish hospitality the expense ran up to 24s. At the foot of Chapel Street was the old church of St. Nicholas, which was built between seven and eight centuries ago, and at the south end of Castle Street still stood the Norman castle.

Liverpool Castle used to be traced back to the time of Roger Poictou, upon whom the manor of West Derby was conferred by William the Conqueror. But antiquarian investigators will not allow the old castle the antiquity which was claimed for it, though as it was swept out of existence in the early part of the Georgian era the antiquaries might have made allowance for local sentiment and let us still believe we once possessed a building of the Conqueror's time. The old castle was quadrangular in shape, with a circular tower at each angle, and was surrounded by a moat about 25 feet deep. And the 1650 map shows the old tower, the "stone house" of the Stanleys, which was embattled by Sir John Stanley exactly 500 years ago by permission of King Henry IV. This was the Sir John Stanley who married Isabel, the only daughter of Sir Thomas Lathom, whose grandfather had married Katherine, daughter and heiress of Sir Thomas de Knowsley, and thus brought the Knowsley estate into the family.

It was not until near the close of the seventeenth century, about fifty years after Liverpool's first map was drawn, that the people of the town, obtaining parochial independence of Walton, decided to have a second church. At this time there does not appear to have been any other place of worship in the town except the Old Church. St. Peter's, the present pro-cathedral, was erected in the fields, for there were then no other buildings in what became Church Street, and this new edifice was consecrated exactly two centuries ago. Two years later (in 1706) "the people called Quakers" opened their first meeting-house here in Hackin's Hey, and the *locale* is indicated by the still existing Quaker's Alley.

In 1734 was consecrated St. George's Church, built on the site of the old castle, and lately demolished to make an open space and give a suitable position for the Victoria memorial. St. Thomas's Church, which is now condemned by the Bishop's Commission, was originally opened in 1750, and about this time the Roman Catholics provided themselves with a modest chapel in Edmund Street, which underwent several variations till it became the present-day St. Mary's. As early as 1700 the Baptists, under Dr. Daniel Fabius, had a little chapel in remote Everton, but in

1722 the congregation removed to Byrom Street, converting into a place of worship the barn of Townshend House. Some years later they again removed to the corner of Circus Street, and the building they had vacated near old Shaw's Brow became St. Stephen's Church of England. This had to be demolished a few years ago for the widening of William Brown Street (Shaw's Brow that used to be), and the erection of the Technical School, while a new church was built nearly opposite Great Crosshall Street.

In 1726 Benn's Gardens (Unitarian) chapel came into existence, and it was a minister of this chapel (the Rev. John Henderson) who became first incumbent of St. Paul's Church (now condemned), which was opened in 1769. The Wesleyans opened their first Liverpool chapel (Pitt Street) in 1750, but a hundred years ago it was rebuilt and enlarged.

The town was growing, and before the dawn of the eighteenth century six additional churches had been added to the local resources of the Establishment. These were St. Anne's, in the fields at the end of partially-built St. Anne Street; St. James's, Toxteth, though the population of that region was sparse and scattered; St. John's, which was only recently demolished and superseded by public gardens, with statues of local worthies; Holy Trinity, St. Anne Street; St. Matthew's, Key Street, which was bought from the English Presbyterians in 1795, but has since disappeared to meet railway exigencies; and was not the "Scotch Kirk" in Scotland Road converted into St. Matthew's Church of England as a result of Presbyterian divisions? In 1796 Christ Church was opened to accommodate 2,800 people. Another Dissenting chapel called the Octagon in Temple Court was bought and used as a Church of England from 1776 till 1820. Of course, in the meanwhile the Dissenting bodies had also been active in the provision of churches, while the Church of Scotland opened its first local church, which still stands in Oldham Street. The town's population, which was about a thousand in 1650, had more than quadrupled before the close of that century, while the census of 1801 gave Liverpool a population of 77,708—roughly, a tenth of the present-day number of people.

In the twenty years following the first census of the nineteenth century, while more than 41,000 people were added to the population of Liverpool, only three churches connected with the Establishment were erected, as pointed out by the late clerical statistician, "Father Abraham," to give the late Canon A. Hume the name bestowed upon him in friendly colloquialism. The three churches erected in that score of years were St. Mark's, Upper Duke Street; St. Andrew's, Renshaw Street, built by Sir John Gladstone, and in recent years moved to Aigburth Road; and St. Philip's, Hardman Street, rebuilt in Sheil Road. Besides these there was the church erected in 1818 in connection with the School for the Blind in London Road, removed in 1850 to its present location in Hardman Street. On the other hand, the Dissenters' Octagon in Temple Court, which had been for a time used as St. Catherine's Church, had given place to a fire police-station. But two churches had been erected in the outskirts for the use of the expected population. These were the plain brick edifice St. Mary's, Edgehill, built in 1812, and the stone structure St. George's, Everton, erected in the following year. Among other places of worship opened in the town in the twenty years was the Jews' Synagogue, Seel Street (1807). The church of St. Michael in the Hamlet was built (largely of iron) in 1815, but that edifice was remote from the Liverpool of that time, and the movement of people in the Toxteth direction had been restricted, the popular tendency being in north and east directions, Everton and Edgehill showing signs of development.

The Royal Birmingham and Midland Counties Art Union ballot took place on the 5th inst. An oil-painting by Edgar Bundy, R.I., entitled "At the Apothecary's," value 65*l.*, was the first prize. Sixteen thousand tickets had been issued, of which 5,302 were sold. After deducting the necessary expenses there remained 185*l.* to be balloted for. That was divided into prizes as follows:—First, 65*l.*; one prize of 15*l.*, which would be chosen by the winner; seven of 10*l.* each, and ten of 5*l.* each. To those were added two extra prizes unclaimed from the last autumn ballot—"The Old Manor House, Old Walford," by Oliver Baker, value 10*l.*, and "Floodgates on the Blythe," by W. H. Vernon, value 10*l.*

NOTES AND COMMENTS.

By the death of Professor ERNST EWALD, Germany has lost her highest official representative in industrial art. It is supposed that not less than ten thousand artists must at one time or other have come under his direction. He was respected by the late Empress VICTORIA, the English Princess Royal, and gave instruction in her atelier to the KAISER and his brother Prinz HEINRICH. He was a native of Berlin, where he was born in 1836; he studied in Bonn, but instead of following the usual academical course to a professorship, he turned to painting, in the study of which he spent several years in Paris, Berlin and Italy. ERNST EWALD was an enthusiast for mural work. He painted scenes from the Nibelungen in the National Gallery, and his works are to be found in other public buildings not only in Germany, but elsewhere. His talents fitted him for demonstrating applied art, and in 1874 he was appointed Director of the Kunstgewerbe Museum. Under his direction the scope of the institution was enlarged, and it is now one of the most important in all Europe. He was also head of the Royal Art School, which used to be only a part of the Academy for Art.

OUR new century is likely to be characterised by its grandiose building projects. There never was a time when it was so easy to obtain a plan for the transformation of capitals. It would seem to be sufficient to draw lines of streets on plans with the boldness resembling that of Sir JOHN RENNIE when he marked out railways, that is, to fix on the terminal points and connect them by straight routes, and people will willingly undertake the destruction and erection which is necessary. Mr. A. R. BENNETT, M.I.E.E., in his scheme for a Temple Bridge with County Buildings to span the Thames, only proposes two new approaches, one from the Strand to the Thames, and one from the Thames to St. George's Circus, but he would blot out what is left of the perspective of the Thames with the callousness of a railway company. The latter have at least constructed lattice bridges, but Mr. BENNETT's County Hall would be as substantial a structure as either the Gothic or Renaissance style would allow. If the building had to correspond in growth with the Metropolis, we suppose it would become more portentous by the addition of storeys. It is not necessary to discuss the proposal, for the London County Council will never accept inspiration from outside sources. But it is an indication of the spirit of the time and the desire for startling novelties. Mr. BENNETT's design may not be adopted, but he probably will find a reward in some other way, for so much courage deserves one. It is also refreshing to find that in the twentieth century Old London Bridge, with its rickety timber houses, which almost formed a rude arcade, and the Ponte Vecchio, Florence, with its little shops, should be selected as models for imitation. The project if realised is supposed to serve two purposes. One is a junction between the northern and southern systems of the Council's tramways. But as metropolitan communications are at present in an indefinite state, it will be time enough to propose new lines when private companies have acknowledged they cannot completely solve the problem. As regards a hall, the Metropolis is wide, and there is no necessity for the County Council to seek a costly site for offices near Pall Mall. There are many districts where the erection of a fine building for the purpose would produce an elevating effect in the neighbourhood, and improvements would be carried out at the expense of individuals.

ILLUSTRATIONS.

SUNDERLAND HOUSE (RESIDENCE OF THE DUKE OF MARLBOROUGH, K.G.), CURZON STREET, W.

DAVI LEWIS HOSTEL, LIVERPOOL.

COLONNA DELLA LUPA, SIENA.

IN the time of AUGUSTUS, when Siena became a Roman colony, it acquired a right to use the arms of the wolf suckling the twins ROMULUS and REMUS. These arms are used in the ornamentation of some public buildings of the town, but are nowhere so prominently represented as in the present instance on the top of a column. This work, cast in bronze in 1620 by DOMENICO CAVENDON, is now much discoloured, so that it is not easy to criticise its merits in detail. It occupies a prominent position in the piazza situated between the church of S. Cristoforo and the Palazzo Tolomei, and cannot fail to be seen by those taking the ordinary route from the railway station to the much-frequented hotel Aquila Nero, or the central points of interest in the town, such as the Palazzo Publico or the cathedral. The Palazzo Tolomei, before mentioned, is the building shown to the left in the sketch, and is one of the earliest private palaces in the town. It was built by IL TOZZO in 1205, and was evidently in its earlier days a palace of much importance, for when ROBERT, King of Naples, visited the town in the year 1310, this palace was chosen for his residence. The façade is not broad but lofty, very plain and massive up to the string-course under the pointed windows, of which there are two rows of five in each, under a bold cornice, consisting of a simple cove. Observe the curious form of the voussoirs of the segmental-headed door. The principal doorway, part of which is shown, will be found more fully illustrated in Mr. ROBERT ANDERSON'S work, published a few years ago. The palace has evidently undergone some alterations. The interior contains little that is remarkable, unless it be a hall with fresco-paintings by Buonsignori LIVORNESE, but this work is of no great importance in a town well known for its remarkably fine early frescoes.

THE TOWER OF THE "MARTORANA," PALERMO.

THE church of Santa Maria dell' Ammiraglio, or, as it is commonly called, the "Martorana," is certainly, says Mr. HAIG, one of the most interesting relics of the Norman sway in Palermo. Very little of its actual interest is suggested by the exterior, however, for, with the exception of the tower over the western entrance shown in the sketch, and just the upper part of a flat dome, which could not be brought in, the actual and original exterior has been cased in by a Late Renaissance shell, dating from some 200 years ago, when the taste for that Rococo architecture so much employed by the Jesuits seemed to have taken a hold of the Palermitan architects. Of this style is also the western portion of the interior and the altar and fittings generally. The main part of the interior is original and in the form of a Greek cross, covered at the intersection by a dome of Norman-Saracenic character, with curious and effective pendentives, the whole covered with glorious mosaics of Byzantine type, somewhat stiff as usual, but dark and rich in colour. The church was built in the time of King ROGER, early in the twelfth century, by the High Admiral of that king, GEORGE ANTIOCHENUS, and the memory of both king and admiral is perpetuated by two mosaics here, one representing the king crowned by OUR SAVIOUR, a frequent form of votive representation in those days, and the other shows the admiral in the act of kneeling before the VIRGIN. The former of these pictures recalls a somewhat similar one over the royal throne in the cathedral of Monreale, representing King WILLIAM THE GOOD, also crowned by the SAVIOUR. The tower serves as an example of the influence of Saracenic traditions on the Norman builders, as in the sunk surface ornaments, which were probably filled in with mosaics. The top of the tower may have terminated similarly to the smaller towers of the cathedral, with a short spire and four pinnacles.

HOUSES, DARTMOUTH ROAD, BRONDESURRY.

PREMISES, PRINCE'S STREET, HANOVER SQUARE.

THE ARCHITECTURAL ASSOCIATION.

A MEETING of the Association was held on Friday evening last in the new premises at Tufton Street, Westminster, Mr. E. Guy Dawber, president, in the chair. Mr. ALFRED COX read the following paper, entitled

Public Libraries.

The building and arrangements of public libraries, which is the subject of my paper to-night, is a very interesting one, embracing as it does all sorts and conditions of buildings, from the medium-sized, ordinary free public library to the magnificent buildings of our own country, and those of France, America and Germany, in which are housed the libraries of more national character—such as that within the British Museum, the National Library of Ireland, the National Library, Paris, together with the well-known examples in Boston, New York and Washington.

In speaking on this subject to-night I do not propose to deal with the history of libraries prior to the passing of the Act, nor shall I discuss the general advantages of education which the passing of that Act brought about. This is all very interesting in its way, but I think, as far as we are concerned, our interest is principally in the buildings themselves. And in dealing with these buildings I shall confine my attention more chiefly to the smaller class of library building generally adopted by the various towns in this country, and which would probably be erected for sums varying from 2,000*l.* to 10,000*l.*

As you are aware, there have been several useful books written on libraries, and papers have been read from time to time both here and at the Royal Institute of British Architects on this subject, so that I do not know that I can add very much to the excellent information contained in them, but I shall endeavour to point out the uses to which the various rooms would be put, and their suitable position within the building in relation to one another. During the last few years there has been a great deal of architectural work brought about by the erection of public libraries of this type, and many towns that otherwise could not do so have been enabled to add to their public buildings in this way, owing to the generosity of certain individuals, among whom may be mentioned more particularly Mr. Andrew Carnegie, Mr. Passmore Edwards and the late Mr. Henry Tate, all of whom have given large sums of money for the purpose. The plans of these buildings, many of which have been published in our professional papers, show various ways of dealing with the peculiarities of site and the special requirements necessary, at the same time having due regard to the sum of money to be expended. In the first place, it is of the greatest importance that a suitable site should be provided; on this almost entirely depends the satisfactory planning and general economical arrangements of the building to be erected on it. It should, of course, have good light around it, and also be in as central and yet as quiet a position as it is possible to obtain. It should be large enough to allow of any probable future extension of the building to a reasonable degree; but in the case of suburban towns, which spring up like mushrooms, and develop at a rate far beyond the most careful calculation, the best solution of this problem will possibly be by means of small branch libraries erected in suitable positions. With regard to the general arrangements of the plan, these should, of course, like any other building aiming at satisfactory results, be very simple, and, if possible, all the public rooms arranged on one floor. This, however, often cannot be done, owing to the limitations of the site, and in such cases the more public rooms to which most easy and ready access is required, such as the news-room and the lending department, should be placed on the ground floor, and the less-frequented rooms and those for special study, together with the librarian's office, on the upper floors. Supervision is of the first importance, and in planning should be always borne in mind, and it is usual to arrange for this by placing the staff-counter in an enclosure connected with the lending department in such a position that the attendants, who are generally at work there the whole day long, can command the main entrance, and as many of the rooms as possible. In connection with this it is a mistake to conclude that the librarian is the policeman of the building, his work being of far greater importance than that, although probably in very small libraries he may have to do all the work, with possibly the assistance of a youth. He should be in a position near to his assistants, but it is not necessary to place his room in a prominent position as regards the public. All the public rooms should be lofty

and well lighted; the ventilation should be especially considered, so that the air can be changed frequently, as at certain times in the day these rooms are often crowded, and any feeling approaching to stuffiness is most unpleasant, besides being unhealthy for the readers, and renders the work of the attendants who are there always doubly trying.

A free public library, as a rule, has to be completed for a sum that allows little for architectural splendour, but the requirements, being generally very simple, lend themselves admirably to a successful and dignified treatment, provided the designer confines his attention to such vital matters as good proportion and simplicity, with suitable details of whatever style he may adopt to emphasise them and not be carried away by any unnecessary feeling that the building wants breaking up somehow. This breaking-up, as a rule, is quite superfluous to the real requirements of the plan, embracing very often as it does bay-windows and odd corners, neither of which are happy features in the public rooms of a free library, and is but too often the amazing conceit of the pencil as opposed to the common sense of the indiarubber.

After all, the public library is, or should be, a local centre of culture and, apart from the books, the building itself should be of such a character as to elevate the minds and educate the public in the art of architecture, and make them feel that they are in a place which inclines them to improve their minds and morals in every way. I am afraid library committees often overlook this and disregard the real and good in architecture in favour of the more showy on paper, which often masks an ill-arranged plan; the former being looked upon as a sort of joke and likened to a stable, a workhouse, or any other building which they do not associate with architecture, but think merely bricks and mortar; whilst the latter, exhibiting all the tricks of draughtsmanship to illustrate the commonplace, is loudly praised.

I will now give you a more detailed description of the internal arrangements of a library, but I think these are pretty generally known; however, the memory cannot be refreshed too often, and possibly if most of it is forgotten some of it will stick and prove useful in the future. The entrance should be spacious and open into a good-sized hall or broad corridor, and these lend themselves to be particularly studied as the architectural features of the building. First appearances go a long way, and I should always endeavour to make the entrance attractive. From this hall as many of the rooms as possible should be directly approached; the more frequented rooms, as I mentioned before—such as the news and lending-rooms—being, if possible, nearer the entrance. The counter or enclosure of the lending library should be conspicuous on entering, and, to my way of thinking, is better entirely open than having to pass through swing-doors to reach it. The reference-room, being used by students and readers of more serious books, would necessarily be placed in the quietest part of the building, and in such a position where it would be unnecessary to be passed by people going into the other rooms. I suggest as a good place for it within the lending library counter, so that readers—as a rule there are not many—could pass into it through a wicket gate, which would be under the control of the attendants. The books, too, in this room, being of more value, are thus afforded better protection, and the attendants know who the people are they pass into the room. In the case of a small library, a space for a table to be used by reference readers might possibly be arranged in the lending library itself by arranging the book-cases in a suitable manner, and I think in many cases this would give all that is required. In some buildings a separate room is given for juvenile readers, and great care must be exercised in planning so as to put this in a position near the attendants, and also where the occupants cannot make themselves a nuisance to the other readers. A separate entrance from the street is sometimes provided for this room, but I do not think it is a good arrangement, as, among other things, it makes an easy escape for the mischievous youngster after “cheeking” the attendants, and has many objections.

One main public entrance for all parts is the simplest, and gives better control than where there are more. In a library building of ordinary size I don't see why the principal entrance should not open into a large space, which could be subdivided by arches or columns with balustrades, so as to group the various readers into the usual sections, viz. magazines, news, lending, &c. Surely one person reading a newspaper and another a magazine can do so

without having a solid wall or even a glazed partition between them. This arrangement would give excellent control, and there would be no annoyances caused by such small matters as the opening and shutting of doors. Of course, great care would be necessary to exclude draughts, and I can see no difficulty in this any more than in a building of a larger area. The librarian's room is well placed on the counter enclosure side of the lending library. It need not have any direct communication with any of the public rooms; in fact, it is an office pure and simple, where the occupant has much work to do without being continually worried in the control of the public using the library. This room is often used for the meeting of the library committee. With regard to the lavatory and water-closet accommodation for the public, this is sometimes provided, but in a small library I think it has many objections, and is liable to be a great nuisance. Of course, it is necessary to provide for the staff, and in many cases for both sexes, as female assistants are now very commonly employed. A good store-room and work-room and a mess-room for the staff should also be provided within easy access of the lending library, and a separate entrance for delivery might be arranged in connection with these rooms. The lending library should be arranged so as to be worked either by the indicator system or by a more recent method known as the "open access." In the former case there must be a long counter for the indicators, with issue spaces in between them. The amount of space occupied by the indicators varies from 35 inches to 10 inches for each 1,000 numbers, according to the particular type adopted. The counter should be somewhere about 32 inches high, so as to allow children and people of small stature to clearly see the top numbers of the indicators. The length of counter would be determined by the number of indicators in use, and a sufficient allowance should be made for possible extensions. As regards the issue desks, two, each of 3 feet wide, should be allowed to every 10,000 volumes. Good light on both sides is very necessary, so that the public on the one side and the attendants on the other have no difficulty in reading the numbers. In the case of the "open access" system there must be an enclosure of ample size at the entrance to the lending library. In this an attendant would receive a book from the person returning it, and would then allow him to pass through a turnstile or wicket gate into the room itself, the gangways being only wide enough for a single file of people, where he could choose his own volume from the shelves and pass out through a similar gate or turnstile in the other side of the enclosure. The bookcases should be arranged "end on" to the counter or enclosure, and in close proximity to them, as an extra yard when multiplied by several visits a day considerably adds to the work of an attendant. It is a question whether it is not more satisfactory to keep the books out of sight in "a stack-room" (to borrow an American name) rather than have them within the view of the public. I always think there is a very untidy look about the cases themselves, particularly the iron ones, which does not add at all to the general appearance, and if only the space occupied by the public together with the issue-counter and the enclosure were seen it might be made a good feature, and treated architecturally as a central hall or in any way else that might suggest itself. It is a mistake to be too economical with the size of the hall, and as long as it has no odd corners in it or obstructions, a good area might well be allowed, and if it could be managed so as to do without corridors it would be all the better and much easier to supervise. It is also a point to be remembered that many of the readers in the news-room are people in want of a situation, who go there solely for the purpose of consulting the advertisement columns of the daily Press, and it saves a lot of traffic in the library if the entrance lobby is made large enough to accommodate on the side walls notice boards for the display of the advertisement sheets. But of course this means that the vestibule or lobby must be made fairly wide, so that easy access to the library itself is not interfered with. The stack-room might be made high enough to take two or more tiers of bookcases over the lower ones by having a light floor of perforated iron gratings between them. These floors would be reached by a straight staircase of about 3 feet 6 inches minimum width. A circular staircase is not desirable either to go up or come down. A book lift in a well-considered position is of course essential where there is more than one tier. With regard to the bookcases themselves, these are about 16 inches wide for a double one (for books on both sides), and the height is anything between 7 and 8 feet. A step is often provided so that short people

can more easily reach the upper shelf. These double cases are better without a central partition between the books, as it allows of a freer current of air and does away with corners where dust might accumulate and also facilitates the washing and dusting of the shelves. A small fillet, however, might be nailed along the centre of the shelves to prevent the books from actually touching. Wooden shelves are generally $\frac{7}{8}$ inch thick, and should not be longer than 3 feet, as anything above that is awkward to use and has a tendency to sag. Wooden shelves have a better appearance than iron; they are cheaper, and if the corners are rounded do not tend to damage the bindings of the book so much. Iron shelves are of course more fire-resisting, but unless the whole building is made absolutely fireproof there is no real advantage in it. The bookcases should not be at a less distance apart than 3 feet, otherwise it is difficult to stand far enough back to see the upper shelves, and at the same time to allow people to pass. In the case of the "open access" a greater distance still should be allowed, and 4 feet taken as a minimum. All counter tops or slopes should be of polished hard wood. Of course, I know many of us do not like the appearance of this, but it is a case where experience tells us that common sense is better than "high falutin'" ideas, however much we may sigh for wood left in its natural state to become interesting by use and time. Floors must be rendered as noiseless as possible, and wood blocks or cork carpet are generally used. Care must be taken, in the latter case, to have the floor thoroughly dry and well ventilated from underneath, otherwise dry rot will occur. The walls should have glazed brick or tile dadoes in the public rooms and lobbies, as without them they are apt to get very much knocked about. With regard to the heating and ventilating arrangement of coils on the low-pressure system, with a sectional independent boiler, will probably give the best results on account of its easy and economical working. Artificial lighting by gas is bad, as it causes the bindings of the books to rot, and electric light where obtainable is very much better both for health and cleanliness. Fresh air introduced by inlets behind the radiator so as to warm it before entering the room, and grids in the ceiling through which the foul air passes into an airtight trunk is, I think, as simple and efficient a system as any among the many in use. Of course, it does not do to depend only on natural ventilation, and the introduction of electric fans gives much more certain results as it allows of control if used intelligently.

In many libraries a residence for the librarian is arranged, and suitable accommodation for it is to provide two sitting-rooms, kitchen, scullery, pantry, with three or four bedrooms, bath-room, &c. In other cases the caretaker only will live on the premises, and for this the provision of a kitchen with scullery and pantry, a living-room and two bedrooms and a bath-room should be sufficient. With regard to the style of the rooms themselves, the larger ones should be treated as small halls rather than rooms, and the satisfactory lighting of them must be carefully considered. Good lofty rooms with windows high up, and, where possible, opposite to each other for cross ventilation is a good arrangement; the height of sills from the floor line being about 5 feet up in the news-room and lending library, so as to allow newspaper slopes and bookcases to run continuously round the walls. In the other rooms the ordinary sill height is preferable. Personally, I do not like the appearance of either skylights or lantern lights; they tend to make a room anything but cheerful, and the idea of not being able to see out at all is objectionable. Of course, in certain cases it is difficult to do without them, but if possible always try hard to avoid them, at all events for your main lighting. They are also unsightly things on the outside, and rather make a building look like a hotel billiard-room or swimming-bath. In a small library rectangular rooms would be the best and most economical for furnishing. Bay windows and odd corners are wasteful, and not easy of supervision. Unless there is anything against it, clear glass is preferable for the windows, and if any coloured glass be used, let it be done sparingly and be of the best quality.

It is always pleasant to look up and out now and then, and anything in the nature of opaque glass is objectionable where there is no reason for its use. With regard to the exterior appearance of a public library great simplicity is as a rule absolutely necessary on account of cost, and is more dignified than the multiplication of much detail. The commonplace, with its many features, most of which are to the scale one associates with a wedding cake—the detail being very similar—is much admired by the uninitiated, who

love to see a thing with plenty of detail on it, and which looks like a mighty effort of the designer to cram in all he knows (or all he does not know) in every style of architecture. If it were possible to do without pencils or other sharp pointed instruments and draw with something blunt, I think in a generation or two we might see some of that regard for mass and proportion so highly appreciated by the ancients, and about which we hear so much but see so little, and the scale of detail might also be consistent throughout. However, I am not here to discourse about the possibilities or shortcomings of modern architecture, but I should like to see our public libraries designed with more character and restraint; and when I say restraint I do not mean that mere holes in the walls for windows and doors is the right kind of simplicity, for this is nothing but poverty of ideas in design, and is not restraint at all. The art of leaving out should be deliberate, and can only be acquired satisfactorily by constant study and experience. Mr. McKim, the well-known American architect, who is responsible for the designs of some of the finest libraries in America, when over here last summer, I think it was, as the guest of the Institute, told a friend of mine that he was surprised the splendid style of the old work here, more particularly that by Inigo Jones, Sir Christopher Wren and their contemporaries, which might well be called our national style, was not more cultivated (collectively not individually) by our present-day architects for public buildings. Here we have at our very doors a grand architecture, and I feel sure Mr. McKim is right in his remarks, but the work must not be studied from the illustrations of the handful of men who are doing such work which appears from time to time in the pages of the building papers. I have borrowed several plans from gentlemen whose names are well known to you, as possibly are the buildings erected from them, and I should like to express my thanks to them for the loan and also for a good deal of information respecting the buildings.

Mr. MAURICE B. ADAMS said:—There appears to be scarcely anything which anyone possessed of experience in library planning would wish to take serious exception to in Mr. Cox's paper on this subject, consequently it is not quite easy to promote an animated discussion; and, moreover, having myself undertaken to read a paper on rate-aided libraries during next month before the Leeds Architectural Society, I am precluded from saying on this occasion all that I have on my mind on the matter, otherwise by anticipating my lecture I might be thought lacking in courtesy to our *confrères* in Yorkshire. It seemed due to you that this explanation should be made. The same paper was read last month in the Law Library at Liverpool before the Architectural Society of that city, and its publication for the reason just mentioned had obviously to be deferred for the present. However, I willingly respond to the invitation of the committee of the Architectural Association to attend this evening, and it gives me special pleasure to thus support the chair and to commend the remarks which Mr. Cox has been good enough to put before us. His design for the Kingston-on-Thames library, accepted in preference to my own in a limited competition a few years ago, makes a very admirable building, and the wisdom of the choice then made has been demonstrated by its execution. Last year, when acting as professional assessor for a public library at Wakefield, I had an enormous number of plans to deal with—many of them of distinct merit—but the result proved to be that Mr. Alfred Cox secured the honourable position of being chosen as architect for that building. These two circumstances, in which my professional relationship with our lecturer to-night happened to assume a concrete form, enable me to realise how thoroughly he has, on occasion, put his knowledge to the best advantage. I anticipated consequently that he would have incorporated in his paper to-night some decidedly precise and detailed particulars such as might lead to a more practical issue between us than that which seemingly is likely now to result. It is true, as he says, that admirable handbooks have appeared, and that other papers on libraries have been read, but we are every day going either forward or receding—there can be no standing still, the movement must be perpetual. I venture to doubt the wisdom of architects confining their attention too strictly to a mere knowledge of buildings as buildings, and their range of interest cannot advisedly be restricted to the question of libraries as buildings only, without embracing also their educational scope and possibilities. It is essential in all specialised work of this kind for the architect to cultivate a more or less intimate acquaintance with its process of contemporary develop-

ment. The library at the present juncture is already in a transitional stage, emerging, let us hope, from comparative obscurity to the full recognition of adequate importance long enough ago accorded to it in America. The architect ought not to be content to follow only; while faithfully interpreting the wishes and adhering to the instructions of his clients, it is his business surely to do more than that, so as to assist, at least, in some degree, the promoters of such undertakings as libraries to erect up-to-date premises fully adapted and equipped in accordance with the trend which improved methods and enlarged ideas are daily assuming. In my paper, to which reference has already been made, there is one aspect of the library question to which I have devoted perhaps by far too little space, and it may be thought by architects, therefore, to that extent an opportunity has been lost. I allude to the artistic character of library buildings. With your permission possibly I may be allowed briefly to make good, as far as I can just now, the omission referred to. Eminently as a first principle, I suppose, the somewhat trite stipulation ought to prevail as to a library (or, for that matter, any other building) being made to look just like what it really is, not a school, or a house, a town hall and offices, or a church. The style of such premises is easy enough to start with, but not by any means so easily put into practice satisfactorily; very often it has been sadly ignored. This shortcoming is more than often due to the fact that the special characteristics are masked by too close an adherence to traditional architectural lines instead of allowing the particular needs of the interior to determine the exterior treatment. It is, I know, a very old reason to restate here, for it is patent to everybody. Mr. Cox has impressed us with the need of making libraries beautiful and worthy of their destiny. He alluded to the effect of skylights and their likelihood to make a library resemble a public bath, or perhaps a billiard-room. In parentheses, let me add that quite apart from their appearance, roof lights are, in my opinion, open to several objections in a library, and especially if no ceiling lights are also provided. They are noisy when heavy rains are falling, and they are too subject to variations of temperature, causing down-draught, as well as difficulties to keep them water-tight. Ceiling lights also get very dusty and need provision for easy cleaning. I much prefer vertical dormers and lantern lights—they aid ventilation better, and, at least, are capable of architectural treatment. Still, skylights have to be employed at times, and by preference one puts them on the rear slopes of the roof, out of sight. Where no choice is left, and they have to be located where they otherwise would be conspicuous, I fancy their presence can be masked by good tall parapets, because such sloped lights need not be near the ridge. This idea of a parapet implies a cornice, and that in turn indicates a monumental façade necessitating a more than usual breadth of handling and scale. Then, again, Mr. Cox has intimated that angles, bays and projecting features have a tendency to break up designs needlessly and obstruct supervision, which, in a way, is perfectly true. And, further, he suggestively dilates on window contrivances. We all know that windows placed low down in libraries waste internal wall-space and encourage loafing, which constitutes one of the bugbears of modern reading-room work. Then, added to the possibilities of fenestration arrangement will be found ample scope for inventive skill in the management of the main entrance to our libraries. It should be spacious and dignified. Last of all, and dominating all these details, however, comes in the primary advantage belonging to the facility of supervision, always and only to be insured by making all the public rooms on one floor. Consequently the general outline of an ideal library, where the site allows of this arrangement, should be comparatively low in proportion with a spreading plan. These, then, are the prevailing conditions to be observed in façade management of library design, and they are sufficiently diverse to allow of considerable variety of treatment, but there can be no reason why these buildings should be made bald and forbiddingly severe with uncouth, bald expanses of brickwork or prison-like masonry, instead of encouraging a sense of picturesque homeliness and brightness of effect. On the other hand, all playfulness peculiar to a building adapted mainly to passing amusement or even social hospitality ought to be avoided, and it goes without saying that all stuck-on ornament and vulgarity of detail is always out of place. For style, the English Renaissance appears best adapted to present-day needs by allowing sufficient margin of diversity consequent upon the exigencies of sectional contrivance, as also the immediate arrangement of planning. This reference

to the sections of these buildings directs attention to one of their essential peculiarities, owing to the relative heights of their internal dispositions, which demand the utmost care and attention where economy and compactness become determining factors for success. They exercise a controlling influence, too, on the exterior, imparting the very individuality which every architect of taste only too readily recognises. Mr. Cox has rightly drawn attention to the gain associated with an impressive, not to say stately, entrance-hall, out of which the several departments should diverge. The fault, nevertheless, which sometimes may be noticed in this respect, is that designers of libraries overlook the great importance of proportionate height required to insure a real feeling of spaciousness, so that by this oversight halls which look roomy enough on the plans are cramped in effect by reason of an upper floor or mezzanine above crushing their height down to perhaps 8 feet or even less. The larger the plan the greater the depression. Instances of this could readily be mentioned. As to the architectural treatment of reading-room interiors by arcading and intercolumniation, opening up the whole series of apartments into one large undivided whole, no doubt the lecturer's suggestion possesses the merit of ambitious possibilities, but the vast majority of librarians prefer separate rooms for newspapers as distinct from magazines. The concentration of a reader's attention is much influenced by his environment when studying, by his being surrounded by a relatively restricted space, to say nothing about draughts and the difficulties of heating, which already are sufficiently complicated and troublesome. Mr. Cox has mentioned the essential differences of the open access-library as contrasted with the indicator system—a very crucial point of the utmost consequence. He has by way of detail suggested, however, that the reference-room entrance should be behind or within the lending library counter. This plan, I think, is open to the objection that when the issue of books closes on certain evenings of the week, no one would be able to use the reference-room without exposing the stack-room to intrusion, and it is most desirable to keep the reference-room always open for access to directories and other reference books, usually kept in these apartments, and, of course, for reading the heavier monthlies and quarterlies. As to the further observation about permitting the reference-room readers to have a table in the lending library stack-room, and group the bookcases suitable for the purpose, it would be hardly possible to discuss that point without opening up the whole question of library administration, which, to a considerable degree, must depend on the burning question of rate-aid *v.* State-aid, and it also touches the crying need of reference-room development. To-night we have, perhaps, wisely omitted such matters, though had I not been limited, as already mentioned, I would rather have considered the problem of the library in a broader sense than has now been possible.

Mr. H. T. HARE said the subject which they were discussing was of very great interest, dealing with one of the commonest class of buildings erected in recent years. Almost every town of importance had a free library, and those that did not possess one were ready to procure it through the generosity of some individual. Although the free library was an extremely simple building to design, one of the simplest an architect could deal with, yet it was one of the most difficult to plan successfully. He was inclined to question whether given an absolutely free site it was possible to get a perfect plan, one that would meet the whole of the requirements in a thoroughly satisfactory way. The first necessity for a free library was proper supervision. There was some confusion generally as to how the supervision was to be obtained, it being the common idea that the staff would exercise all control, and in many plans of libraries they could see the public rooms were grouped round the lending department. As a matter of fact, in most libraries the porter was the man who exercised the real supervision of the public rooms. The staff were generally kept busy in other duties, and they might also resent duties of such a character as could be left to the porter. Mr. Cox in his paper made a very slight suggestion about throwing all the rooms into one. There was a great deal more in such a plan than was mentioned in the paper. The solution of the whole question would be to have one great hall, putting all departments into it. There seemed no necessity for an entrance lobby at all in such buildings, and visitors might enter direct from the street. With regard to the lending library, the speaker did not think it was necessary to place it upon the ground-floor. It was only on

certain days of the week or in certain hours that any large number of people went to the lending department, and there was no objection to having it on the upper floor, but there were many advantages. If the reference library had to be placed upstairs, and if the lending department was arranged on the same floor, all the books could be kept together, and the same staff might manage the two rooms. The only difficulty was to get rid of the staircase, and that was a serious one in a free library of more than one floor, but it might be done. With regard to the external treatment, Mr. Hare agreed with the views expressed in the paper that the more simply such a building was treated the better it suited its purpose, yet it ought to have the appearance of a public building, and not that of a domestic one. In conclusion, the speaker moved a hearty vote of thanks to Mr. Cox for his paper, and to Mr. Adams for his supplementary notes on the subject.

Mr. S. D. ADSHEAD, who seconded the motion, said he would have liked to have heard more about the relative merits of the open access and the indicator systems. In his opinion the indicator system was the best, but in theory the open access seemed to be regarded as the best, although it was not in favour with librarians, since greater supervision was necessary. In districts where the population was poor it might not be workable, and the books would certainly be open to great risk of being damaged. Taken generally there were two distinct ideas prevalent as to the planning of small libraries; the one was the older system in which all the departments were divided by solid walls, and the new system which threw the whole building under one ceiling—the latter perhaps offered the greater advantages. With regard to lavatory accommodation the paper held that it depended upon the size of the library, but the necessity for such conveniences depended rather upon the position of the library in the town and the class of reader using the library. He believed in simplicity of plan for a building of this type, and urged that when an entrance hall formed part of the design it should not be sacrificed to architectural effect. The reading-rooms should be very refined, in true proportion and extremely unobtrusive, and no doubt a very good test of the architect's success in a library would be the absence of any particular style that could hold the reader's attention.

Mr. S. K. GREENSLADE pointed out the differences that existed between English and American systems in libraries. In America, he said, they knew how to treat books, and although the public were allowed to go to the "stacks" the books apparently were not stolen. They made, too, a special feature of the children's room, and the visitors went there for the purpose of reading, and they did not cheek the attendants. In regard to architectural design, a library could not be mistaken in America; they were buildings scholarly and very monumental, and the majority of them having been built from funds left by wealthy people, nothing was spared in the erection of them. The reading-rooms of a great number of American libraries were upstairs; the exception to such a plan was found in some of the university libraries and the great national library at Washington. It was at Washington that the first attempt was made for the storage of books on anything like a monumental scale, there being accommodation for some three million volumes. The framing of the stacks was in iron, very well designed, and the edges being rounded, there was little chance of damaging the books. Compared to America, London was very badly off from the students' point of view. At Boston any one could go to the library and see any book, and there were facilities for quiet study in the building. There were no such opportunities for men in London, and the speaker hoped the Government would soon settle whether the British Museum was to be a library or a museum. He ventured to think that in establishing a national library we should endeavour to build one on the same scale as that which existed at Washington. He finally advised men, if they desired to know what a library building was, not to look at examples in England, but to learn what had been done in America.

Mr. A. S. TAYLER suggested that a librarian's views on planning might aid the architect in designing a building to be used as a free library.

Mr. A. KEEN said in respect of the question of lighting libraries he had been struck with the fact that people got in each other's light very much in the open access system. In top lighting that objection would disappear. Sir John Soane had used such lights in his buildings always with good effect. The results were obtained, not by skylights,

but by lantern-lights, and it was this principle that might be adopted in libraries.

The PRESIDENT briefly concluded the discussion, and the meeting then terminated.

ROYAL INSTITUTE OF BRITISH ARCHITECTS.

A MEETING of the Institute of Architects was held on Monday evening last at Conduit Street, W., Mr. John Belcher, A.R.A., president, in the chair.

Messrs. C. H. Brodie, G. A. Humphreys, W. T. Lockwood, A. E. Powles and E. R. E. Sutton were elected Fellows.

The decease of the following members was announced:—Mr. A. E. Perkins, Fellow, elected 1904; Mr. J. T. Wimperis, Fellow, elected 1877; and Mr. A. C. Wissenden, Associate, elected 1883.

The discussion was resumed on "Building By-laws, Specially in Rural Districts."

Mr. LACY W. RIDGE said they all knew and were agreed that something ought to be done with regard to improving rural by-laws. A remedy was necessary, and he suggested that the Local Government Board should obtain statutory powers from Parliament in order that they might reform those at present in operation. The Local Government Board should then bring forward by-laws for which they were responsible, and which could be enforced by the various authorities. With a view to such reform he submitted the following resolution:—"That in the opinion of this meeting it is desirable that the Local Government Board should obtain Parliamentary powers to enable it to reform the by-laws now in force in rural districts, and in our smaller towns, with a view to the enactment of such by-laws and such by-laws only as are really required in the public interest."

Mr. E. T. HALL seconded the resolution, and said they had all been interested in listening to Mr. Ridge's paper at the last meeting. They sympathised with it from beginning to end. The rural by-laws at present were only suitable to urban districts, and instead of helping building in some places, the by-laws retarded it. They felt, therefore, that the Government ought and would listen with respect to views which comprised the improvement of dwellings for rural labourers. Mr. Ridge had suggested that the Local Government Board had not power to rescind laws to which their approval had already been given, but the speaker thought that if the Board saw their way to adopt the resolution they would be enabled to recast the whole code of by-laws. Architects did not wish to deal with the local authorities as though they were hostile authorities. Their desire was to get the governing bodies to look at the architect's work from a broader point of view. One object of the architects was to save their clients the expense of the drafting of elaborate plans and the delay entailed by submitting drawings. It would be quite reasonable for the authorities to cause block plans to be submitted when several dwellings were to be erected showing how the buildings were placed, but in other cases there was seldom a need for detailed particulars. Factories and assembly halls could be regarded in a different light, and the local authority might claim power in the interest of public safety. On the broad lines of the by-laws proposed by Mr. Ridge reasonable latitude was given to the architect, and if the Local Government Board could get the powers to reform the present state of affairs, the great difficulty of housing the rural population would be overcome.

Mr. RIDGE said his by-laws were put forward as mere indications only of the line reform might take. He had stated in his paper that many points needed discussion and the by-laws should be technically drafted by a specialist.

The motion, being put to the meeting, was carried unanimously.

Among those who contributed to the discussion were Messrs. G. Bertram Bulmer, S. W. Cranfield, J. Douglass Mathews, G. A. T. Middleton, C. H. Brodie, W. Woodward, E. W. Hudson, H. H. Langston, B. Dicksee, and W. H. Atkin Berry.

Cambridge University appealed against the assessment of the Sedgwick Geological Museum. The point at issue was whether specimen cases could be assessed and the building should be specially treated as a memorial. The University, who appealed, secured a reduction of 300*l.*, and the town was ordered to pay the costs.

INSTITUTION OF CIVIL ENGINEERS.

ON Tuesday at a meeting of the Institution of Civil Engineers, Sir William White gave an account of the visit paid to the United States and Canada by the Institution last year during his term of office as President.

Sir William White explained that his paper had been prepared by the wish of the President and Council, who desired that the proceedings should contain a record of a visit paid to America for the first time in the history of the Institution by a representative body of its members. The American Society of Civil Engineers invited the members of the Institution visiting America to attend the International Engineering Congress which it organised at St. Louis in connection with the Exposition, and the Western Society of Civil Engineers, whose headquarters were at Chicago, desired that at least a brief stay in that city should form part of the itinerary. The final result of all these kindly suggestions was that the party, which mustered in New York to the number of seventy-two, exclusive of many ladies, had to face a hard month's work in order to fulfil numerous engagements at places far distant from each other, and to inspect many important works.

The first reception of the party by the American Society took place on September 13. New York and its surrounding districts constituted a great field for engineering operations of the most varied character; indeed, unless engineers had provided means for rapid transit—bridges, tunnels, road and railway communications—deep water approaches to the harbour, berths and warehouses for shipping, great steam ferries plying across the noble rivers, telegraphs and telephones, the great buildings styled "sky-scrapers," which were really gigantic engineering structures with an architectural disguise, adequate water supply and great sewage systems, the wonderful developments in "Greater New York" during recent years could never have been made. The opportunity of inspecting a number of the largest high buildings, some in course of construction, was the more valuable in view of the growing adoption of steel structures for building purposes in this country, and it was satisfactory to note that in the production of special sections of steel joists and girders suitable for such buildings the most recently designed British steel works compared favourably with those of the United States. In both countries built-up sections were giving place to rolled sections, and in both countries H-shaped joists up to 2 feet in depth were now obtainable in the greatest lengths required for buildings. The spectacle presented by the sky-scrapers from the harbour of New York was remarkable and interesting, but, in spite of their advantages in concentrating business, he was personally not desirous of seeing a similar group of buildings in any city of Great Britain. In Chicago, the birth-place of the sky-scraper, a law had been passed limiting the height of new buildings to 150 feet, and that example would probably be followed elsewhere. In New York, south of Fifty-ninth Street, there were 250 buildings of ten storeys or more, which had cost on an average 200,000*l.* each, some of the largest representing 700,000*l.* to 800,000*l.* each.

On September 19 the party left New York by special train for Montreal, whence they went to Quebec, Ottawa, Toronto and Niagara, being everywhere cordially received and entertained, not only by local committees of the Canadian Society of Civil Engineers, but also by representative bodies who joined in welcoming them to Canada. No engineer visiting Canada could fail to be impressed by the enterprise and courage with which the Government and private associations were facing great schemes for the development of the Dominion's resources, the construction of a new transcontinental railway, the improvement of the water ways between the great lakes and the Atlantic, the fuller utilisation of numerous sources of water-power for industrial purposes, and the production of electrical power, &c.; and when it was remembered that the total population of Canada was only about 5½ millions of people, the scale and cost of these great engineering works seemed even more remarkable. The party were enabled to see some examples of the most characteristic features in these developments. At Quebec they saw the works in progress for the new railway bridge to be constructed on the cantilever principle, with a channel span of 1,800 feet (100 feet more than the Forth Bridge), containing a suspended span of 675 feet and two cantilever spans each of 562½ feet. Of the waterways they only got a glimpse, though they visited the Soulages canal, which was 14 miles long and had cost about 1,350,000*l.* for construc-

tion and equipment. Many opportunities were afforded to see examples of the utilisation of water-power, and no one could fail to realise the enormous possibilities of development in the pulp and paper industry, with cheap power and a good supply of labour. They were informed that within a few miles of Ottawa there was 200,000 horse-power of water-power and within a radius of 45 miles nearly a million horse-power. At Niagara on the Canadian side three new undertakings were being rapidly advanced, together giving over 400,000 horse-power, while a fourth would yield 40,000 horse-power. When these were completed the grand total of power derived from Niagara on both sides of the river would be about 700,000 horse-power. Two of the three big undertakings on the Canadian side were practically due to American capital and enterprise—a fact that did not redound to our credit in view of the enormous amount of British capital available for investment. The third was distinctively Canadian and was closely associated with Toronto. The capital of this company was 1½ million sterling, and its total development of power would be 125,000 horse-power; these figures gave some indication of the enormous expenditure required in the Niagara district to develop 700,000 horse-power.

Leaving Niagara Falls on September 27 the party reached Chicago by special train next morning and put in what was probably the two hardest days' work of their tour. Among many other things a visit was paid to the central station and tunnels of the Illinois Tunnel Company, now far advanced after many years' work and an expenditure said to reach four millions sterling. Its first concession was granted for accommodating the cables of an automatic telephone system, but the promoters soon came to the conclusion that the system of subways might also be used for handling freight by electric traction. Hence subways of small sectional area were formed at a moderate distance below the surface under all the principal streets of the business quarter, and by this means it was hoped that the overcrowded thoroughfares would be relieved of the heavier traffic. The South Chicago works of the Illinois Steel Company, covering over 300 acres and including the largest rolling-mill in the world, were also inspected, together with the great Chicago drainage canal which, though primarily designed for sanitary purposes, was now regarded as part of a grand scheme for a deep waterway from Lake Michigan to the Mississippi. The Chicago authorities claimed that notwithstanding the use of the canal (which is designed when completed to have a flow of 600,000 cubic feet a minute) for sewage purposes, it was in better condition hygienically than an ordinary river flowing through an inhabited country; but this opinion was not shared by the people of St. Louis, who were understood to have begun legal proceedings. The party arrived at St. Louis on September 30 and attended the International Engineering Congress which opened on the 3rd of the following month. The attendance (including ladies) at the Congress was 876, and of this total 92 were citizens of the British Empire, 73 coming from home and 19 from the Colonies and India. This large attendance of British subjects—76 per cent. greater than that of all other countries combined, apart from the United States—was highly appreciated by their American hosts. Throughout the meetings the greatest cordiality and good feeling prevailed, and though most of the British members had to leave earlier, Sir William White himself, at the request of the President and committee of the Congress, remained till the concluding meeting on October 8, which furnished the culminating expression of goodwill to the Institution of Civil Engineers from their American brethren.

In conclusion, Sir William White remarked that this visit would undoubtedly be of benefit to British engineering, since it included exceptional opportunities for obtaining particulars of the latest American and Canadian practice. But beyond that, the close association and friendly intercourse that were maintained could not but have beneficial effects of a far-reaching character. The visit must tend to strengthen the friendly feeling already existing between the United States and the British Empire, and must result in a better understanding between the Mother Country and Canada, whose loyalty to the British Empire was undoubted and had been established by noble deeds. The development of the Dominion was in an early stage, but those charged with the responsibility of Government were fully alive to the grandeur of its resources and its potential greatness. The realisation of this policy depended largely upon the execution of engineering works of enormous magnitude. Those who took part in this visit had but a

glimpse of what was being done to utilise the natural advantages of the country, but enough was seen to make it certain that in Canada was to be found a splendid field for British enterprise and capital. Canadian engineers without exception expressed the hope that in the organisation and conduct of the great works now contemplated or to be undertaken hereafter they would have the assistance of British engineers, and especially of young engineers. No better school for aspirants in the profession could be found than that afforded by the Dominion. What was true of Canada was true also of our other colonies and dependencies, and it might be hoped that British enterprise and capital would be more devoted in the future to the development of the resources of the British Empire and less to corresponding work in foreign countries.

"THE LIGHT OF THE WORLD."

THE Secretary of State for the Colonies has addressed the following letter to the Right Hon. Charles Booth respecting Mr. Holman Hunt's painting:—

Colonial Office, Jan. 7.

Dear Mr. Booth,—I have heard with much pleasure of your intention to send first to Canada, and then to Australia, New Zealand and South Africa, Mr. Holman Hunt's fine reproduction of his great picture "The Light of the World." I understand that you propose to exhibit the picture freely in the central cities of the Colonies if space in public rooms is given by the authorities, or, if you have to hire rooms, to charge only so much for entrance as will meet the expense of such hiring, and that in any case you do not intend to derive any profit from the exhibition of the picture. I understand also that it is your intention to offer the picture on its return to England as a gift to the nation, to be placed permanently in some fit place. Your proposals seem to me to be eminently patriotic, and I feel the greatest sympathy with your desire to add to the ties which bind together the various populations of the self-governing States of the Empire that lofty bond of union which consists in a common admiration for great and elevating works of national and religious art.

I trust that the voyage of "The Light of the World" will be in every sense successful, and that you will find, as I do not doubt, that the local authorities will be most willing to do everything which can facilitate your laudable intentions.—I am, dear Mr. Booth, &c.,

ALFRED LYTTELTON.

The Right Hon. Charles Booth.



Ventilation and the Royal Victoria Hospital, Belfast.

SIR,—The statement made on page 4 of your issue of the 6th inst., respecting a discussion published during last year in the Journal of the Royal Institute of British Architects, and in which I was invited to take part, is calculated to convey an erroneous idea of the facts, and to suggest that I am unable to perceive merits in other than natural systems of ventilation. This is not so, and I have, after more than forty years' experience, formed a strong opinion in favour of the use of natural systems of ventilation in the case especially of asylums, workhouses and hospitals.

But the discussion has had its serious aspect, and the solicitors to the R.I.B.A., and to Messrs. Spottiswoode & Co., the printers of the Institute Journal, have seen fit to submit to me an expression of regret in respect of a paragraph reflecting upon me. This was accepted by me and duly published in the Journal, but as the authors of the paragraph have not withdrawn it, the matter is in the charge of my solicitors, as not only being libellous, but calculated to adversely affect the sale of my new book on the planning of hospitals, which I hope to see advertised shortly in your pages.—Yours faithfully,

GEORGE H. BIBBY.

69 Queen's Road, Twickenham, Middlesex:

January 9, 1905.

A Warning.

SIR,—It has been intimated that the authorities intend in the coming session to promote a Bill making an official system of land transfer compulsory for the whole country. I trust you will allow me to explain why it is of vital

importance to the public that such a measure should not pass. A brief reference to the history of the subject will tend to make the position clear.

Both Lord St. Leonards and Lord Cairns, the greatest conveyancing experts of the last century, were convinced that in view of the special conditions of land tenure in this country an official system (*i.e.* a system of registration of title) was not a suitable one here. Lord Cairns, indeed, was only converted to this view after recognising the failure of both the first Registration Act of 1862 and his own Act of 1875. His ripened experience led to his framing the Acts he passed in 1881, which practically revolutionised conveyancing by simplifying and shortening deeds and by limiting and adjusting costs on a moderate *ad valorem* scale basis.

In 1887 the present Lord Chancellor (the year following his appointment) introduced a Bill to in effect repeal Lord Cairns's 1881 Acts and to make an official system compulsory. The Bill did not pass, but in 1897 Parliament was induced to accept an Act professedly to try the experiment of making an official system compulsory in one county for three years.

London, having with the consent of its County Council been selected for the experiment, has had the system in operation since January 1899, a period of six years. The inquiry that was to have followed the three years' trial has not yet been held.

It is easy to prove that the official system is (1) terribly complicated; (2) costly; (3) continued in opposition to the views of everybody affected.

1. *Terribly Complicated.*—The system is based on the Act of 1875, the Act that Lord Cairns, its author, gave up as unworkable—as altered by the Act of 1897 and as supplemented by 371 rules and 72 forms. It is not necessary to go outside the judgment in 1903 of the Court of Appeal in the case of "Capital and Counties Bank *v.* Rhodes" to prove that the system creates something approaching chaos.

2. *Costly.*—The registry fees levied upon transactions for the year ending March 1904 amounted to 67,348*l.* This sum represents only a portion of the additional expense the system threw on purchasers and borrowers.

3. *The System is not Favoured by a Single Independent Conveyancing Expert.*—All the representative societies, including the Bankers' Institute, the Building Societies' Association and the Auctioneers' Institute, opposed its introduction in London. Resolutions have been passed at many public meetings urging the authorities to hold an inquiry. Last year the City Corporation and eighteen of the London borough councils petitioned with the same object.

If the official system is made general it is easy to show that (1) the expense to the public will be enormous, (2) that officialdom will be indefinitely extended.

(1) In 1900 Parliament voted 265,000*l.* public money for the erection in Lincoln's Inn Fields of a registry office for London. Every county will have an equal right to erect a registry office out of public money, involving an expenditure running into millions.

(2) In London the system employs over 240 officials. Many thousands will therefore be required for the whole country. It is difficult to say to what extent transactions in land will have to be taxed to pay the salaries, superannuations and other outgoings. The question also arises as to the expediency of placing such unlimited patronage in the hands of the authorities.

The authorities are fully alive to the absurdity of having an official system in operation in London and Lord Cairns's system in the rest of the country. At present any county council can adopt the official system, but all attempts hitherto made to induce the councils other than London to do so have signally failed. The authorities are now apparently bracing themselves to say that the counties must adopt the official system whether they like it or not. Parliament has, however, a voice in the matter, and it is to be fervently hoped short work will be made of the Bill if ever it should see the light.—I am, Sir, your obedient servant,
J. S. RUBINSTEIN.

5 Raymond Buildings, Gray's Inn, London, W.C.:

January 9, 1905.

The Surrey Education Committee have issued a set of post-cards illustrating the historical and otherwise notable places in the county. These will be given to scholars in the elementary schools in order to promote regular and punctual attendance.

GENERAL.

The Royal Scottish Academy met on the 5th inst. (Sir James Guthrie, P.R.S.A., presiding) for the purpose of determining as to which class of associates should be drawn upon to fill the three vacancies in the membership caused by the deaths of Mr. W. F. Vallance, painter, and Mr. D. W. Steyenson, sculptor, and by the resignation of Mr. John Honeyman, architect. It was decided, at the next meeting of the Academy a painter, sculptor and architect should be elected.

Mr. D. S. MacColl will begin on January 13 a course of lectures on "English Art from Constable to the Present Time," at University College, London. The course will deal with Wilkie, Watts, Madox Brown and the pre-Raphaelites, Burne-Jones, Morris, and Whistler. The lectures are open to the general public as well as to students on payment of the fee of one guinea.

The Dress Sword to be worn by M. Carolus-Duran as a member of the Institute is being provided by a subscription among the artists of the Champ de Mars, and will be chiselled by the sculptor M. Dampet. The decoration is of laurel leaves, with a painter's palette, surmounted by a sun, and the pommel consists of the classical head of Minerva, which is the badge of the Institute.

During Excavations recently in connection with the laying of foundations for a house in the Bauernmarkt of Vienna, the remains of a huge Roman cistern were discovered at a depth of about 20 feet. It had a diameter of about 10 feet, and the inner wall consisted of innumerable bricks of an extremely narrow shape, laid obliquely one upon the other. The find is unique of its kind, no cistern of a similar nature having as yet been discovered. It has been presented to the Vienna Museum, and is now being exhibited there, together with a photo showing the site in which it was found, and a number of Roman implements and fragments of pottery discovered at the same spot.

The Committee of the Institute of Archæology of Liverpool University have been enabled, by the munificence of Sir John Brunner, M.P., to take in hand the publication of a "History of Egypt," to include all the results of modern research, and to be, so far as possible, a complete history of the Egyptian civilisation from the earliest times down to the conquest by Alexander the Great. It is estimated that the work will take two years to complete, and it will be published with full photographic illustrations.

Commendatore Boni's appeal for photographs, drawings and other reproductions of monuments for the new Forum museum in the former Convent of Sta. Francesca Romana has met with ready responses from various parts of the world. Among the Englishmen, says the *Morning Post*, who have contributed towards the museum are Mr. H. E. Buxton, of Great Yarmouth, who has sent photographs of Roman remains in Suffolk, of the Roman aqueduct near Fréjus, and of the walls of Constantinople, and Mr. Thomas Ashby, jun., the archæologist, who has presented a large collection of photographs, including those of Caerwent, Silchester, and the Roman wall in the North of England.

The Edinburgh National Gallery has been bequeathed, by Mrs. Duncan J. Kay, of Drumpark, Dumfriesshire, the picture entitled "A Schule Skailin," by Sir George Harvey, P.R.S.A. The picture was painted in 1846.

The Powers signatory to The Hague Convention will be invited to appoint two architects from their respective subjects to compete for the selection of plans for Mr. Carnegie's Palace of Peace.

Some Typical Specimens of the 1,200 flint implements and relics from the recently discovered prehistoric Stone Age workshop in Dumfriesshire have, by request, been sent from the People's Palace, Glasgow, to London, that the members of the British Archæological Association and other interested bodies may have an opportunity of viewing the objects.

The United Free Church has unofficially offered to purchase the Synod Hall from the Edinburgh Town Council for 40,000*l.* Bailie Douglas, who stated in the Council Chambers that he was prepared with a cheque for that amount, had also a plan in his pocket showing how the Usher Hall could be built on a site facing the Lothian Road (by the purchase of the school, &c.), larger in area and more convenient of access.

Messrs. Blackwell & Thomson, architects, of Leicester and Kettering, have dissolved partnership, and in future Mr. Howard H. Thomson, A.R.I.B.A., will practise at the Leicester office, Halford Chambers, Halford Street.

The Ludlow Town Council, in view of the fact that the estimate for placing the equestrian statue offered by Captain Adrian Jones to the town in the suggested position in the town hall amounted to about 100*l.*, decided to decline the offer with thanks.

The Scenic Artists' Association are anxious to obtain for their exhibition at Grafton Galleries, Bond Street, W., April 10 to April 15, specimens of the works of Absalom, Bolena, Beverley, Bough, Chambers, Cox, Cooper, Calcott, Gates, Grieve, Hunt, Leitch, Loutherbouurg, Marinare, Mulready, Marshall, Nasmith, Roberts, Clarkson Stanfield, W. Telbin, and other deceased scene-painters, and the secretary, Mr. H. Lawrence Harris, is inviting owners to communicate with him at 5 Robert Street, Adelphi, W.C.

The Will of Thomas Craigie Glover, of 29 Hope Terrace, Edinburgh, Mount Grange and Earlsferry House, Elie, N.B., civil engineer and contractor, and a director of the Bengal Iron and Steel Co., Ltd., has been proved at 118,968*l.*

The Leighton House management committee appealed at the Clerkenwell Sessions on the 6th inst. against a general rate made on October 11 last by the Council of the Royal Borough of Kensington and the Churchwardens of the Parish of St. Mary Abbot's, Kensington. The appellants claimed to be exempt from rating altogether under the Scientific Societies Act on the ground that they were a society established for the purposes of science, literature, or the fine arts exclusively, but the Bench, at the close of a long inquiry, said the appellants had failed to make out their exemption. The appeal was therefore dismissed with costs.

Mr. Carnegie has given away 39,000,000 dols. for free libraries. These figures have been compiled by his private secretary, who was engaged upon the task for thirty days. Mr. Carnegie has given or has pledged to give 1,270 library buildings to the English-speaking race, including 779 to the United States. The actual cost of these buildings is 39,325,240 dols., of which about 30,000,000 dols. represents the share of the United States. 6,000,000 dols. has been expended in England, 2,000,000 dols. in Scotland, and 1,475,500 dols. in Canada.

The Triennial Competition for the Alexander Thomson Travelling Studentship is announced in Glasgow. The object of the scholarship, which was founded in 1880, is the furtherance of the study of ancient classic architecture prior to the third century of the Christian era. Competitors are required to be architectural students between the ages of eighteen and twenty-five, and to reside in the United Kingdom. They are asked to send to the trustees of the Alexander Thomson memorial (1) a study of a classic building, (2) a design for a cascade and portico in a public park. Two prizes are awarded, one of 60*l.* and a second of 20*l.* The competitor placed first is required to go on a sketching tour of three months in pursuit of his architectural studies, and the competitor placed second to spend three weeks in making drawings from the reproductions of classical buildings in the British Museum.

The Last Quarterly Statement of the Palestine Exploration Fund contains, among other matters, the tenth quarterly report on the excavation of Gezer by Mr. R. A. Stewart Macalister, in which there is a detailed explanation of the fragments of walls which at first appeared to Mr. Macalister to belong to crusading times. Further excavation has proved that the fragments form part of an extensive structure which was in all probability of the Maccabean period, if not earlier. An interesting feature of the excavation, says the report, was the discovery of a sherd of pottery of Cretan origin, and it is not the least important result of the Fund's excavations up to the present that several extremely important analogies between Cretan and Palestinian culture as exemplified at Gezer have been brought to light. The committee appeal for assistance in completing the excavations of Gezer thoroughly. The extension of time now granted by the Sultan would make this possible; but only if the force of workpeople can be increased, for which more money is necessary. Special donations are invited. An additional 1,000*l.* is required.

An Influential Committee of York gentlemen has been formed to promote an exhibition of old York views and portraits of local worthies, to be held in March and April, with the object of arousing interest in the preservation of the many ancient and picturesque buildings in and around the old city, and of illustrating the changes which have taken place in the streets, fortifications, &c., during the last two centuries.

The Exhibition of the Royal Scottish Academy will be opened on the 28th inst. Among the paintings will be examples by members and Associates who have died during the past year. These include Mr. James Archer, London, and Mr. Erskine Nicol (who were on the honorary retired list); Mr. W. F. Vallance, Mr. Arthur Melville and Mr. D. W. Stevenson, sculptor. Among loan pictures by honorary members of the Academy, one or two fine works by Israels have been secured, and Mr. Orchardson's large picture, *The Young Duke*, will be on view.

Sir William Emerson will act as assessor on the architects' plans for the new town hall and municipal offices, Wallasey. It is estimated that the scheme as a whole will cost 50,000*l.* Over 100 sets of plans have been sent in.

Mr. Thomas Fenwick, of the firm of Martin & Fenwick, civil engineers, Leeds, died on Tuesday at the age of eighty. From 1861, when he entered into partnership with the late Mr. S. S. Martin, he had been identified with the development of Leeds.

Mr. Hugh Stannus read a paper on Thursday, the 12th inst., before the Manchester Society of Architects on "Some Romanesque Examples in North Italy."

The Aberdeen Art Gallery, which has been undergoing considerable alteration and extension for some time, is to be formally opened on April 8, and Sir George Reid will perform the ceremony. The feature of the improvements will be the new Clark Sculpture Gallery.

The New French Embassy in Vienna has been commenced from the design by M. Chédanne, the architect to the Ministry of Foreign Affairs. The site selected is opposite the Schwartzenberg Palace.

"Old Cottages, Farmhouses, &c., of the Cotswold District" is the title of a work which Mr. Batsford is about to issue. It forms one of his series of volumes illustrating the cottage architecture of this country, and will contain 100 collotype plates from photographs taken by Mr. W. Galsworthy Davie. Mr. E. Guy Dawber has written an account of the architecture of the district, accompanied by numerous sketches and drawings.

A Competition has been arranged for the memorial of the late Professor Virchow in Berlin. The prizes offered are 3,000 marks, 2,000 marks and 1,000 marks. The site will be the present Karlsplatz, which, on the completion of the memorial, will be known as the Virchowplatz.

Mr. Francis William Bedford, architect, of 103 Barkstone Gardens, London, and of East Parade, Leeds, and 48 Prince's Street, Westminster, formerly of Mount House, Boston Spa, who died on December 2 last, aged thirty-seven years, son of the late Mr. James Bedford, of Woodhouse Cliff, Leeds, left estate of the gross value of 13,275*l.*

The Saxon Snell Prize was founded to encourage improvements in the construction or adaptation of sanitary appliances, and to be awarded by the Council of the Royal Sanitary Institute at intervals of three years, the funds being provided by a legacy bequeathed to the Institute for this purpose by Mr. Henry Saxon Snell. The first prize, which will consist of 50*l.* and a medal of the Institute, is offered in the present year for an essay on "Domestic Sanitary Appliances, with Suggestions for their Improvement." The essay is to consist of not more than 5,000 words and must be delivered on or before March 30. Two competitors of different professions or crafts may join in sending in an essay and plans.

The Glasgow Exhibition Committee held its final meeting on Monday, when it was reported that the balance of receipts over expenditure was more than 39,000*l.*, which will be available for distribution in aid of local institutions, though no allocation has yet been made.

The Memorial to the late Archbishop Temple in Canterbury Cathedral will be unveiled about the end of the present month. It takes the form of a bronze kneeling figure of the late Primate in his robes, holding a book in one hand, and is of heroic proportions, with a canopy supported at four corners by angels. The figure will be placed in the Corona (commonly called Becket's Crown), in a recess directly opposite the tomb of Cardinal Pole.

A New elementary school was opened on the 9th inst. at Malin Fridge, Sheffield. There are seven classrooms, light and airy, and the corridors on both the ground and upper floors have been made unusually wide. Accommodation has been provided for 800 scholars—the juniors and infants to occupy the ground floors, and the older children to use the upstairs rooms. The inclusive cost of building and site is about 16,000*l.* The architect was Mr. H. I. Potter, and Messrs. John Eshelby & Sons were the contractors.



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HOUSES, DARTMOUTH ROAD, BRONDESBURY.

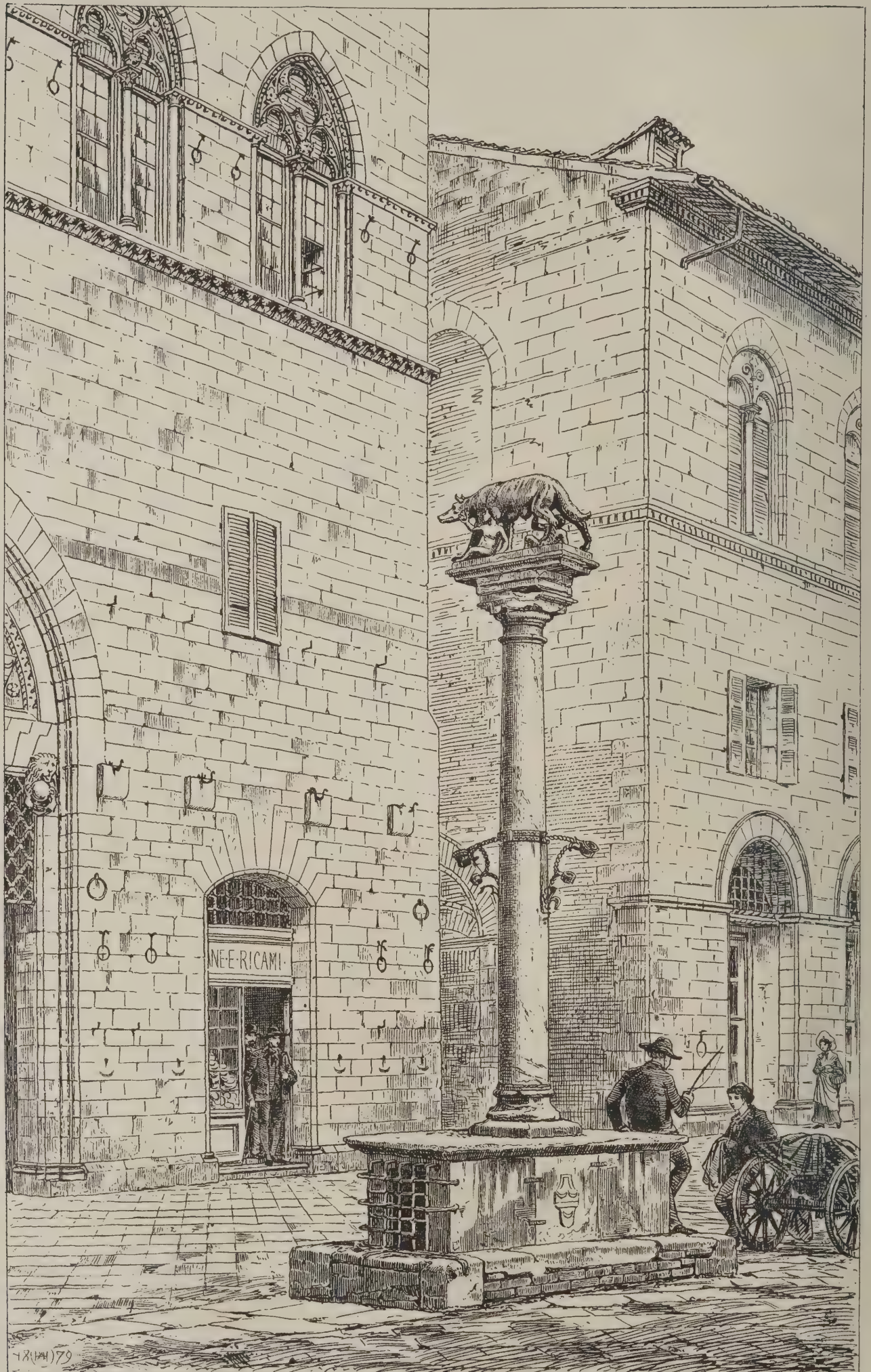


PHOTOGRAPHED BY BEDFORD LEMERE & CO. 147, STRAND, W.C.

"INK PHOTO" SPRAGUE & CO. LTD. 4 & 5, EAST HARDING STREET, FETTER LANE, E.C.

PREMISES, PRINCES STREET, HANOVER SQUARE.

E. K. PURCHASE, Architect.



Drawn & Lith. by A. H. Haig

PHOTO LITHO. SPRAGUE & CO. LTD. 4 & 5, EAST HARDING STREET, FETTER LANE, E.C.

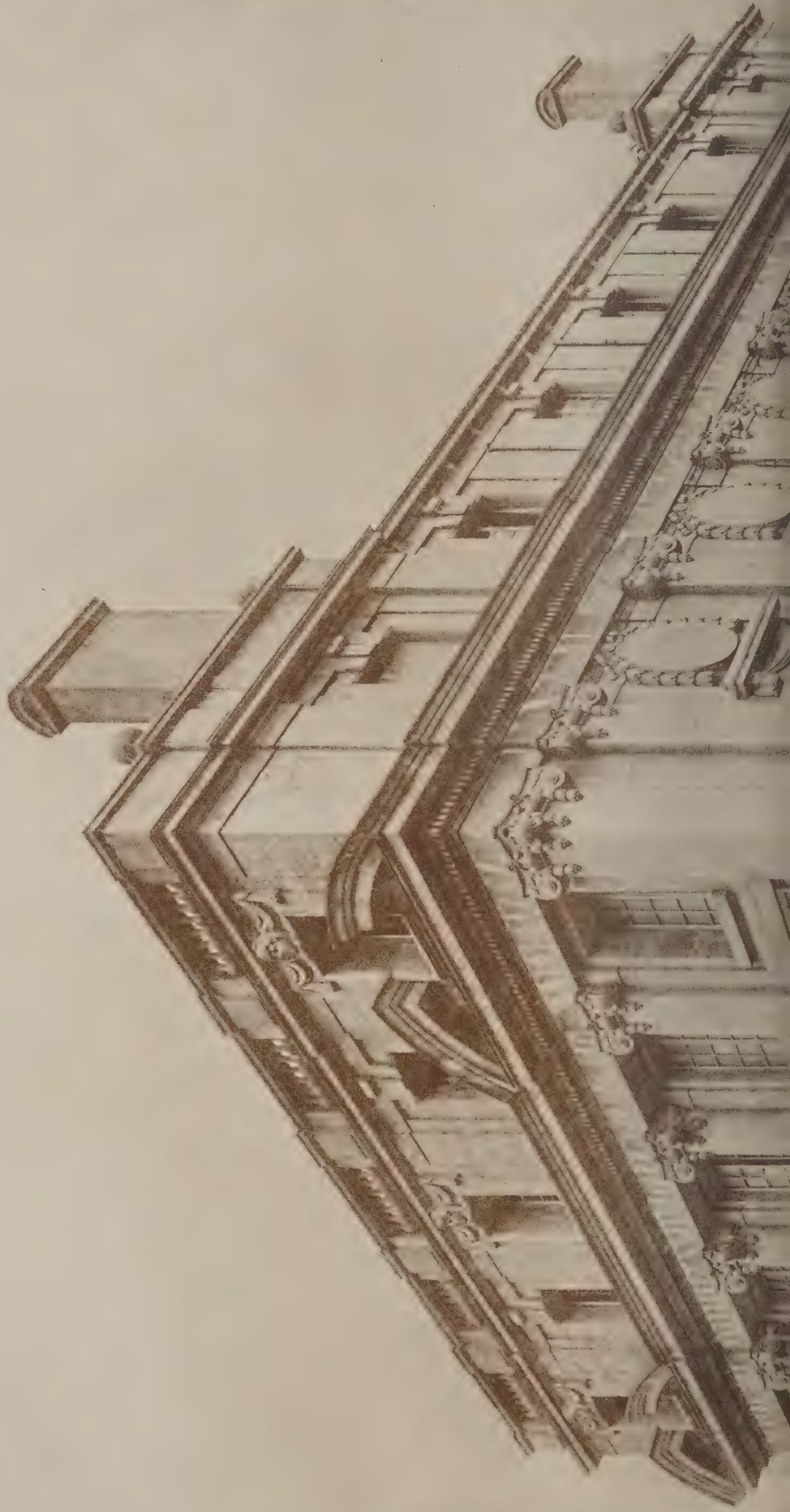
COLONNA - DELLA-LUPA, SIENA.

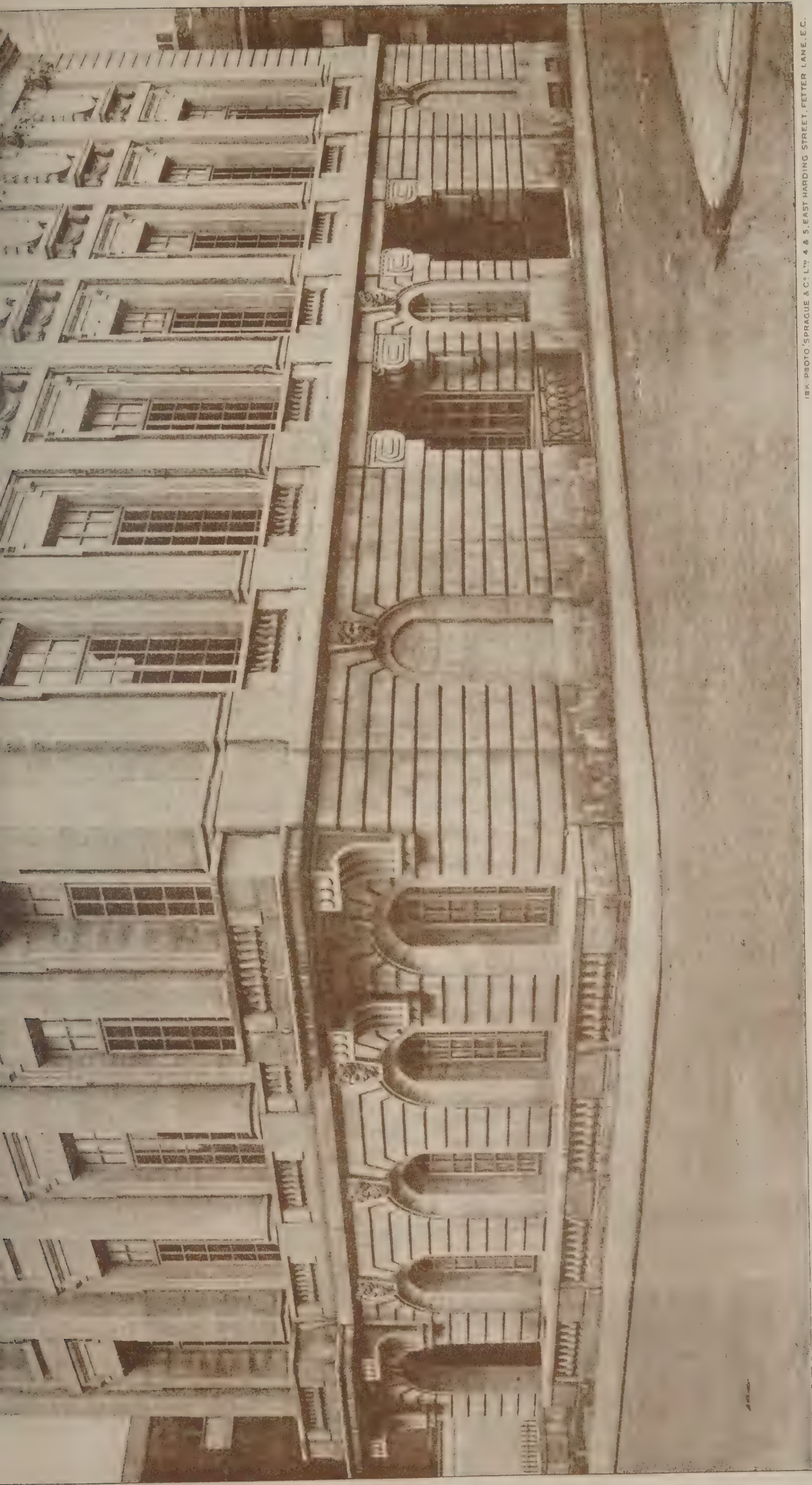


PHOTO-LITHO. SPRAGUE & CO. LTD. 4 & 5, EAST HARDING STREET, FETTER LANE, E.C.

THE TOWER OF THE "MARTORANA", PALERMO.

City Architect, Jan 13th 1905.





18K PHOTO SPRAGUE & CO. L^{TD} 4 & 5, EAST HARDING STREET, FETTER LANE, E.C.

PHOTOGRAPHED BY BEDFORD LEWIS & CO. 147, STRAND, W.C.

SUNDERLAND HOUSE, CURZON STREET, W.
Messrs. ROMAINE WALKER & BESANT, Architects.



PHOTOGRAPHED BY BEDFORD LEMERE & CO. 147, STRAND, W.C.

13th 1905.



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., LIVERPOOL.

Architect.

The Architect.

THE WEEK.

THE death on Monday of EDWIN HENRY CORBOULD in his ninetieth year deprives England of an artist who was a link between the present and the past. He belonged to a family who long were associated with water-colour painting and illustrations. The late artist had gained reputation for both classes of work. His drawings were formerly attractions of the New Society of Water-Colours, and his illustrations in books and periodicals were among the best of the class. He was one of the representatives of water-colour art who were selected to uphold Great Britain in the International Exhibition of Paris in 1855. There his works were seen alongside of others by DAVID COX, CATTERMOLÉ, J. D. HARDING, J. F. LEWIS, WILLIAM HUNT, HENRY WARREN, FREDERICK TAYLER, &c. EDMUND ABOUT in his criticism of the collection remarked that Mr. CORBOULD aspired not only to give his water-colours the effects of oil-painting, but his drawings almost assumed the dimensions of historical paintings. The scene from MEYERBEER's opera "The Prophet," belonging to Queen VICTORIA, was said to be *un joli tour de force*. But what was the use of taking so much pains to do with water what could so easily be done with oil? MAXIME DU CAMP was less epigrammatic, for he described the drawing as a fine composition, full of action and grouped with ease. But *The Woman taken in Adultery*, which Prince ALBERT lent, was said to suffer through all the figures being English. A third drawing was *The Earl of Surrey by the aid of the Magic Mirror contemplating the Fair Geraldine*. Mr. CORBOULD was favoured with several commissions from the Royal Family, and he had the privilege of acting as drawing-master to the princes and princesses. Of late years his works were rarely seen in the Piccadilly galleries, but his name cannot be omitted from any history of water-colour art in England.

It would be interesting to discover when litigation over the Workmen's Compensation Act will be unnecessary. It is only by slow degrees and, as it were, by word after word that the Act will obtain definiteness. One important decision was given in the Court of Appeal on Tuesday. It was then discovered that the Act, although it says so much about scaffolding, is silent about the person who has to erect the scaffolding. The appeal arose out of a judgment in the Barnsley County Court. A workman was injured, but it was alleged that the scaffolding in question was not put up by his employer but by another contractor. The Judge considered that the man used it for his own convenience and that it was not necessary for the work on which he was engaged. It was therefore decided that the case did not come within the Workmen's Compensation Act. The Master of the Rolls referred to a case by which it would appear to be decided that a man who fell down a flight of stairs would be entitled to the benefit of the Act if there happened to be a scaffolding in the house. His Lordship said all the Act required was that a scaffolding was being used at the building when the accident occurred. The case therefore came within the provisions of the Act. Lord Justice COZENS-HARDY said that it should be understood that the workman would have been entitled to the same benefit if his employment was one which did not require him to use scaffolding, so long as scaffolding was being used on the building by another contractor.

It is a peculiarity of Ireland that private properties can be entered and materials removed for the repair of the neighbouring public roads. The custom is ancient, and although inconvenient in some cases, the sufferers, we suppose, look upon it as a payment of taxes in kind instead of in sterling coin. The control of counties and

the roads in them is no longer in the hands of grand juries. There are now county councils, and the representatives of the old system of government are not always disposed to facilitate the business of the new authorities. The county surveyor of Kilkenny was lately refused admission to a farm for the purpose of obtaining road materials on the ground that there was no evidence of a resolution having been passed which authorised the surveyor or other person to repair the roads. The objection was novel, and would have the effect of raising an obstacle to the repairs of roads throughout all the counties of Ireland. It was therefore brought before the judges of the King's Bench Division on Monday last. The Lord Chief Baron expressed the opinion that a county surveyor by virtue of his office was not authorised to enter on private property, or to ask the local magistrates to enable him to do so. He should be provided with a document showing that he possessed authority to repair the road, and that a resolution had been passed by the County Council entrusting the road to his charge. Owners and occupiers of land will not gain much by the decision of their lordships. But in Ireland there is respect for formalities, and on that account we suppose people will feel their grievances less acutely.

ONE of the last decrees which M. COMBES's Ministry, or rather his Minister of Fine Arts, was able to obtain related to the abbey of Mont St.-Michel. That noble collection of buildings, which is not only famous as a military monastery which could stand a siege, but as a surpassing example of the Benedictine type, is recognised as an historic monument. In that way it is brought under the control of the Minister of Fine Arts. But for some unknown reason one of the buildings known as the Tower of the Mill, or the Gabriel Tower, comes under the charge of the Minister of Public Works. There are consequently two rival authorities, and of course there is a risk that works might be carried out in the tower which would destroy the unity of the abbey. As it was necessary to have some repairs executed for the safety of the tower the wisest plan was to have them controlled by one of the architects of the Historic Monuments Commission. The Minister of Fine Arts seized the opportunity presented, and would not allow the work to be done until the tower was placed under the control of his Department. Henceforth it will be only reasonable to expect that the utmost care will be exercised over every part of the group. Having endured for so many years it would be a subject of regret that a fortified monastery of the character of Mont St.-Michel should suffer more from ill-regulated officialism than from any Norman foe.

THE decision of the Court of Appeal on Wednesday in *AYLWARD v. MATTHEWS* opens out a vista of a new and almost endless series of actions under the Workmen's Compensation Act. The plaintiff, a labourer, was injured while helping in erecting a timber platform to support a crane which was to be employed in hoisting materials for the erection of a school. Judge EMDEN, before whom the claim for compensation came, is an authority on building law, and he decided that the platform was a "building" and awarded compensation. The contractor appealed but was unsuccessful. The Master of the Rolls asked:—How could they say as a matter of law that a temporary wooden structure erected for the purpose of carrying a crane was not a "building"? Suppose that a permanent structure were built of brick or stone for the purpose of carrying a crane, it could not be said that it was not a "building" within the Act. The only difference between the two structures was that one was constructed of wood and the other of brick or stone. Lord Justice MATHEW considered the structure was carefully constructed, and it came within the Act, although it served a temporary purpose. By the decision of the Court it will be henceforth difficult to say what is not a building.

PORTLAND CEMENT.

NATURE has set the example of the employment of cements. Economy is recognised as a law, and consequently a great many fragments which might have as little cohesion as the unnumbered pebbles over which the sea breaks are often united into a comparatively solid mass by means of carbonate of lime, silica, oxide of iron, &c. This cohesion varies, for sometimes the mass may be difficult to separate, while in another case the elements are easily overcome. The adhesiveness depends, of course, on the quality of the binding material. But under the most favourable circumstances a conglomerate is partly a mechanical and partly a chemical mixture, and it is through the chemical action that strength is obtained.

It took a long time before it was realised that in making a cement what has to be sought after is not merely the combination of particles of limestone and particles of clay, but such an amalgamation between them as can only be accomplished by fusion. There are no doubt in the market various mixtures which are described as natural cements. But the phrase is one requiring explanation. Whatever strength might exist in bodies which are said to be cemented by nature they are not to be found in sufficient quantities for a marketable product, for the removal of the lime or silica would be a tedious process. The American natural cements have to be burned and ground like ordinary Portland. The only advantage is that in Rosendale, Utica and Milwaukee beds of rock exist in which carbonate of lime, carbonate of magnesia and alumina are combined. It may as well be admitted that natural substances have always limitations, and it has been for several years doubted in America whether for general use a natural cement is as efficient as ordinary Portland cement. The advantage of the latter is that it can be adapted to requirements, or in other words made to correspond with the conditions of a specification. That is a peculiarity which distinguishes cement. Iron and steel are also manufactured products, but no process has yet been discovered which will increase their tensile, compressive or torsional strength beyond a general average. Cast-iron, as we all know, is practically incompressible. But some of that quality might often be sacrificed if its resistance to tension could be increased.

The extraordinary experiments which were made by Mr. JAMES GRANT when the main drainage works of the Metropolis were in course of construction, seemed to indicate that the characteristics of Portland cement could be varied to a remarkable extent. Previously it was considered that a breaking strength of about 130 lbs. per square inch was adequate, and evidence of a strong Portland cement. When, therefore, a strength of 178 lbs. per square inch was specified for the main drainage works an unusually high standard had been adopted. But in a long course of experimenting Mr. GRANT found that after seven days an ultimate strength of over 800 lbs. per square inch was possible, and that the average was $358\frac{1}{2}$ lbs. per square inch. The specified strength was therefore increased. The new conditions were that "the whole of the cement shall be Portland cement of the very best quality, ground extremely fine, weighing not less than 112 lbs. to the struck bushel, and capable of maintaining a breaking weight of 350 lbs. per square inch seven days after being made in a mould and immersed in water during the interval of seven days." In engineering works elsewhere in England a still higher standard was adopted, while in other places a breaking strength of a lower degree was accepted.

The degree of fineness also varied. A mesh of 50 in an inch or 2,500 in a square inch, was by some considered to be as much as is necessary for all practical purposes. But 76 meshes per lineal inch or 5,800 per square inch were subsequently adopted. The United States Corps of Engineers insist that at least 92 per cent. of the cement shall pass a sieve of 10,000 meshes

to the square inch. It is said that test is not considered excessive. German cement is still finer.

When there is uncertainty about the strength which will be demanded it cannot be expected that the production of cement will always be conducted on the most economical conditions. Some employers of the material desire the utmost fineness, others are satisfied with a comparatively coarse cement. One engineer may think 250 lbs. per square inch is a test far beyond what is needed in actual work. Another holds 500 lbs. is the least which should be adopted. The adoption of a standard which will generally be accepted is therefore a desideratum. The Engineering Standards Committee have endeavoured to supply the want. In considering their specification the variety of opinions on the subject should be taken into account.

The constituents of the cement are not attempted to be fixed. All that is said is:—"The cement shall be prepared by intimately mixing together calcareous and argillaceous materials, burning them at a clinkering temperature and grinding the resulting clinker." Silica, oxide of iron, alkalies can be introduced at the maker's discretion. There is to be no excess of lime and the insoluble residue is not to exceed 1.5 per cent. If, however, "calcium sulphate is used, not more than 2 per cent., calculated as anhydrous calcium sulphate, of the weight of the cement shall be added."

The tests generally applied are mechanical rather than chemical. Samples required for testing are to be taken from at least twelve different positions in the same heap, and if desired they can be obtained at the manufacturer's works. As regards fineness, a high standard is adopted, viz.:—"The cement shall be ground to comply with the following degrees of fineness, viz.:—The residue on a sieve $76 \times 76 = 5,776$ meshes per square inch shall not exceed 3 per cent. The residue on a sieve $180 \times 180 = 32,400$ meshes per square inch shall not exceed $22\frac{1}{2}$ per cent." The briquettes differ slightly in form from those commonly used, being 3 inches in height, an inch at the waist and $1\frac{3}{4}$ inch at the widest part. The briquette is to be kept in a damp atmosphere for 24 hours after gauging, and then to be placed in fresh water which will be changed every seven days until required for breaking. Six briquettes are to be broke at seven and six at twenty-eight days, and the average tensile strength is to be accepted. The seven-day briquettes must bear a tensile stress of 400 lbs. per square inch of section before breaking, while for those that are twenty-eight days old the stress will be 500 lbs. per square inch. Cement is rarely employed neat, and it is therefore advantageous to test a mixture of cement and sand. Briquettes of similar form are to be made of one part cement to three parts of dry sand. At seven days from gauging these have to bear a stress of 120 lbs. per square inch, and at twenty-eight days one of 225 lbs. per square inch. This nearly corresponds with the American standard for seven-day briquettes of one part cement and three parts sand, which are to have a strength of from 100 to 140 lbs., and at twenty-eight days 200 to 300 lbs. Three gradations of setting are recognised—quick, medium and slow.

Another test which was unknown to early experimenters is that of M. LE CHATELIER. The mould is placed between two plates of glass and is put in water at a temperature of from 58 degs. to 64 degs. Fahr., where it remains for twenty-four hours. After being removed to cold water, boiling is employed for about six hours. The dimensions are then carefully measured by a special apparatus, and if the expansion exceeds the specified limits the cement is rejected.

We have only indicated the general bearings of the new standard. It will be seen that, although uniformity is sought after, the quality of the cement which is specified will be sufficient to satisfy exacting requirements. Indeed, some makers may consider that the standard is unnecessarily high; but on the whole both buyers and makers have reason to be satisfied. The

other standards have already proved their utility, and in the case of cement we hope the labours of the committee will extend the use of Portland of British manufacture instead of foreign mixtures which are dangerous.

IRISH CASTLES.*

THACKERAY often amused his readers by describing and exaggerating the foible of Irishmen in conferring sonorous names on their houses. Irish grandiloquence, he says in one place, displays itself finely in the invention of such names, and, to the great inconvenience of the postman, the names of the houses appear to change with the tenants. A weakness of that kind is not peculiar to Ireland, for it displays itself in the suburbs of large and small towns in England. The builders might have vocabularies of pet names in French, German, Spanish and English always ready for selection. It becomes more remarkable still in sea-side resorts, for visitors desire to be able to give pretentious addresses when writing to their friends, although the place may be no more fashionable than Ramsgate or Margate, and the lodging-house in a back street. THACKERAY still less approved when a man's name was imparted in some way to his house. The good-natured Mrs. O'Dowd was always boasting of the magnificence of O'Dowdstown, her brother-in-law's abode, or her cousin DAN MALONEY's place, Ballymaloney. PENDENNIS was at one time very proud of the possibility of becoming the son-in-law of Captain J. CHESTERFIELD COSTIGAN, of Costiganstown. As for The MULLIGAN of Ballymulligan, who dare deny that the Saxon quailed before the war cry of the house in a hundred thousand battles? But the Irish are not the only offenders. According to SCOTT, nothing sounds more agreeable to a Scottish proprietor than to call him by his territorial epithet. A little deeper acquaintance with Ireland would have convinced THACKERAY that the nomenclature was not so absurd as he imagined. Ireland is divided into divisions known as "townlands," of which the origin is uncertain. They all bear names, some of which are in Irish and are suggestive of the peculiarities of the fields. Other townlands are distinguished by family names, including those of Englishmen who arrived at a comparatively late period in the island. The adjoining townland to O'Dowdstown might be Simpsonstown or Jenkinstown. In neither case would a large number of streets or buildings be suggested, for "town" is simply an abbreviation of "townland," and many hundreds of the divisions are without a house.

The practice of calling a very simple and it may be dilapidated house a "castle" may sometimes have arisen out of ostentation or a desire to deceive strangers. But there is no doubt that local conditions have had much to do with the title. Castles, meaning by the word fortified buildings, at one time were to be met with throughout Ireland. In proportion to the area of the country they were likely to be more often found than in England. THACKERAY was able at one moment to see three in a line. Ireland was always in a disturbed state, and a strong building of masonry was an absolute necessity for the safety of a chief and his family, as well as for his immediate retainers. Only in the Border region of England and Scotland existed an equal call for structures that could not be easily captured or destroyed by fire. The lament of the Border Chief in the old ballad—

They burnt my little lonely tower!
The fiends confound their souls therefor;
It hadn't been burnt five years or more!

might be employed in many districts of Ireland during centuries. The quantity of ruins of those old dwellings which are to be found in Ireland is a continual surprise to an English visitor. But if tradition can be trusted, those which survive are insignificant if compared with the buildings which formerly existed. In the volume

on the "Castles of Ireland," which has recently appeared, we are told:—

These castles range in dimensions from the few blocks of protruding masonry on the green sward, which mark the foundation of a ruined peel tower, or the scarcely traceable line of wall which was once a fortified bawn, to the majestic ruins of castles like Adare, with its three distinct and separate fortifications one within the other, or royal Trim, deemed strong enough to be a prison for English princes. Yet in the majority of cases little or nothing is known locally about the builders, owners or destroyers who have left us these picturesque, if somewhat sad, mementoes of their warfaring existence. Three items of information will in all probability be supplied to the inquirer—that they were built by King John, occupied by the Geraldines, and demolished by King John in person; and, indeed, if the hill from which the bombardment was carried out is not shown to the stranger his informant is lacking in the general art of story-telling. In some cases the origin of the castles is boldly attributed by tradition to the Danes, thereby unconsciously introducing the much wider controversy as to whether such stone fortresses were known in Ireland before the landing of the Normans at Wexford in 1169. Be this as it may, it was only subsequent to this date that they were built in any number. Both invaders and invaded relied chiefly on these strongholds for obtaining supremacy in their constant struggles. Grants of land were generally given with the condition of erecting a fortified residence. It was only when the introduction of gunpowder rendered such buildings untenable in war that they were very generally deserted for more comfortable dwellings, and jackdaws alone keep watch to-day from many a crumbling battlement that once echoed a sentinel's tread, and bovine heads protrude from the doorways from which mailed knights rode forth to battle.

It is allowable if a fragment of an ancient wall is to be found on his land for an owner to call his residence by the same name as the old building. Tribal names abound in Ireland, and a very humble member of the BARRYS would not commit a grievous offence if he called his new house "Castle Barry," or "Barryville," like the two houses in which BARRY LYNDON lived in his youth.

We need not, however, trouble ourselves about the social problems which are connected with the question of names in Ireland. In an architectural sense the buildings themselves are of greater importance. In considering castles, or, indeed, any class of buildings, one of the first processes which should be adopted is to imitate the example of the naturalist and divide them into classes and sub-classes, as if there were species and genera among them. That has been done to some extent in England, but although Ireland possesses many retired soldiers and military engineers with practical experience of fortification, no systematic arrangement of the old castles appears to have been attempted. We may look upon one of the ruins as an indispensable feature in an Irish landscape, but there are more differences among them than among the round towers. For instance, PETRIE tells us that the first Scotch settlers in the country adopted the type of keep or castle turreted at the angles and surrounded by a bawn or outer wall enclosing a courtyard. But in others of the northern castles circular towers are to be found at no more than two of the angles. The castle of Donegal is, however, suggestive of buildings in Scotland, although constructed prior to the "Confiscation of Ulster." The lower part presents few openings to an enemy, while the ornamental windows suggest that the family lived near the roof, where the principal chambers must have been arranged. Now there is a record that the building was erected in 1474 by HUGH ROE O'DONNELL, who died in 1505. But, as PETRIE remarks, "the existing ruins retain no feature of a castle of the fifteenth century, but, on the contrary, are in every respect characteristic of the castellated residence of the reign of JAMES I." How is the anomaly to be explained? It is worth noting that Donegal Castle was not ruined by enemies, but by the act of the owner, HUGH O'DONNELL, who at

* *The Ancient Castles of Ireland: Some Fortress Histories and Legends.* By C. L. Adams. (London: Elliot Stock.)

the beginning of the seventeenth century, having failed in his contests with the English troops, became an exile, and before leaving partly destroyed his castle. "Dun-na-Gall" means the foreigners' fort, and the chief resolved it should never in spite of the name belong to a stranger. The destruction was made the subject of a long poem in which the difficulty of dealing with building terms was encountered, but not with more success than appears in modern poems. In Antrim Castle, the residence of Lord MASSARENE, we see the northern type transformed, and the parts which used to be most essential converted into ornamental features. The gate-house is Tudor in style, and is or was closed by folding doors of cast-iron only to be opened by the aid of machinery. The turrets become square towers, but the angles of them are treated as thin circular towers. From the medallions of CHARLES I. and CHARLES II. in the front it is evident the building must have been erected after 1660, when the owner was created a peer. Antrim Castle is like several others in Ireland in which the work of different periods is preserved or imitated, and which consequently renders identification difficult.

It is well for anyone who studies the castles in the North of Ireland to remember that six of the nine counties in Ulster were, in consequence of the rebellion of the O'NEILLS and O'DONNELLS, escheated to the Crown. It was resolved to divide the land among English and Scottish tenants. Defensive buildings or castles had to be erected. Every undertaker who obtained 2,000 acres was within two years to construct a castle with a strong court or bawn about it. If he obtained 1,500 acres he was to build a stone or brick house with a strong court or bawn. If only 1,000 acres were granted a castle or house was not requisite, but there had to be a strong court or bawn at least. The undertakers further guaranteed that their tenants should build houses for themselves and their families near the principal castle, house or bawn, for their mutual defence or strength. In that way the connection of the companies of London with the North of Ireland commenced. As was to be expected there was a general resemblance between the character of the castles.

Near Dublin there are two castles still occupied which offer examples of work of very different periods. One is Malahide Castle. RICHARD TALBOT accompanied HENRY II. to Ireland and received the lands of Malahide. In the eighteenth century the building was said to have lost its original castellated character, although the original moat remained. The probability is the castle was judged by the notions of the time about what was suitable, and as the castellation was not considered sufficiently emphatic, it was improved into a more appropriate form. The moat was filled with earth and planted, the ancient drawbridge was removed, and the building was flanked by towers. The castle is greatly admired, but if tested by an archaeological standard it can only be regarded as an eighteenth-century structure. Another of the early invaders was Sir AMORICUS TRISTRAM, who acquired the lordship of Howth. He adopted the title of St. LAURENCE as a surname, because the battle he fought on landing, and in which he was victorious, was on the Saint's day. The family remained at Howth. In 1564 the twentieth Lord HOWTH is believed to have erected the present mansion, which is a curious compound of styles. It is not likely that all traces of antiquity were cleared away before the new work was commenced, and careful investigation would no doubt be able to identify much which was prior in date to the sixteenth century. With the new buildings a new system was introduced in Howth Castle. An Irish noble or chief was expected to be as remarkable for hospitality as for fighting. There is enough written evidence to prove that they kept open house for all who called upon them. Visitors accompanied by an army of retainers would call uninvited on their friends and remain with them for days or weeks according to

circumstances. Lord HOWTH closed the gates of his new mansion at dinner time. This enabled GRACE O'MALLEY to carry off the heir, who was found playing on the shore, and she retained him in her castle on Clare Island, off the west coast, until it was agreed that the gates should be left open ever afterwards. "The Dark Lady of Doona" is supposed to have participated in piracy, and it is not impossible that when the boy was returned a large sum of money was paid for his freedom.

A question must arise in respect of the hospitality concerning the arrangements which had to be made to accommodate a large company of guests. They were usually equestrians, and provision was required for horses as well as men. The seneschal of the owner of a fertile territory would no doubt be able to insist on the supply by the vassals of an abundance of food. But where were the rooms and stables? Judging by such ruins as remain the builders did not provide for unlimited guests, and we must therefore conclude that around all the important castles there were wooden structures which would serve on occasions when large numbers arrived. We suppose some would be accepted in the nearest abbey, and others would be billeted on adherents, but the majority would, of course, prefer the luxuries of the castle.

A type which appears to be almost unique is seen at Rاندown in the county of Roscommon. It was in the territory of the O'CONNORS, and as that tribe was always at war either with neighbouring tribes or among themselves, the site of the castle was seized by EDWARD I. in the thirteenth century, and a castle or big police-station was erected. Master RICO was the carpenter, and RICHARD DEMARISCO appears to have been master of works. According to WELD it was intended partly for the protection of boats sailing on Lough Ree. The plan of the castle nearly resembled the letter P. There was a spacious apartment for banqueting assemblies, or more likely for trials. Prior to the invention of gunpowder Rاندown Castle must have been considered impregnable.

What is desirable is a work which will treat of the planning and construction of the Irish castles as far as can be discovered from the remains and the allusions in various records. But still more interesting and valuable would be one treating of Irish habitations in general. We can infer many things from the ruins of the castles, and must come to the conclusion that in the majority of cases they were more uncomfortable residences than the modern County Council lodging-houses. We have at the other extreme the Irish cabins which, as MOORE declared in his "History of Ireland," corresponded with the dwellings of the humbler classes 2,000 years ago. Where, however, were the dwellings of the classes which intervened between the noble and the serf? In the capital it is doubtful whether there is a house of older date than the eighteenth century. In a majority of the towns a search for ancient Domestic architecture would go unrewarded. THACKERAY said that Galway was the only town in Ireland in which an antiquary would find subjects for study or a lover of the picturesque for using his pencil. There at least he could realise the character of the dwelling of a sixteenth-century merchant. In England it is possible to still find examples of the old habitations of several classes of inhabitants. Are we to suppose that all traces of contemporary life in Ireland were annihilated? Perhaps it was a belief that too much attention had been bestowed on one class which induced the Galway peasant mentioned in a communication in last week's *Architect* to turn the ruins of one of the castles of the DE BURGOS into a farm building. His conduct would be pleasing to practical men. But it reveals that the prose of the present is beginning to be preferred to the poetry of the past. He probably would reply to a critic of his conduct that the DE BURGOS cared little about their followers, and why should a BURKE look on one of the towers as a sacred thing?

As we have said, the castles of Ireland form a subject which is vast, diversified and intricate. They should either be treated exhaustively, as was at one time contemplated by the Ordnance authorities, or partially by representative specimens. In the volume by Miss C. L. ADAMS there are included between seventy and eighty castles. But we are afforded no clue to the principle adopted for the selection, and the arrangement is merely alphabetical. The histories and legends were naturally of more importance to the compiler than any study of the planning or building. It is undoubtedly a hard task to investigate any department of Irish history unless to a pronounced pessimist. Miss ADAMS has done her work with care; but what is needed is, as we have remarked, a work of a very different class, in which the relation between the social condition of each period and the buildings will be established. The book may serve to persuade some of the Irish archæologists to undertake the inquiries which are necessary.

RUSKIN COLLEGE, OXFORD.

RUSKIN COLLEGE, Oxford, has entered upon an important scheme of extension. It is proposed, says the *Manchester Guardian*, to erect new buildings which will form a worthy headquarters of the movement for the higher education of working men in the great University. A central site has been obtained in Walton Street, not far from Worcester College. Three thousand pounds—including donations from the Amalgamated Society of Engineers, the London Society of Compositors, and the Scottish Co-operative Wholesale Society—have been subscribed, and this amount has been spent in acquiring the site. Another 5,000*l.* is needed to alter, extend and furnish the buildings on the site so as to accommodate fifty students. A second 5,000*l.* would enable the Council to accommodate one hundred students. An appeal is now being made for money to enable the authorities of the college to go on with the much-needed development.

Ruskin College was founded in 1899 for the purpose of giving to working men who aim at making themselves useful to their fellows a thorough training in the great social and political problems of the day. It is a school in which those who may become future leaders of working-class opinion—either as trade-union officials, members of local governing bodies or members of Parliament—can be equipped for their work. Ruskin College has long outlived the early days of misrepresentation of its aims—days when it was possible for a few to describe it, according to their view, as “an educational sausage machine for the turning out of labour agitators,” and when *Punch's* Special Prophetic Interviewer could draw humorous pictures of labour undergraduates on strike. It has justified itself by a good deal of solid achievement. During the last five years nearly 200 students have resided at the college, the greater number for a year. With five exceptions all the students were members or officers of trade or labour societies. The value of the college has been realised by some at least of the great trade unions. For example, the 95,000 members of the Amalgamated Society of Engineers have made three levies of one penny each to help the work of the college, and grants have been made by numerous other trade unions and co-operative societies. The management of the college is in the hands of a Council composed of representatives of the Trade Unions Council, the London Trades Council, the Amalgamated Society of Engineers, the Co-operative Union, members of Oxford University, including Professor Henry Goudy and Sir William Markby, as well as the Rev. Dr. Paton, of Nottingham, Dean Kitchen, Mr. J. Keir Hardie, M.P., and other well-known leaders in education and labour matters.

For 1*l.* a week the Ruskin College student enjoys board, lodging and tuition. Life in the college is simple and strenuous—“plain living and high thinking” is the rule. The young aspiring working-man who comes up to Oxford finds himself, perhaps for the first time, in surroundings where there is the least coercion. He is a responsible student. He must observe, inquire, think. “Most of the domestic management of the college,” to quote an official publication, “is in the hands of the students. Each week they hold a house meeting and appoint their own officers. Each student passes in turn through the posts of official life. There are no servants except a cook, so that each

student by washing up or scrubbing floors learns how silly a thing is snobbery, and how exacting are the claims of household drudgery unless relieved by a simple life.” The courses of lectures, given by a qualified staff, cover such subjects as political economy, industrial history, the history of social movements, local government, sociology, psychology and logic, and there is a useful class for speaking and public work. Of course, the social life of the college has a great educational value. The men learn tolerance and width of mind by their free intercourse together. The college is “run” very much on the same lines as the Manchester Ruskin Hall before that small institution was merged in the University Settlement. In Manchester the educational side of the movement is being continued, the residential side of the work having lapsed. Many of the students who go to Oxford have to make a considerable sacrifice of time and money. During their residence they are without any income, and can only pay their fees by using the savings of years. Some students who are nominated by the big trade unions are supported at college by their organisations.

The work at Oxford is necessarily limited, but it is supplemented by a system of teaching by correspondence, which spreads its benefits irrespective of distance. By means of the correspondence school all who are interested in the problems of our own time are enabled to study the subjects taught at Ruskin College by home reading. The aim of this branch is to systematise reading, and to help the home student by arranging for him definite courses of study. The fee for membership is one shilling a month, and there are now over 500 students scattered “in factory towns, on distant moors, in every part of Great Britain, in Norway, Denmark, South Africa, India, Australia and New Zealand.” The subjects are akin to those taught in the college, and the aim is to set the student abreast of the modern current of knowledge. Special stress is laid on the constructive part of the students’ work. They are asked to write essays on given subjects, and to send them periodically to Oxford for criticism and correction. In some places the corresponding students form themselves into classes for the discussion of difficulties and the interchange of ideas.

ROYAL HIBERNIAN ACADEMY.

THE following statement respecting a modern art gallery was adopted at a meeting of the Council of the Royal Hibernian Academy on the 9th inst. :—

The Royal Hibernian Academy as representative of modern art and artists in Ireland has a primary interest in the project of a modern art gallery for Dublin, and especially in the consideration that the institutions of a permanent exhibition of modern pictures and of the annual or periodical exhibitions of modern art should be grouped. The Academy has accordingly cordially welcomed such a project, and freely lent its galleries and good-will for its promotion.

An exhibition of pictures has lately closed which was collected in its galleries, with its consent, by the energy and enthusiasm of Mr. Hugh P. Lane, and has been of a remarkable, interesting and educative character for Dublin. It has effected much to centre attention on art in Ireland, and arouse animation as to its existence and culture. This exhibition, however, in the Academy’s house was not under its auspices, as may not be generally known, nor had its members any part in its selection.

It has transpired in correspondence in the public Press that this valuable collection is derived mainly from two sources, that of pictures at present in the market from two vendors at a time when they were able considerably to lend them, viz. from the executors of the late Mr. Staats-Forbes, who are realising his estate, and from Messrs. Durand-Ruel, of Rue Lafitte, Paris. A value of about 35,000*l.* has been freely ascribed to the collection as a whole. It has been advocated by some enthusiastic persons that as a whole it should be secured for Dublin as the nucleus of its modern art collection, and that a fortunate chance of its acquirement on a moderate valuation if lost now could not occur again.

The circumstances of the time appear to have been unfavourable to the appearance of any munificent benefactor or benefactors to present such a sum at once, which otherwise it could not be expected would be realised. It is the function of the Royal Hibernian Academy, on behalf of the opinion of artists of Ireland, now to express it when it cannot be taken as inimical or obstructive to the gallery project.

The pictures presented in this exhibition, with few exceptions from two main sources, may be classed as follows:—

1. Pictures of high quality and value exemplary of great modern artists and desirable to be included in the nucleus of a great modern gallery.

2. Pictures which are examples by eminent artists of much charm in a passing exhibition, but to be regarded as not representative of any great artist at the full measure of his genius, but rather as souvenirs for the private collector.

3. Pictures of whatever value which would not in any respect be acceptable or educative to the public or artists in a pleasing or popular gallery, which if acquired would too early occupy undue space, and which it would not be judicious to accept even if generously offered as gifts.

The Council of the Royal Hibernian Academy as artists would accordingly appeal to those of the Irish public who have evinced a generous impulse to do a great service to art in Ireland, and make it a practicable one, that their contributions should be conditional on a more deliberative procedure that has been advocated by some writers in the Press. It urges that the selection of first pictures, which will be all important in a nucleus in proceeding to realisation of a popular gallery, should be those of pre-eminent and individual fame, selected under associated expert and independent advice with unhurried judgment and from wider fields than the sources of this exhibition.

It is to be added that in such deliberative selection it might be remembered that in the nucleus of an Irish permanent and popular gallery might be accorded with Irish favour some due representation at least of notable works of artists of Irish origin, a wide enough field of inquiry for which has been indicated in the successful Irish Guildhall Exhibition of 1904.

ART IN BIRMINGHAM.

IN his report as examiner on the work of the Vittoria Street school, Birmingham, for the year ended December 5, 1904, Mr. H. Wilson says:—"After a long and careful study of the work of the past year, it gives me great pleasure to say that I find a higher level of excellence is reached, not only by individual students, but by the whole school. There is in the handiwork evidence of a keener sense of the importance of finish, not as mere smoothness or polish, but that completeness which comes of clean workmanship and neatness of execution in all stages of the work; and in addition to this I found a greater appreciation of the beauty of metals in combination and more feeling for the colour values of materials employed. The hammerwork also is more sensitive and the forms more refined. The decoration of raised work by traced and dotted leafage in outline is an interesting departure which may lead to valuable results, while the increased attention given to inlay and damascening has produced some very good work full of promise for the future. I hope that many more students may take up these most beautiful branches of the jeweller's craft. There has been great improvement in the class for chipping; the forms are made out by the use of the chisels and the work left from the tool. The effect is thus in all cases far better than it was last year, and in one case the work is of remarkable excellence. It was with great satisfaction that I noted the large increase in the number of drawings from memory, and a more than corresponding improvement in the quality of the work. Some of the drawings are wholly admirable, and almost all are good in one way or another. The beneficial result of the more extended study from memory is very evident in the higher quality of the studies from living animals, and it would be difficult to praise too highly the efforts which have led to the beautiful series of drawings from feathers and some of the more advanced studies from animals and birds. The sight of all these gave me very great and very keen pleasure, which is renewed in the recollection of their many surprising qualities. The freshness of outlook, the vivacity of expression, the realisation more or less complete of superficial form and texture all go to prove that there are few, if any, who cannot draw if only they are not too much instructed. There is, I observe, a tendency on the part of some of the more advanced students to borrow the style and technique of their teachers instead of going on until each finds his own manner of drawing. This should be carefully guarded against, as it leads to the worst form of mannerism, to a parasitic style. The increased powers of realisation acquired by the study from memory and from living animals are, however, most strikingly shown in the

few drawings from the human model which were the latest, and I was much struck by the obvious pleasure which the authors of the drawings had taken in their work. The drawings are few in number, but of surprising accomplishment when the fact is remembered that none of the students had ever studied from the life before. Nevertheless, great watchfulness must be exercised lest, on the one hand, the work should become mannered, or, on the other hand, lest it should be unduly influenced by methods of work and vision which belong to another generation." The examiner makes a number of valuable suggestions, particularly in relation to anatomical modelling. He says:—"There should also be one or two skeletons of typical animals for the use of students and for demonstration purposes. The one thing in the work of this class which I felt to be the least satisfactory is the modelling from photographs; in other words, modelling in relief from a flat copy. Photographs have their uses as records, as stimulants of memory; but it is, I think, evident that form should be studied from form in the round, or at least from a memory of form. If studies have been made from the living animals beforehand, and the photograph is used to recall or amplify or supplement the original studies, its use might be perhaps justified; but otherwise it is a positive hindrance." Mr. Wilson congratulates the committee on the very admirable results of the past year's work, results which are so largely due to the energy, skill and untiring work of Mr. Gaskin and his staff of assistants. The school, he says, is daily becoming a centre of happiness in work, and work and happiness combined are the most potent of civilising and ennobling influences.

RURAL BY-LAWS.

THE grand jury at the Cambridge Assizes on Saturday made a presentment to Mr. Justice Grantham. The Foreman said he had been requested by his fellow-jurymen to state that they desired to express their thanks to his Lordship for the determination with which he had brought before the country the wanton and great obstacles thrown in the way of cottage building in country districts by impracticable and unnecessary by-laws, and by the arbitrary way in which they were sometimes administered by those in authority. They trusted that the President of the Local Government Board would at an early date take such steps as might be necessary to remove these obstacles. They sympathised with his Lordship in the personal inconvenience to which he had been exposed, and were glad to see that his health was sufficiently restored to enable him to come among them again as the judge of assize.

His Lordship said he was extremely obliged to the jury for the kind expression of approval of his recent struggle against unnecessary restriction, and he trusted the struggle would bring forth good fruit. He had never opposed proper by-laws, but what he had done had been to oppose the local authorities when trying to enforce non-existing by-laws, or trying to give illegal interpretations to those by-laws which they had to administer. That he did not quite succeed in his efforts, he thought they would say was more his misfortune than his fault. Surely it never entered into the mind of a man who placed himself in the hands of the public authority who prepared the by-laws that any rural council would have told him that his plans were unintelligible, much less that when the rural council had agreed to be bound by the arbitration or even the opinion of the President of the Local Government Board, and that when his award had been made against them they should at once ignore such award and prosecute the unfortunate builder for only preparing plans which the Local Government Board said were technically sufficient. Who would have thought that anyone sitting in the seat of justice could be found to hesitate after the proof of such facts as to whether he ought to dismiss such a criminal prosecution? He thought the jury would admit that his experience had been unique in this country. Perhaps he might be allowed as a judge, who was familiar with the question of the interests of magistrates, to say that when *ex-officio* magistrates, who were sitting on the bench only through their position as representatives of local authorities, adjudicated upon questions between similar local authorities and an individual as to the constitution of the by-laws, they must not be surprised if the public thought the Court might not be quite so impartial as a court of justice ought to be. He felt deeply grateful to the grand jury for their sympathy. He could not help feeling acutely the proceedings which had taken place.

On Monday two papers were read at the Surveyors' Institution on building by-laws.

Mr. A. R. Stenning said the time had come for a general remodelling of the by-laws and for their compulsory application to all districts. The by-laws founded on the Act of 1875 were intended to give urban authorities power to deal with new streets and new buildings in towns, and it was never intended to apply them to rural districts. Mr. Long had framed for rural districts a new set of by-laws in May, 1903. These, if reasonably and intelligently applied, would have the much-desired effect of considerably reducing the cost of building in rural districts. They dealt generally with sanitation, but one by-law, prescribing the deposit of plans, had led to the proceedings between the Chailey District Council and Sir W. Grantham. He had seen Sir William's cottages to which his addition was proposed. They contained two rooms on the ground floor, two on the first floor and two on the upper floor, and there was a good-sized outbuilding. He let these cottages at 3s. 6d. a week, so this was not a case of expecting a handsome return for money. He stopped building on receiving notice to produce plans, and deposited plans which he (Mr. Stenning) at any rate considered did comply with the by-laws. They declined to tell him what they required. What could he do but defend himself when summoned? There should be no discretion to any local authority to determine whether to adopt urban or rural by-laws. General by-laws should be made which would apply to the whole country and meet the requirements of rural districts by means of such exemptions as were contained in section 201 of the London Building Act, 1894. Builders should be disqualified from sitting on the rural district councils which administered the by-laws. There should be a tribunal of appeal. What constituted "a new building" should be clearly defined.

Mr. W. Menzies, in the second paper, said that rural authorities possessing by-laws framed on the 1887 model series, which were really an urban series, had no power to depart from them; on the other hand, no one could compel them to apply for revised by-laws. Modification, however, should not mean going from one extreme to the other. By the 1901 series of by-laws anything might be used for foundations, walls and roof. It was only reasonable that some powers should be exercised as regarded materials and construction.

Mr. Arthur Vernon insisted on the necessity of reducing the by-laws to some consistency. He said they all sympathised with Sir W. Grantham's bold and manly defence of his own position, without, however, saying that they would sympathise with plans that were hardly intelligible or descriptions that were not professional any more than Sir William would admire wills or depositions drawn by amateurs.

The papers are to be discussed at the next fortnightly meeting.

REMBRANDT.

A LECTURE was delivered before the Toynbee House Literary Society, Glasgow, by Mr. Thomas Rennie on "Rembrandt." In introducing his subject, Mr. Rennie said:—In the seventeenth century the art of Europe, hitherto dominated by Italy, received a new impulse and took a new direction. The religious and classical art of the Renaissance reached its highest development with the advent of the great Venetian painters of the sixteenth century, after which the art of Italy declined into conventionalism and triviality. All that was vital in German art passed away with Holbein. In Flanders the religious and classical traditions were continued by the giant Rubens, and in far-away Spain Velasquez was painting those portraits of Philip IV. and his courtiers which have made him one of the immortals. Rubens and Velasquez, however, moved in select circles, painted for select people, and their art, great as it was, was circumscribed. The new impulse came from Holland with the attainment of civil and religious freedom. Art in that country widened its range and continued no longer to be the handmaiden of the Church or the servitor of the palace. For the first time in its history it became at once national, civic and domestic, embracing a people and their whole environment. The greatest exponent of this new impulse was Rembrandt. The lecturer then proceeded to sketch briefly the life and work of the artist, dealing with the productions of his early youth, which although daring were naturally crude and experimental; then with those of his early manhood, when he adopted conventional methods; and, finally, with those of his

middle and old age, when his greatest works were produced. Rembrandt, he said, was sometimes over-fond of startling effects, and was frequently fantastic, but take him for all in all, he was the most many-sided and universal of artists, and in his paintings, etchings and numberless drawings he has left the greatest art heritage the world has ever received. The lecture was illustrated with a fine series of lantern slides.

ROYAL PILGRIMAGES IN SCOTLAND.

A PAPER was read on Saturday by Sir James Balfour Paul, Lyon King-of-Arms, to the members of the Edinburgh district of the Scottish Ecclesiological Society on "Royal Pilgrimages in Scotland." The paper dealt mainly with the pilgrimages of James IV., regarding which particulars were gleaned by the author from the Accounts of the Lord High Treasurer of Scotland, which are at present being published. The Scots, Sir James said, were great pilgrims, and probably performed these acts of devotion from the days of St. Columba. They were well-known figures on the Continent as they made their way to Rome or the Holy Land. But for every one who went to foreign parts, hundreds must have gone to holy places in the home land. It was not, however, till the fifteenth century that any detailed account was to be found. After the birth of James IV. his mother, and perhaps his father, set out with a large retinue on a pilgrimage to the shrine of St. Ninian at Whithorn, which already had a great reputation. Judging from the elaborate preparations which were made, it must have been looked on as a pleasant trip rather than as a penitential exercise. Of the visits which James IV. paid almost annually to Whithorn, the paper gave many interesting particulars, the extracts from the Accounts casting a vivid and sometimes amusing light on the modes of life and travel in those days. Only second in fame to the shrine of St. Ninian was that of St. Duthac at Tain, which was the refuge of the wife and daughter of Robert the Bruce when they were compelled to flee from Kildrummy. Of the journeys thither many details could be gathered from the Accounts—the routes taken, the time the journey took, and so on. The pilgrimage of 1507 was rather remarkable. It was probably the one alluded to by Lesley, who stated that His Majesty rode 130 miles in one day. The Accounts, without actually confirming that statement, proved the great rapidity of the journey. On August 31 the king was at Perth on the way north, where his horse required shoeing, and on September 14 a man was sent to Aberdeen "to speir of the king's incoming," which seemed to show that his attendants were not sure of his movements. The incident was a curious illustration of the impetuosity of the young king and of his personal activity. It was nonsense to call James IV. a debauchee, as had sometimes been done. The roads must have been wonderfully good to allow a man to ride 130 miles in one day, as he seemed to have done. There were other places scarcely less venerated, but as they were within easy reach of Edinburgh, there were fewer references to them in the Accounts. Whitekirk, in East Lothian, was at one time a place of much resort. In 1413 no fewer than 15,563 pilgrims visited the place, and the offerings were equal to 1,422 merks. In 1430 James I. had houses built for the reception of the pilgrims, and it was likely that his successors visited it from time to time. The Isle of May was another place of resort. But these did not nearly exhaust the list of places which James IV. visited; in fact, he never passed a holy place without remembering it. These pilgrimages were by no means on ascetic lines, and were really equivalent to our modern summer trips. Falcons, horses, dogs and weapons of the chase were invariably part of the Royal equipment, and the days were spent in hunting and hawking, as was shown by such entries in the Accounts as "2s. 8d. for pokes to put the laverocks in," while the amusements of the evening were supplied by the king's troop of Italian minstrels, or by local harpers, singers and story tellers, while the king himself would occasionally touch the lute. Cards and chess were also played to pass the time. Of the religious influence and significance of these pilgrimages it was impossible to judge in our day. Among the thousands of pilgrims many no doubt felt their spiritual life quickened and edified. As to King James IV. himself, though we could hardly call his life saintly, there was nothing necessarily insincere in these acts of devotion. The Mediæval mind was a curious mixture; pleasure and penance followed each other in quick succession.

NOTES AND COMMENTS.

At the present time, when the problem of the unemployed has become more difficult than ever, greater responsibility is cast upon public bodies and others in the acceptance of tenders. Local claims must necessarily receive attention. If a tender from a different town is a little lower in amount, public, or local opinion rather, expects that it will not be accepted. At the same time, there is a principle involved in the acceptance of the lowest tender which many will say should be respected. A case which shows the difficulty of giving a decision under present circumstances is now the subject of some controversy in Liverpool. It was decided to rebuild the Children's Infirmary in that city. Tenders were invited, with the usual stipulation that the committee did not bind themselves to accept the lowest or any tender. The result was that the contract was given to a firm who do not reside in Liverpool. In several instances all the workmen employed are not brought from a distance. But the Liverpool Trades and Labour Council were not hopeful, and they communicated with those who were supposed to control the arrangements for the new infirmary. The infirmary committee merely sent an acknowledgment of the letter. The secretary of the Hospital Saturday Fund committee, however, wrote:—"My committee are in full sympathy with the desire to keep work in Liverpool if possible. At the same time, they are quite satisfied that the action of the Children's Infirmary in placing the contract elsewhere is quite justifiable, and if blame is to be attached to anyone it must be to the Liverpool builders, who failed to secure in an open competition this work." The statement of the committee, it appears, is incorrect, for in the tendering the lowest amount was that of a Liverpool firm. The amount, however, was higher than had been anticipated. The Liverpool firm, and another firm whose tender was next in amount, were asked to compete again on amended quantities, and for the second time the lowest amount was that of the former. The competence of the firm to carry out the work is undisputed. It is sometimes no doubt necessary to pass over a builder whose work would be the most economical, but apparently there was no manifest cause for adopting that course with the Children's Infirmary.

THE late floods must have convinced the most ardent admirer of the Old Bridge of Ayr that it could not long sustain the contest with time and water. It happens also that some years ago the late ROBERT TEMPLETON bequeathed 10,000*l.* to pay for rebuilding the bridge. The money was to become available after the death of his three sisters. The last died about a month ago. In addition to bonds there are some houses in High Street, Ayr, which are to be sold. It is expected that the legacy will then amount to about 13,000*l.* The Old Bridge committee asked Mr. JOHN YOUNG, the burgh surveyor, Mr. EAGLESHAM, an engineer, and Mr. JAMES A. MORRIS, architect, to prepare a report on the rebuilding. It is intended to seek tenders and to proceed with the work as soon as arrangements can be made. The Auld Brig's prophecy, as reported by ROBERT BURNS, "I'll be a Brig when ye're (the new bridge) a shapeless cairn," is therefore not likely to be fulfilled.

ALTHOUGH the name of ANDREAS SCHLÜTER is not much known outside Germany, he led an adventurous career. He was a native of Hamburg, born in 1664, and in course of time became a sculptor. The King of POLAND made him his official artist, but Prince FREDERICK of Prussia, who was afterwards elector and king, enticed him to Berlin. The big palace at Charlottenburg, which is an amazement to tourists, was his work, for he was accepted as no less competent in architecture. The statue in Berlin of the Great Elector FREDERICK WILLIAM occupied him for about seven years. He was also the architect for the royal palace, for the earlier work of the sixteenth century is not easily discovered. Since his time many

additions have been made to it. It has lately been ascertained that a building in the Dorotheenstrasse, which was erected in 1712 for one of the statesmen of the time, VON KAMECKE, was designed by SCHLÜTER. He was a friend of the sculptor-architect. Latterly the building was allowed to fall into a ruinous condition. But the Architects' Society of Berlin have obtained some rights over it and will provide for its conservation. It is adorned with sculpture. The house possessed an English bowling-green, and the garden was evidently laid out in the English manner. There are larger works to serve as memorials of SCHLÜTER in Berlin, but this house reveals him in a new character as architect for domestic buildings.

ILLUSTRATIONS.

CATHEDRAL SERIES.—ST. ASAPH: THE WEST DOOR.

INDEMNITY HOUSE, NO. 1 OLD BROAD STREET, E.C.

A PORTICO IN BOLOGNA.

ACCORDING to Mr. HAIG, this is the so-called Portico di S. Giacomo Maggiore, being a colonnade which follows the whole northern side of the church of that name, continuing also by the side of the church of S. Cecilia. This, one of the most elegant of the numerous street colonnades in Bologna, dates from the year 1447, when it was erected instead of another portico which had been pulled down, and which probably dated from 1267 or thereabouts, when the church itself was erected. GIOVANNI BENTIVOGLIO employed for the execution of the work the monk GIOVANNI PACI, who also is the reputed architect of the excellent façade of the church of Madonna di Galliera. The blocked semi-circular door shown in the sketch probably is a remnant of the earlier structure, but the other door leads by a passage into the church of S. Cecilia, well known for its ten frescoes by FRANCESCO FRANCA and his pupils, representing incidents from the lives of S. CECILIA and S. VALERIAN. This church was built in 1481 by GASPARE NADI, also through the munificence of GIOVANNI BENTIVOGLIO. The accompanying sketch only slightly indicates the general character of a colonnade well worthy of more complete study. The great length is, however, apt to make the actual structure somewhat monotonous, especially as the details vary but slightly.

COURTYARD OF A PALACE IN BOLOGNA.

NEAR the cathedral, and opposite the church of the Madonna di Galliera, with its elegant but dilapidated Renaissance façade, are to be found the two Palazzi Fava. One of these is a corner building of red brick, probably dating from the earlier part of the fourteenth century, noteworthy architecturally for its good Gothic windows, and historically for having been at one time the residence of ANDREA MANFREDI, of Faenza, General of the Servites, the same who in 1392 caused to be constructed the interesting portico of the church of S. Maria di Servi. The adjoining palazzo of the same name dates from the year 1500, and is remarkable not only for the bold architecture of its courtyard, partly illustrated in the accompanying drawing, but also for a collection of frescoes by AGOSTINO, ANNIBALE and LODOVICO CARRACCI and their pupils, illustrating the stories of JASON and ÆNEAS. There are also frescoes by ALBANI and LUCIO MASSARI, in all some sixty or seventy subjects, generally admirably treated and showing the characteristics of the various masters in a marked degree. The courtyard in question is entered from the raised and arcaded sidewalk of the street, and the first impression on entering it is rather striking, the corbels supporting the balcony or gallery occupying one side of the court having a particularly bold effect. A similar treatment of corbels may be seen in two or three other instances in Bologna, a marked example being a corner house near the church of S. Domenico; but the corbels here illustrated are probably the best of their kind in the town.

GRAND MANSIONS HOTEL, FOLKESTONE.

BY SEINE, OISE AND MARNE.

By T. FRANCIS BUMPUS.

MEAUX.

THE cathedral of Meaux—perhaps not so widely known as it deserves to be—might take a place among the first in France had it a nave commensurate in dignity with the choir, a *chef d'œuvre* of the latter part of the thirteenth century, and which, in some respects, I am bold enough to prefer to its parent at Amiens.

The present building enshrines portions of a church of the twelfth century, and which was described in the chapter records of 1268 as a beautifully constructed one, grand and wonderful—

Quoniam tam decora, tam nobilis structura nostræ Meldensis ecclesiæ.

About the middle of the thirteenth century this church,

and before the fourteenth century had passed into its second half. But the remainder of the work, owing probably to the unsettled state of the country during the English wars, languished, the construction of the transepts with their portals, and the lower part of the western façade, being spread over the fourteenth and fifteenth centuries, while that of the nave and solitary north-western tower dragged on until 1530.

The shortness of its nave, one of the few in France planned with double aisles, is the great drawback to the cathedral at Meaux. It is only of five bays, and as the two westernmost are absorbed in the towers it presents a somewhat truncated appearance externally. The piers, from which the arches separating the nave from its aisles spring, are formed of gigantic clusters of slender shafts, with capitals chiselled into wreaths of vine and holly—a naturalistic type of foliated ornament that betokens the gradually declining Gothic of France. Several of the



MEAUX CATHEDRAL—SOUTH TRANSEPT AND PORTION OF CHOIR.

of which remains are still visible in the lower tier of arcades on either side of the choir, and in the nave adjacent to the transepts, threatened ruin, whereupon the Bishop, Jean de Poincy, determined to rebuild it on a scale of increased magnificence. Accordingly, at a meeting of the Chapter held in 1268, it was resolved that, besides the offerings of the faithful, one year's income of all the benefices in the diocese that became vacant within ten years should be applied to the fund. This gigantic undertaking, entered upon with such enthusiasm, made but slow progress. Fortunately the choir, with its beautiful corona of chapels, was completed while the French style was at its height

pillars separating the double aisles, whose effect, owing to the extreme shortness of the nave is but imperfectly realised, are tall cylinders with carved capitals, and recall those in the same position in the Minster at Ulm. At the time of my visit extensive works of reparation and renovation were in progress; the whole of the south side had been mercilessly flayed, and the debased Gothic tracery in the windows of the nave chapels was being transmuted into Geometrical Decorated. Unfortunately the French have been taught to look to the Government as the owner and restorer of all religious buildings, and they do not concern themselves about either the security of their fabrics



MEAUX CATHEDRAL—VIEW ACROSS TRANSEPT LOOKING SOUTH.

or, except in a few instances, the character of their fittings and decorations.

Thankful should we be that the State is not so careful for us as it is in France, for then we should see here, just as we do there, a people careless of the noble buildings which surround them, in place of—as we do here—a people whose love for these old monuments is enhanced by the fact that they are themselves constantly invited to aid in their restoration and repair.

The two westernmost bays of the nave forming the bases of the towers are very narrow, and the arches extremely acute, but the spaces enclosed by them are nobly vaulted. Part of the triforium in the nave is Middle Pointed, of good character, and two clerestory windows on the north side are unquestionably First Pointed. In the transepts the workmanship, as may be gathered from the accompanying illustration, is uncommonly grand. The shallow arcading on either side the entrance is of rare excellence, and the windows, to which additional beauty is imparted by an inner plane of tracery, are set off by modern stained glass representing small figures of saints, wherein the positive tinctures are used so sparingly that they seem to flash forth like jewels from the sea of grisaille in which they are set.

But if the richness of the transepts at Meaux calls forth our admiration, we stand spellbound before the apse, which, with its colossal round columns, each strengthened by a slender shaft which shoots up from the floor of the sanctuary to the spring of the vaulting ribs, *d'un seul jet*, is invested with a combined boldness and lightness only equalled by its great prototype at Amiens, stained glass in the two-light windows of the clerestory being alone required to perfect the *ensemble*. To a severe criticism the clerestory windows in the apse at Meaux may seem hardly lofty enough, a defect which the piercing of the triforium, as at Nevers, Tours, Troyes and elsewhere, would remedy to some extent. In the three-bayed choir proper the two tiers of arches is a remarkable feature. The lower one, a remnant of the twelfth-century church, has short compound piers, and, there can be little doubt, supported one of those grandly developed tribunes to which I have frequently alluded as constituting so marked a feature of Early North-Eastern French Gothic. The easternmost respond of one of these arcades is still discernible in the nave, against the last pier on the north side, from which one would conclude that these vaulted galleries extended throughout the church, which in its twelfth-century state must have resembled Laon, Noyon and Senlis.

When, at Meaux, the reconstruction of the choir was resolved upon after the middle of the following century, the use of the "tribune" had gone out of fashion and been replaced by the lofty unbroken arcade. However, the architect retained the arches which opened into the much lower aisles of the old building. Rearing upon them an arcade so as to be commensurate in height with those in the apse, which he rebuilt *de novo*, he subdivided each of these upper arches, for purposes of stability, into two trefoil-headed compartments, and surmounting them by a large sexfoiled circle, thus produced a piece of work as useful as it was graceful and novel. In this part of the church the arches of the triforium are slightly triangular, and the clerestory windows are each of four lights with trefoils in the subarcuations and a sexfoiled circle in the head. Noble piers, composed of a cylinder around which four slender ones cluster, separate the two aisles that run round the choir. Here is a series of most graceful chapels with elongated windows of two lights each, in some of which a commencement of very creditable painted glass has been made, though one feels inclined to demur at the manner in which the subjects filling those in the lady chapel are allowed to spread themselves through both lights, instead of being confined to each one in the Mediaeval manner prevalent at the epoch which witnessed the erection of this part of the church.

(To be continued.)

USHER HALL, EDINBURGH.

A MEETING of the Usher Hall committee of the Edinburgh Town Council was held on Friday, the Lord Provost presiding, to take up the remit made to them at last meeting of the Council under the amendment of Councillor Cameron. The amendment, it may be recalled, was in these terms:—"The Magistrates and Council having now received and considered the estimates for the new City Hall, before accepting same, resolve to instruct the committee to forthwith submit a further report, showing in accordance with schedules of quantities, (1) the cost of the dome, the square tower, and their relative bearing walls; (2) stating whether the plans can be amended so that the large hall shall receive sufficient daylight, so as not to necessitate the use of electric light during morning or afternoon concerts; (3) stating whether the gallery accommodation can be substantially increased, and saying if the upper gallery can be lowered or otherwise improved; and (4) giving information on the acoustic properties of the proposed new large hall, with power, if necessary, to take high qualified expert opinion on this subject." This amendment, it is understood, says the *Scotsman*, was taken up in detail, and a remit was made to the surveyor to ascertain the respective costs of the dome, the tower and relative walls. As to the lighting, the architects were instructed, after discussion, to report at next meeting on the method of lighting the Music Hall, the M'Ewan Hall, and the Synod Hall, and whether in all the circumstances they considered their present lighting arrangements for the proposed new hall satisfactory. The question of the acoustics of the new hall was next considered, and it was proposed that a remit should be made to Mr. Matcham, the well-known London architect, and to Dr. F. H. Cowen, the musician, to report on this important subject. But subsequently it was agreed to delay giving final instructions on this subject until the next meeting. The most important discussion, it seems, took place on the seating arrangements and the spacing of the seats in the proposed new hall. Plans were shown with arrangements for rows of seats varying in measurement from 2 feet 1 inch to 2 feet 6 inches from back to back, and with space for each seat of 18 inches per sitter and 20 inches. The numbers in these cases varied from 3,599, the total sitting accommodation of the hall, to 3,157, but it was explained that these figures are inclusive of an allocation of 600 seats in the orchestral gallery. It was pointed out that 18 inches per seat was too little for a choir, and it afterwards transpired that no allowance had been made in the orchestral gallery for the space that would be taken up by the organ. This, it was estimated, would cut off about 200 seats in the orchestra. The plan whereby in the seating of the hall 20 inches per sitter would be given was, it is understood, most favoured by the committee, so that taking the total seats at 3,157, and deducting 600 for the orchestra, a hall would be left with 2,557 seats. The meeting was adjourned to give the officials time to get the additional information required by the committee.

REGISTRATION AND PARLIAMENT.

AT the dinner of the members of the Leeds and Yorkshire Architectural Society Mr. Butler Wilson proposed "The Houses of Parliament."

Mr. R. H. Barran, M.P., responded. Referring to the question of a Bill for the registration of architects, he said if the Institute was unanimous in its support there was every reason why the measure should go through, and every prospect that it would. If they were to have greater beauty and equality in the architecture of their towns and cities, it must be by putting greater power into the hands of the architects who were allied with the great societies. The public would probably be more ready to look at the utilitarian rather than the æsthetic side of architecture. There were many defects in bad building which recoiled upon them in their cities, and became a great expense in the clearing of certain areas, which under other circumstances might never have been necessary. They wanted to feel that the initiative must come from those who had the actual work to do. Would it not be a great advantage, from the public standpoint, if when gentlemen were appointed to have the supervision of architects' plans under local government, they could ask them if they had qualified themselves under examination? Speaking of the value of compulsory examination as an educational force, Mr. Barran instanced the case of Germany, where, to avoid having to join the ranks of the army, the young men strove to pass stiff exami-

nations to enable them to take a higher rank when they had to join the colours. This had its bearing on the intellectual development of the nation. All these men had had mental training of a wide area, and whatever sphere of life they filled afterwards, they did not lose the advantages of the work they had done for the examinations. They had not the same case in England, but he hoped they would not let the people lose the advantage of that asset. In the municipalities they sometimes saw architects' work given to qualified engineers. As cities they ought to take a wider view of the matter, and whether they were undertaking a large or a small building, to have it distinctly understood that it should be the work not of a waterworks engineer or any other engineer, but of a man who had had the training and had shown the capacity to justify him in undertaking the work. He thought the public would support the principle of the Registration Bill, and he would have pleasure to see his name on the back of the measure when it was introduced to the House of Commons.

The Lord Mayor proposed "The Leeds and Yorkshire Architectural Society," and referred to the architectural transformation of Leeds in recent years, saying he was sure the Leeds architects had done their work to the satisfaction of the citizens, and had embellished the city with some noble monuments of their art. His Lordship, after a passing reference to the disadvantageous atmosphere of great centres of population from the point of view of being able to see in full the architectural designs of the buildings, pleaded for a greater variety in coloured clays for decorative brickwork.

The president (Mr. Bulmer) replied to the toast, and gave a sketch of the history of the Society from its inception in 1876 down to the present time.

IMAGINATION AND THE IDEAL.

IN his second lecture at the Royal Academy Mr. George Clausen said imagination was the driving force of the artist, whether, like Velasquez, he painted outward things, or like Blake, fancies of the brain. Even to the portrait-painter imagination was essential to dictate the point of view and to control the artist's mind. The work of Blake was a proof that imagination, with only the poorest technical equipment, could make an artist though not a painter. Blake's simplicity was finer than his sublimity, which had always a slight touch of the theatrical. His art was founded on that of Michel Angelo, which he, in common with many others of his time, knew only from engravings, and he gained from them an impression of exaggerated muscular development. Blake himself was unconscious of his technical weaknesses, and thought himself to be a better painter than any of his contemporaries. Still, he could express his ideas, and his pictures touched the mind far more than those that were accomplished technically but were lacking in imagination. Mr. Clausen next considered the work of Metsu, De Hooghe and Jan Steen, comparing it collectively with that of another Dutchman, Mieris. In the work of the three first-named there was imagination, and though every object in their pictures was perfectly realised, the realisation was subordinate to the dramatic instinct. In Mieris imagination was wanting. His accuracy was remarkable, but he painted with the eye of a housewife looking for defects.

In Michel Angelo alone did we get the perfect union of imagination and skill of expression. Raphael was more in touch with the world, and had a wider observation and more power of assimilating the things around him. He saw things in groups—and in his power of grouping Raphael was unapproached—but when one thought of Michel Angelo one's mind generally recalled some single figure. Several of Michel Angelo's figures, among them the Delphic Sibyl, the Jeremiah and the Isaiah, were illustrated by Mr. Clausen on the lantern screen, as well as several frescoes of Raphael. In the frescoes the "Heliodorus" and the "Mass of Bolsena" the lecturer pointed out in each case the singular contrast of the groups of real figures (apparently portraits) on the one side of the picture, with the Raphaelesque abstractions on the other. Raphael was at his best in his painting of individuals. In his ideal figures it was possible to see the seeds of that insipidity that was developed later in the works of his followers. Raphael's work belonged to the eternal things of art. To us his opportunities were denied; our life was too complicated and all our conditions opposed to it. In Rembrandt we saw that, however unpromising a man's surroundings might be, his imagination, if he had it, would show itself in his work. Both he and Raphael could create

a Scriptural scene, the Italian with such apparent rightness that we felt that the things ought to have happened so even if they did not. Rembrandt's ordinary ugly people were at first less convincing, but when we looked more closely his imaginings gave us, as in the "Hundred Guilder" plate (the "Christ Healing the Sick"), a sense of reality that becomes typical.

Watts, too, was one of those rare spirits, a born painter with a natural gift of expression. Look at the portrait of himself at seventeen, now in the exhibition, or the portrait of his father, painted only a little later, and almost as fine as anything in the galleries. Or look at "The Wounded Heron," which recalled the skill and care of the great Dutchmen or of Velasquez. Mr. Clausen praised the construction and modelling of the painted heads by Watts. In them nothing was slurred, nothing sacrificed, and with the technical qualities was given something more than the mere expression of the moment. In each case, too, the impression of the sitter seemed to have suggested to the artist an appropriate handling. Watts had a fine feeling for beauty and quality of colour and a fine sense of gradation, and these were conspicuous in the portrait of Mr. Walter Crane, which was in some ways the best of his works. Three stages were to be seen in the painting of Watts. The first was portrait study—the search for accuracy. In the second he was seen striving for ideal beauty, and in the third expressing his imaginations, trying, to use his own words, "to suggest, in the language of art, modern thought in things ethical and spiritual." Probably the finest painting of the antiques was like Watts in the second period, and, to show the connection, Mr. Clausen exhibited on the screen photographs of some Pompeian pictures as the nearest existing approach to the antique. In his later period he was not content to embody old myths in new forms; he wanted to give fresh forms to modern ideas. Mr. Clausen admitted that for the sake of this he possibly sacrificed some of the finer qualities of his actual painting, but thought that this was a matter needless to discuss. Whatever we might have lost there was no question of the greatness of the aim of Watts, and some of his pictures, like great poems, had become a part of the time. Mr. Clausen touched on the sympathy between Watts and the Venetians and on his power in landscape, and in his final summing up of the great English painters' career said:—"Every development of his art seems to have come naturally; he kept aloof from all schools, and was throughout true to himself and to his own ideals."

In his address on Monday Mr. Clausen said Leonardo da Vinci urged those who wished to learn painting to keep a pocket-book always with them in which they could make sketches of figures and incidents when they had the opportunity, and thus store up knowledge for future use. This was sound common sense, for if a man set out to paint a picture he could not even begin unless he had some fund of acquired information to rely on. The early works and studies of great painters should also be examined, for it was useful to see that the pictures which seemed so perfect had been worked at over and over again. Where landscape or figure and landscape were concerned the invention of a picture was a simpler affair than the actual designing of a subject, because as a rule one had seen something in nature of the idea one wanted to express, and we selected rather than invented. It was well to study the drawings of Claude and Rembrandt. Light governed everything, and this must be studied out of doors. It could not be done properly in the studio. This was borne out by the fact that every great painter of figure had been a painter or student of landscape. But the necessary knowledge of effect of light could not be gained in landscape by the study of minute detail. We could not sit down to it. We must take a general view that covered the whole field and register the effect by a method that might be as summary as we pleased, so long as something was impressed on the mind, and thus help to build up a little reserve of knowledge. This, of course, was merely developing a faculty we already possessed, for everyone criticised a picture from his recollections of nature. Though it was easy to mention certain well-known rules in composition, it was impossible to lay down any laws for designing pictures. The plan must arise in the artist's mind and would depend on his mood and his temperament. Reynolds said that rules were made from pictures—not pictures from rules—and that we should not be subject to them but they to us. The old masters steadied our judgment and made us less apt to be led away by fads or by the cultivation of virtuosity—the making of painting the end and not the means. When Whistler

produced his nocturnes it was not merely for the sake of using blue paint. He painted them in the endeavour to try to render the beauty and the mystery of the night. Gérôme warned a young artist who had, perhaps, a tendency towards painting "slick," that to paint for painting's sake was no better than to talk for talking's sake. Too many students seemed to think—and we saw the results of it in the exhibitions—that mere imitation was the beginning and the end of the painter's art. But good modern work, such as that of Watts and of the best French painters of the middle of the nineteenth century, went naturally enough with the old. It was in sympathy with the spirit of the old work rather than with the letter, with the essentials rather than the details. As an example of imitative workmanship, Mr. Clausen selected the portrait of an old lady (Mrs. Lewis) by Frederick Sandys now in the exhibition at Burlington House. It was remarkable, but it was not brought into a harmonious whole. All the items were there, but not the picture. It was too intimate, and it gave almost a feeling of intrusion, as if we were looking closely at the old lady herself. It was a triumph of imitation, but how little in its way when compared with the fine Watts portraits. A general impression of truth in a picture was not gained by adding together all the little truths, but by seeing and rendering the thing as a whole.

THE NEW VICTORIA STATION FRONT.

THE Architectural Vigilance Society, in a letter to the editor of the *Times*, say they think that public attention should be drawn to the fact that the London, Brighton and South Coast Railway Company are about to build a new façade to Victoria Station without the employment of any artist to design it, the drawings being merely prepared in their engineer's office. The design will have the result of adding another huge mass of architectural commonplace to London, whereas such an erection might be made the opportunity for an important addition to the architectural embellishment of London.

A year ago they wrote to the board of directors pointing out the desirability of making the best of this architectural opportunity. Their secretary replied with every courtesy, but maintained the impossibility of making any alterations in view of the fact that one of the building contracts had been signed, and also stated that "the design had been prepared under the supervision of the engineer by a competent and trained architect."

That, it is presumed, means merely that the engineer has engaged an "architectural draughtsman." But draughtsmanship is not architecture; and the design which has been produced and is apparently to be carried out is, from an artistic point of view, without interest of any kind.

A few weeks ago the Society made a final effort to influence the company to reconsider the subject, in a letter from which the following paragraphs may usefully be quoted, as they serve to further explain the position:—

"It is not in any way a question of greater or less expenditure; it is a question of architectural character *versus* commonplace. The contrast is illustrated in the design which has been made for the wall, &c., along Buckingham Palace Road. This, though simple, is in good architectural taste, and no complaint can be made against it. If the same hand were allowed to recast the station front design, we might have something very much better at even less cost. It is not greater elaboration that is wanted, but a better style of architecture.

"We do not think the argument that the building contract has been entered into and cannot be altered has all the weight that you attach to it. It is always possible to revise a design and to modify a building contract accordingly; it is a thing frequently done. It is surely better to do this at the cost of some little trouble and delay than to erect permanently, as the frontispiece to your celebrated terminus, a building wholly deficient in architectural refinement and interest."

To this letter the board replied by repeating their former argument that the contract for the building as designed had been signed, and they did not see their way to make any alterations, though they would have been very glad to have pleased the Society better if they could.

Having met with this *non possumus* argument before in one or two other cases in which the Society has made protests of a similar nature, they have been told in the first instance that it was "impossible" to do anything; that it was "too late," and so on; but an appeal to public opinion

has, nevertheless, brought out practical proof that it was not too late. In the present instance no part of the actual façade has been commenced, and to put it into capable and artistic hands to remodel would only involve adjustment by "measure and value."

The Society submit that when a railway company are going to build anything so important as the façade of a large terminus they are under a moral obligation to the public to make the new building such as to be an addition to the architecture of London, instead of merely repeating the usual commonplaces (unhappily too familiar to us) of railway architecture. In Paris they would be compelled to do so; in London there is at present no power which can interfere.

SHEFFIELD ARCHITECTS AND SURVEYORS.

AT the last ordinary monthly meeting of the Sheffield Society of Architects and Surveyors, Mr. Horace Wilson, barrister, delivered a lecture on "The Law of Easements." The lecturer said an easement imposed on the owner of the land subject to it only a duty to suffer something, or refrain from doing something, for the benefit of his neighbour; for example, the grantor of a right of way was only bound to allow the use of the way, not to keep it in repair; and similarly in the case of ancient lights, he was only obliged to refrain from obstructing the light. No man could, as a general rule, excavate in his own land, or work minerals, in such a way as to cause his neighbour's land to fall in; but the obligation to support as against adjoining land bound only so much of it as was necessary to support the land in its natural state. Nor did the right to support from subjacent soil prevent the adjoining owner from draining his land as he pleased. With regard to the right to support of buildings, the main principle was that when anything had been done to increase the lateral pressure, as by erecting buildings, no man had a right to such increased support except for "ancient" buildings—i.e. buildings at least twenty years old, for which the support had not been acquired by fraud, stealth, or the mere revocable permission of the servient owner. A grant of land, however, for the express purpose of building upon it created a legal easement to such an extent as might be necessary for enabling the grantee to build the premises and enjoy them in safety when properly built, but the owner of the house was not entitled to do anything to increase the burden on the other owner, and must keep his house in repair. Again, the right to support of buildings by buildings might be acquired by prescription, provided that the adjoining owner must have been aware from the very nature of the building that support to it was necessary. The lecturer explained the system and procedure laid down by the Public Health Act in connection with the use of drains, and passed on to the easement of light, tracing the alteration of the law under the influence of modern town life, and pointing out the tendency of the courts to restrict the easement to such an amount of light as was actually necessary for the user of the particular premises, rather than to confer a right to the continued enjoyment of all the light that had formerly had access to the building.

On the motion of Mr. T. Winder, seconded by Mr. E. M. Gibbs, and supported by Messrs. E. Bramley, W. J. Hale, H. L. Paterson and W. C. Fenton, a vote of thanks was accorded to Mr. Wilson.

ELVASTON CHURCH.

THE old parish church at Elvaston, near Derby, was reopened on Sunday after extensive restoration, comprising repairs and improvements, the enlargement of the chancel and the building of new vestries. The fabric, portions of which date from about 1200, had fallen into a very poor state, serious cracks having become visible in the walls at the east end and in other parts. The interior of the church had deal seats, which were not only of poor character, but were inconvenient and ugly. The floor, which was partially of brick, was also unsatisfactory.

An ancient oak screen has been restored, the chancel has been lengthened by 11 feet, and a new sanctuary arch built where the former east end stood. The altar was blocked out by a monument which stood near to it. This displeasing effect has now disappeared, and an aspect of dignified space obtained, whilst the appearance of the tombs has been improved. The new sanctuary has no east window, but there is a reredos of carved white clunch filling the whole end. This is richly carved with subjects

and figures, and is effectively lighted by two new traceried windows of three lights each, in the north and south walls of the sanctuary respectively. In the reredos are sculptured figures of the central subject of the Christian faith and several of the saints. The glass, which was at the east end, and which was cracked and falling out, has been reproduced and placed in the new north window of the sanctuary. The pavements of the sanctuary and chancel are of black and white marble.

The floor of the nave under the seats is laid with wood blocks, and the passage with slate and white stone. In the nave the plaster has been removed from the walls, and stone ashlarwork found, which has been restored. The plaster has also been removed from the piers and arches, leaving the stone exposed, but the tomb and arch on the north side of the nave have not been altered. The windows have been reglazed, and their stonework made good where injured or decayed. The chancel is fitted with oak stalls and fronts, on what was the old arrangement, and the nave and aisle are furnished with open seats of oak, the ends of which are carved with a linen-fold pattern. A new cross has been placed on the screen, the Hon. Dudley Stanhope having assisted in the carving of the cross and in the restored portions of the screen. A carved oak pulpit has been placed in what was the original position. It is surmounted by a canopy and has a panelled back.

One chief feature of the work has been the decorative painting of the roofs and parts of the walls. The work is treated in a broad manner and with good effect. The sanctuary roof is enriched with gold and blue, with monograms of "B" for St. Bartholomew, to whom the church is dedicated. The chancel roof is coloured red, treated decoratively, and has gilding on the carved crests and bosses. The nave roof has been made uniform in tint and deficient parts made good. Latin inscriptions and texts have also been painted on the walls and roof of the chancel and sanctuary. The work has been carried out from the designs of Mr. G. F. Bodley, R.A., by Mr. Kett, of Cambridge. The decorative painting was done by Mr. Jackson, of Ealing.

LIVERPOOL'S ARCHITECTURAL BEAUTIES.

THE improvement of the streets, the demolition of insanitary dwellings and the substitution of air spaces are among the many schemes which the Corporation are now engaged upon in the interests of the health and beauty of the city. As distinct from these, however, it is interesting to note, says the *Liverpool Courier*, that there are in process of construction, as the outcome of more private enterprise, a number of buildings which, when completed, will be magnificent additions to the architectural beauties of Liverpool. The cathedral, of course, occurs first to the mind, although we cannot hope to see much of the proposed fabric for some years to come. Within another year or so, however, Renshaw Street will possess its Charles Garrett Memorial Hall. West Derby Road will have in the new Olympia a theatre upon which much thought has been exercised in determining its design, the Dock offices will stand imposingly at the pier head, and the Elder Dempster Company's extension will prove an acquisition to the Water Street architecture. Rapid progress is being made in the erection of all these buildings.

ARCHÆOLOGY IN ROME.

AN interesting archæological discovery has just been made in the crypt of Sta Maria in the Via Lata, which tradition has identified with the "hired house" in which St. Paul "dwelt two whole years." A priest, who is engaged in writing the history of this church, has found (writes the Rome correspondent of the *Morning Post*) there two pictures of the Roman martyrs John and Paul, who were beheaded by order of Julian the Apostate on the spot where the church of SS. Giovanni e Paolo now stands on the Cœlian, and a third picture representing two scenes from the martyrdom of St. Erasmus, bishop of Campania and protector of Gaeta, where the cathedral bears his name.

The Italian Press continues to manifest strong opposition to Professor Waldstein's scheme for the excavation of Herculaneum. The International Artistic Association has passed a resolution expressing the hope that the excavations will be undertaken "under the direction of Italian scholars aided by Italian funds," and that, "under no circumstances whatever, the Italian Government will relinquish its own

rights and duties by allowing private individuals or societies to interfere in the work." The *Giornale d'Italia* adds that Professor Waldstein, "who is so full of condescension and compassion for the Italian finances, and who is traversing the world in search of pecuniary assistance, may spare himself the trouble, for his alms have neither been asked nor will be accepted." It is sometimes forgotten abroad, and not only in the domain of archæology, that Italians dislike, above all else, to be patronised. They have a desire to be recognised as a great Power, which no longer needs assistance from its big neighbours. Hence even friendly advice and support from foreigners are at times resented.

STRAND IMPROVEMENT.

THE following memorial is to be presented to the London County Council:—

We, the undersigned, are anxious that the improvement of the Strand should be carried out in a manner worthy of so great an opportunity.

We desire to express our opinion that the frontage-line now proposed by the London County Council will have a bad perspective effect, and we trust it may not be too late for the Council to adopt some plan showing better consideration for the position of the churches of St. Mary-le-Strand and St. Clement Danes.

We also desire to protest against the height of the buildings already begun, and to express our hope that on the rest of the frontage the new buildings may not be so lofty as to overpower the two churches and Somerset House, which are and should remain the principal ornaments of the Strand.

Edward J. Poynter.
Hamo Thornycroft.
T. G. Jackson.
L. Alma-Tadema.
Ernest Crofts.
Aston Webb.
Ernest A. Waterhouse.
W. B. Richmond.
George Frampton.
H. H. Armstead.
G. H. Boughton.
Robert W. Macbeth.
J. W. Waterhouse.
Marcus Stone.

G. F. Bodley.
William F. Yeames.
Fred. A. Eaton.
R. Norman Shaw.
Thomas Brock.
Ernest Newton.
John Belcher.
Beresford Pite.
Basil Champneys.
Reginald Blomfield.
Henry T. Hare.
C. F. A. Voysey.
Walter Crane.
Mark H. Judge.

NEW SCHOOLS IN CHESHIRE.

THE Cheshire education committee held a meeting at Crewe on Monday.

Dr. Hodgson reported the result of a conference held between the higher education committee and deputations from various places, with regard to the provision of secondary schools to meet requirements. The deputation from Crewe suggested that a new secondary day school should be built for 500 boys and girls on a site near the railway station, the present building being retained for evening technical classes and for certain day classes, but that the pupil teachers' centre should be held in connection with the new school. The deputation from Wallasey suggested that the County Council should take over the assets and liabilities of the present high school for girls. The cost of a new girls' school for 300 pupils is estimated at 12,000*l.* to 18,000*l.*, exclusive of site. Further accommodation for boys was required. The deputation agreed that a new school for 300 girls was needed. It was stated that there were 200 boys at the Grammar School, and that with the increase of the population of the district provision should be made for 300 or 350 in the near future, either by rebuilding the present school or by very extensive alterations to it. The Northwich deputation asked the views of the county committee on the building and maintaining of secondary schools in the town. It was reported that Sir John Brunner intended to build a new school, and a resolution was passed suggesting to Sir John that it is desirable that the proposed new school should provide accommodation for boys as well as girls, and that the administrative sub-committee should be asked for their opinion as to whether the school should be a mixed or a dual school, and also as to the number of boys and girls for whom provision should be made. A deputation from Nantwich and Audlem met the committee. It was agreed that there was a necessity for a new mixed secondary school for about 250 boys and girls, and the Governors of the Grammar School considered that the present site was suitable for the

new school, if adjoining property could be obtained. In this matter it was decided to reconsider the question after the receipt of a report from the Board of Education.

The report was adopted.

TESSERÆ.

Conventual Churches.

THE Benedictines usually erected a distinct parish church for the accommodation of their dependents and tenants (Westminster, Malmesbury, Gloucester, Peterborough), but sometimes made it an annexed building or an aisle (St. Alban's, Chester, Leominster, Sherborne). In other cases there was a division made between the monks and the parishioners, the townsfolk occupying the nave and the religious community retaining the eastern arm, which is the reason why at the Dissolution many choirs were destroyed and the nave spared. The Galilee porch, used as the last station in a procession, occurs at Ely and at (secular) Chichester at the west end; there is a small one annexed to the transept at (secular) Lincoln. They somewhat resemble the ante-church of a Cluniac church. The choir was arranged under the central tower or in the crossing, and when additional space was needed the stalls were then continued along one or more bays of the nave westward. The rood-loft was usually the choir screen, but at Durham it stood with its altar and reredos under the western arch of the tower, and the choir screen under the eastern arch of the tower. The transept had always apsidal chapels on its eastern side; these were afterwards often converted into aisles for altars, and on the south side elongated into a sacristy (Norwich). At Winchester there are cross aisles, with an upper stage for the exhibition of reliquaries (as at Caen, in St. Stephen's). The presbytery (*i.e.* before 1085) was often erected over a large subterranean church or under-croft, in imitation of the memorie of the ancient basilicas which contained numerous altars. Where there was a popular saint buried in the church his shrine took the place of the ancient high altar, and stood immediately east of the altar. At the back of it ran the processional path. Occasionally a range of chapels in a transverse aisle formed the extreme east end of the building, and again there was a choir transept, which gave the building the form of a patriarchal cross. The lady chapel after the thirteenth century was very often erected eastward of the main church, but it also held subordinate positions: detached on the north side of the choir; attached like a chapel south of the nave; opening out of the north wing of the transept, or at the west end of the nave. Sometimes it was a grand prolongation of the presbytery of equal height and dimensions.

Sixteenth-Century Gothic.

The last passage of the life of Gothic architecture is clearly not that of a poor imbecile thing dying of inanition; nor is it destitute of the elements of grandeur and pathos. Though old with the weight of years, it revives memories of a glorious past, and fights gallantly to the last for a place in English hearts. And gathering all its forces together, uniting skilled and elaborate architectural form to the splendid harmonies of colour and sculpture, it is only put to silence as the last ray of Mediævalism fades from English soil. And wherein did the distinctions lie between the dealings with nature of the early and late phases of Mediæval art? Mainly that the early schools came to nature timidly and with a childlike simplicity, while the later schools treated her with familiarity. And these diverse attitudes seem explainable by the light of the varying degrees of culture of the artists' times and the changed requirements of their art. The early sculptor learnt humble lessons of her because his limited perceptions kept him unconscious of the great extent of her capabilities for art purposes. On the other hand, the familiarity apparent in the late work speaks of a closer identification of man with nature. Hence the individualism of the workman and the naturalism of his art. The inauguration of an elaborate style, enriched by graphic and picturesque sculpture, was the result of a fastidious taste that called for the greatest excellence that could be had, and demanded a display of the studied effects of a conscious art. So this epoch may be regarded as a sort of middle stage between early art and the art of to-day, neither quite ancient nor quite modern, neither quite conventional nor ideal; and just because of its complex character, getting small favour from the style that immediately succeeded it, or from the romantic antique Gothic of to-day. It is of importance and interest to us, for

as the horizon is lifted we get a glimpse into the character of the art that is to succeed it. From that period to the present the ever-increasing identification of man with nature has been slowly but surely going on.

The Rood in English Churches.

The crucifix, as set up in our churches, has a special history of its own. Before the Reformation, the "rood" was ordinarily to be found in parish churches in this country. It presented the carved, sculptured, moulded or painted figure of Christ on the cross, and was, in fact, "a crucifix with images at the base." This figure was erected on a structure called the rood-loft, which appears to have traversed the church at the entrance to the chancel. There is in existence the most precise and unquestionable evidence on this matter. So universal does the existence of the rood in some form, either sculptured or painted, seem to have been, that in the returns of the churchwardens of 150 parishes in Lincolnshire, and dated 1565-6, there is mention of the rood as having been defaced or pulled down in at least 140. It will also be found that in Bonner's Articles, put forth during the reign of Queen Mary, in the year 1554 inquiry is made "whether there be a crucifix or rood-loft, as in times past has been accustomed, and if not, where the crucifix or rood-loft is begone, and by whose negligence the thing went." Again, in Cardinal Pole's Articles (1557) "whether they have a rood in their church of a decent stature with Mary and John." After this period, the historical evidence abounds that in the reign of Elizabeth these roods and rood-lofts were destroyed, far and wide, as monuments of idolatry and superstition. Not only so, but in the year 1560 a discussion appears to have arisen as to the propriety of setting the roods or crucifixes up again in parish churches. From all this it is plain that the crucifix formed an ordinary feature in the parish church before the Reformation; and it cannot be doubted that it did so, not as a mere architectural ornament, but as an object of reverence and "adoration."

Mediæval Churches of Holland.

The work of the Dutch architects of the Middle Ages is, comparatively speaking, a failure, their buildings are often monotonous and devoid of originality, their construction frequently faulty and their detail poor and uninteresting, at any rate to a great extent. Of course there are churches in Holland—such for instance as the cathedrals of Maestricht, Utrecht, Bois-le-Duc and Breda, and the minster church at Roermond—which avoid all these defects. But these defects are certainly the rule in Dutch churches, and the exceptions are few and rare. What led to these defects was the fact that instead of originating an architecture for themselves the Dutch Mediæval architects copied the plans of their churches bodily from the French; thus nearly all the churches of any size in Holland possess a chevet with radiating chapels, the naves generally have double aisles and chapels, and the smaller churches universally have one or more apses at the east end. The most usual departure which they made from the French plan was in exaggerating the length of the transepts and using one western tower instead of two. There are, however, exceptions to this rule, for the church at Arnhem, erected between 1328-1340, has two western towers. Curious examples of this exaggeration of the length of the transepts are to be seen in the great Protestant church at Bergen-op-Zoom, where each transept has six bays, while the nave has only four bays. Having copied the plan of his church from France the Dutchman borrows his detail ready-made from Germany. He never seems to have given sufficient consideration to the difficulties of site or material; thus, although except in a few instances driven to use brick, he adopts a plan almost peculiar to stone buildings and suggesting, if not absolutely requiring, vaulting to give a reason for its form and construction; and while driven by the insecure foundation to construct his roof of timber, this is generally made like a poor imitation of a stone roof.

The Plans of Mr. Paul Waterhouse for the new medical school and the plans of the five competitors in the limited competition for the new buildings of University College school at Hampstead will be on view in the council-room of the College, between the hours of eleven and four, until Tuesday, January 24 inclusive.

The Governors of the Manchester University have received 200*l.* from the local Society of Architects as a gift towards the endowment fund of the chair of architecture.

GENERAL.

A Committee of the Royal Institute of British Architects has been appointed, with Mr. Deputy Douglass Mathews as chairman, to consider the London Building Act Amendment Bill in detail.

A Design by Mr. Maidman, architect, Edinburgh, has been adopted for the new cottage hospital at Crieff. Fourteen designs were sent in.

The King of Italy has given 4,000*l.* towards the expenses of the exhibition to be held in Milan in 1906 in celebration of the opening of the Simplon Tunnel.

The Society of Antiquaries have elected as Fellows:—Ven. Archdeacon Barber, Mr. Robert Jones, M.D., Mr. J. C. Bridge, Mus.Doc., Mr. E. S. M. Perowne, Mr. C. R. Harries, Mr. W. F. Irvine, Mr. H. Sands, Mr. W. H. Brierley, Mr. H. Thackeray Turner, Mr. W. R. Lethaby, Mr. W. H. Wing, Mr. V. C. Crowther, Mr. Beynon, Mr. J. J. Foster and Mr. P. B. Ficklin.

Mr. G. A. T. Middleton delivered a lecture on Monday at the Camera Club on "Mediaeval Fortresses."

The Royal Commission on London Locomotion have instructed Mr. Fairman Ordish, F.S.A., the author of "Shakespeare's London" and other works relating to London history and topography, to write that part of their report dealing with the history of the growth of London traffic.

The Ludlow Town Council, as we announced last week, refused the offer of an equestrian statue by the sculptor, Captain Adrian Jones, on account of the fact that the expenses would amount to 100*l.* The Council have since received promises of help, and accordingly have requested Captain A. Jones not yet to destroy the statue.

Mr. J. Horsley Palmer, a Past Master of the Mercers' Company, has commissioned Mr. W. F. Yeames, R.A., to paint a fresco for the ambulatory of the Royal Exchange. The subject will be illustrative of the foundation of St. Paul's School by Dean Colet in the reign of Henry VIII.

Mr. Henry F. Kerr has delivered a lecture to the Scottish Industrial Art Association on "Some Notes on the Styles of Architecture." The lecture was illustrated by slides showing styles of architecture from Egyptian to modern times.

The Committee appointed to organise a permanent Old Manchester exhibition have issued a circular asking assistance either by the gift or loan of antiquities or by a money contribution to help in the initial expenses, and in the purchase of such objects and collections as may from time to time become available.

An Altar Screen, re-erected in Chichester Cathedral as a memorial of the late Francis John Mount, archdeacon of Chichester, has been unveiled. The memorial screen which has been restored in the cathedral is believed to have been erected by Bishop Sherburne in the sixteenth century. It was removed from its place in 1860.

Mr. Thomas Craigie Glover, of Mount Grange, Edinburgh, and of Earlsferry House, Elie, a partner in the firm of Messrs. S. & H. Morton & Co., engineers, of Leith, a director and one of the founders of the Bengal Iron and Steel Company, a civil engineer and contractor with a large Indian practice, and for many years settled in Bombay, who died on July 17 last at Edinburgh, aged sixty-seven years, left personal estate in the United Kingdom valued at 110,239*l.*

A Drawing in Water-Colours by Mr. T. M. Rooke, showing the front of Le Mans Cathedral, has been presented to the Birmingham Art Gallery by the Society for the Preservation of Records of Ancient Buildings.

Mr. G. H. Stanger, architect, of Wolverhampton, expired on Sunday last in his fifty-seventh year. He was a native of Nottingham, but practised in Wolverhampton for more than twenty years.

The Dutch Government have selected the military parade ground near the Bosch, at The Hague, as the site for Mr. Carnegie's Palace of Peace, subject to the approval of the States-General, with whom rests the final decision in the matter.

The Death of Mr. T. W. Shore, a well-known antiquarian, is announced. He was prominently identified with the Hampshire and Middlesex Field Clubs, and was a prolific writer and lecturer on antiquarian subjects.

Mr. T. Werner Laurie has in preparation for his cathedral series a volume on "The Cathedrals of England and Wales" by Mr. T. Francis Bumpus, whose books "Summer Holidays among the Glories of France" and "Holiday Rambles among the Cathedrals and Churches of North Germany" have afforded much gratification to students of ecclesiology.

The Dean of St. Paul's has received from a private donor a gift of 1,000*l.* towards the cost of the mosaic decoration of the choir aisles of the cathedral, which is now approaching completion.

Lord Strathcona was elected an honorary member of the Institution of Civil Engineers last week. It was announced that forty-nine associate members had been transferred to the class of members.

The French Ambassador on Friday last laid the foundation-stone of a new tower at the French convalescent home at Brighton, of which Messrs. Clayton & Black are the architects. The tower will be called the "Pavillon Paul Cambon." An illustration of the building appeared recently in *The Architect*.

The Priory Church of Holy Trinity, York, which is undergoing restoration at a cost of 5,360*l.*, has been reopened. It is stated to have been the first Christian church in York and the metropolitan church of the ancient see before the erection of the present minster outside the confines of the old Roman city. As far as possible the ancient stones have been replaced in the restoration by Mr. C. Hodgson Fowler, the architect.

Professor S. H. Capper is to deliver a course of six lectures in the schoolroom of the Presbyterian church, Victoria Road, Withington, on "English Gothic Architecture," on Tuesday evenings in the ensuing Lent term. The subjects will be "Norman Architecture in England," "The Change from Romanesque to Gothic," "English Gothic Vaulting," "Early Gothic Architecture," "Later Gothic Developments," and "Gothic Architecture in France and England." The course will begin on January 24.

Baron Alphonse de Rothschild has been presented with a bronze statuette, the work of MM. Victor Peter and Escoula, in recognition of his services to young artists by purchasing their works and presenting them to French provincial museums. The subject is "Goodness Protecting Art."

The President of the Board of Education has appointed Mr. R. B. Haldane, K.C., M.P., to be chairman of the departmental committee which is inquiring into the present and future working of the Royal College of Science and School of Mines, South Kensington, in place of Sir Francis Mowatt, G.C.B., late Secretary to the Treasury.

The Perth Town Council are to hold a competition for two alternative schemes in connection with the town hall. One calls for a new building to accommodate 3,000 people and to cost about 20,000*l.*, the other for additions to the present structure at an outlay of 6,000*l.*

The Council of London University finally approved on Tuesday of the plans by Mr. Paul Waterhouse for the new medical school and nurses' home.

An Exhibition of painted portraits, busts and models, by M. Emile Fuchs, is now open in Paris.

Mr. Arnold Mitchell has been successful in the limited competition for the new buildings of London University College school at Hampstead, and in which Sir Aston Webb, R.A., acted as assessor. Mr. Mitchell has been appointed architect.

Mr. W. Grant Stevenson, R.S.A., Edinburgh, has been asked by the Falkirk and District Soldiers' Memorial committee to carry out in bronze his model, after a design by Mr. John Campbell, which was awarded the first prize. The monument will take the form of a group of two members of the Argyll and Sutherland Highlanders, 7 feet 6 inches in height, one with fixed bayonet protecting a wounded companion.

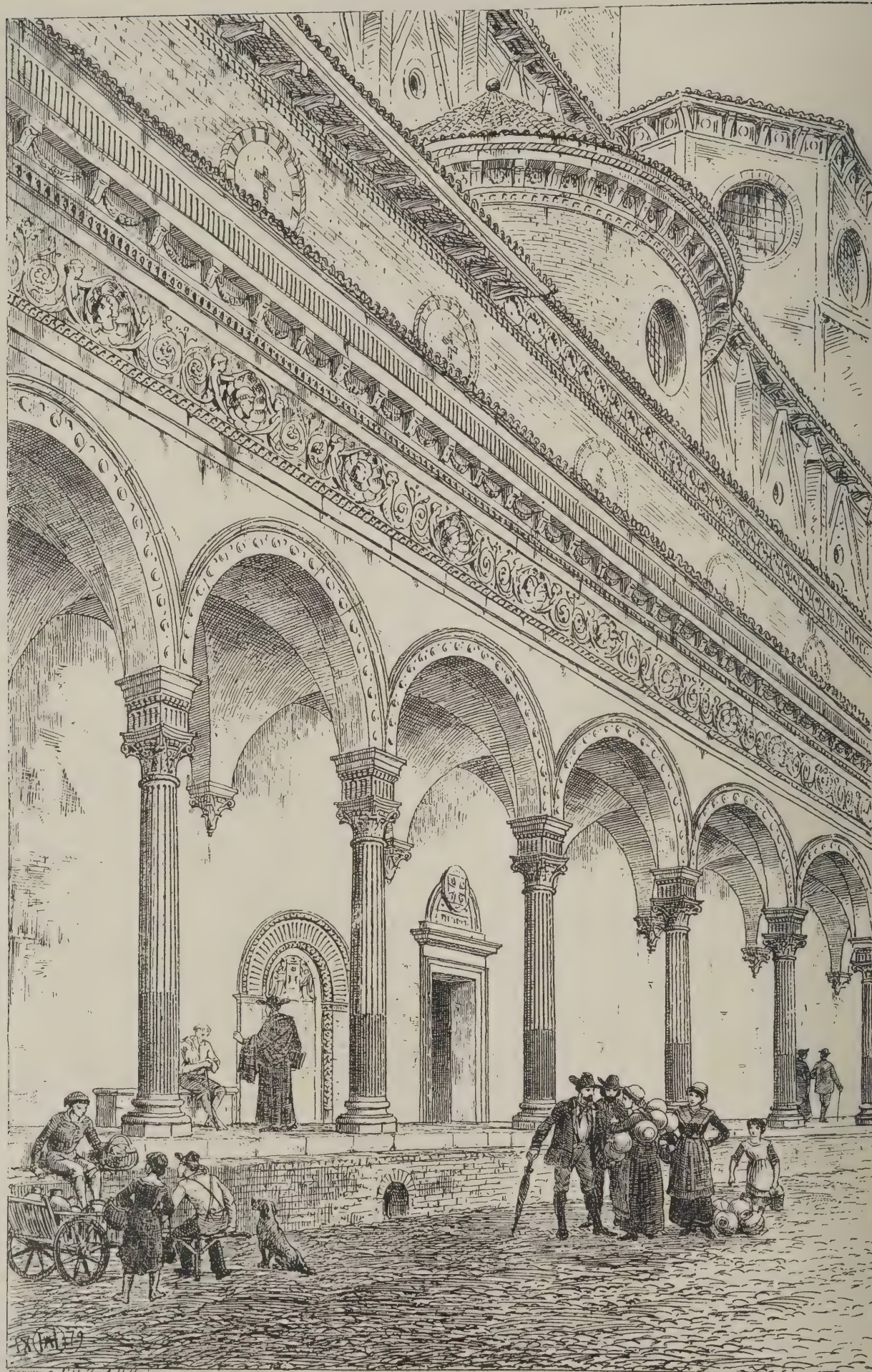
M. Daumet has been elected president of the jury in the section of architecture for the Salon of this year.

The Remaining Works of the late Edwin Hayes, R.H.A., R.I., will be on sale on Saturday and Monday.

The Hammersmith Borough Council have invited the following architects to submit designs in competition for the erection of public baths and washhouses, viz. Mr. M. B. Adams, Mr. A. W. F. Cross, Mr. J. E. Franck, Mr. E. Harding Payne, Mr. J. M. Ross and Messrs. Spalding & Spalding.

Mr. James Weir, architect, of 17 Victoria Street, Westminster, S.W., has taken into partnership his manager, Mr. Fred Furrows, and his nephew, Mr. William May Weir. The business will be carried on under the style of Weir, Burrows & Weir.

Arrangements are in progress for an exhibition in Paris of works of the late Jules Dalou, the sculptor. All the models found in his studio will be included and can be purchased. The proceeds will be given to the Orphelinat des Arts, where the sculptor's daughter was received.



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A Portico in Bologna.
Continental Sketches by A.H. Haig



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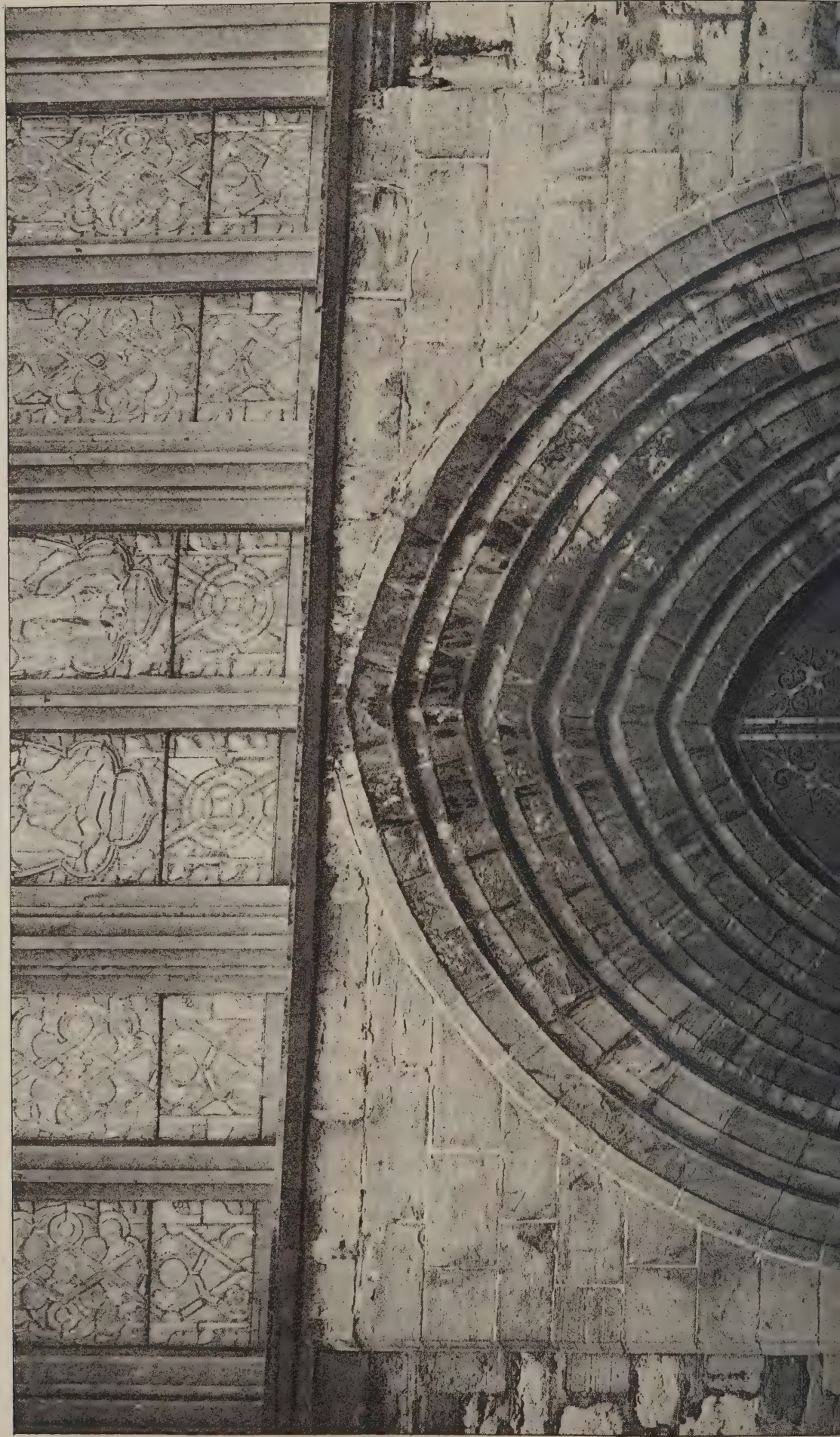
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The Architect.

THE WEEK.

It was not necessary to refer to a catalogue when a painting by the late GEORGE HENRY BOUGHTON, R.A., appeared on the walls of an exhibition. His figures could be recognised at the first glance. It does not follow that his works were superior to those of other painters. Their distinctiveness was acquired by the loss of qualities which are of importance. In the first place, he confined himself mainly to subjects derived from early Puritan life in New England, or from the life of the humbler classes in certain parts of Holland. In both he restricted himself to the representation of a very few types of men and women. Once his limitations were accepted—and a similar allowance has to be made for other modern painters—there was no doubt about the skill displayed by Mr. BOUGHTON. Both in form and colour he proved himself to be a master, and his subjects were always interesting. No painter was better adapted to represent such scenes as WASHINGTON IRVING described in his "Knickerbocker's History of New York." He was no less competent to deal with scenes from the "Scarlet Letter" or "Evangeline." But however successful in North America or in Holland, it could hardly be said that English life came within his province. He was more happy with landscapes than with the inhabitants. By birth he was an Englishman, but he was taken to America at the age of three. He began painting at a very early age without a regular teacher, and was able to exhibit promising pictures in New York in 1857. Like most American painters he went to Paris in 1860, and remained there for two years. He thought of returning to the United States, but he found England preferable. Here he remained and attained success that was well deserved. He was elected an Associate of the Academy in 1879 and an Academician in 1896. The American people continued to take as much interest in him as if he were native born. His advice was often sought in the acquisition of pictures for public and private collections. Among artists and literary men in London he was prized, and his sudden death will be regretted by all who came in contact with him.

A FRENCH lady, Mdme. LHEUREUX, bequeathed to the city of Paris a few years ago a sum of money, under the condition that whenever the accumulated interest reached 120*l.* it was to be given alternately to an architect and a sculptor. The amount is not large, but it is a recognition of services, and that is sufficient for a Frenchman. This year the prize has fallen to M. ANTONIN MERCIÉ, whose *Gloria Victis* stands in one of the small squares of Paris, while his relief of the *Genius of Art* is appropriately placed over one of the gateways of the Louvre. Another sculptor who obtained the prize was JULES DALOU, who once taught in England, and whose influence is still abiding. A third is M. BARRIAS, the sculptor of the popular *Young Mozart* in the Luxembourg, and the *Bernard Palissy* in the enclosure of St. Germain-des-Prés. The favoured architects are M. GIRAUD, who gained reputation by his Petit Palais of the last international exhibition, and M. PASCAL, who designed many important edifices.

A REPORT has appeared from a committee of fire underwriters with respect to the Baltimore fire. In such a document the interest of insurance companies must of course be considered as paramount, and it is therefore possible there is some bias against builders in the conclusions. Particulars are given about twenty-three buildings, having a value of 6,546,040 dols. They were damaged to the extent of 3,684,062 dols. The insurance on them amounted to 3,606,622 dols. The sum paid by the insurance companies was 2,752,889 dols.

Baltimore was, if compared with other cities, supposed to be rather backward, for it could show no lofty buildings like those in New York or Chicago. But taking such examples as were attacked by the fire, the committee have come to the conclusion that they are not safer than ordinary buildings. They are unable to refer to any cases where the framing was distorted to an extraordinary extent. But from what they saw they conclude that collapses are not impossible. The materials employed were found in some cases to be unsatisfactory, and they consider that both the architects and the officers of the local insurance companies must have been careless in passing the buildings. A case is also pointed out of a bank in which ordinary wooden flooring and timber joists were employed, and yet it sustained only slight damage. One of the objects of the report may be to support insurance offices when they decline to make a large reduction in the case of insurance on account of improved construction. In any case the conclusions of the committee are remarkable, and are deserving of consideration in other places.

WE have received copies of correspondence between Mr. DOUGLAS ALLPORT, architect, and the Reigate Rural District Council. At Walton Heath, which is within the jurisdiction of the Council, a large club-house was erected for the golf club. One of Mr. ALLPORT's clients instructed him to design a bungalow on precisely similar lines. The plans were prepared and sent to the surveyor. But they were returned with the intimation that they did not conform to the by-laws and could not be submitted to the Council. The by-laws in use in Reigate do not allow of the erection of wood-framed buildings. But the club-house is of that type, and no attempt appears to have been made to prevent its erection. Mr. ALLPORT's letter to the chairman remained for nearly a fortnight unanswered. Then he was informed that "the Council cannot enter into any discussion with you respecting the alleged infringement of the by-laws by third parties, but if your client has any statement to place before the Council with a view to obtaining approval of his proposed building, and will submit the same, together with plans showing the details required by the by-laws, the matter shall receive attention, and he will be apprised in due course of their determination thereon." The only conclusion to be drawn is that in Reigate there is one kind of interpretation of by-laws for a golf club, while there is another for individuals. There should at least be consistency. In this case the client bought the land with the object of erecting a building to correspond with one which was approved by the District Council. There is no extra risk, for the bungalow would be far removed from any other building, and as it would have a picturesque appearance it could not be considered objectionable.

THE Berlin Academy of Art possesses some veterans among its members. ANDREAS ACHENBACH has been a member since 1849. He is one of the patriarchs of the Düsseldorf school. His landscapes are various; some connoisseurs give the preference to those from Sicily and various parts of Northern Europe, while others exalt his northern marine pieces. He has also painted scenes of *genre*. ADOLF VON MENZEL did not enter the Academy until 1853, but he is accepted as the most venerated of the members. That arises not only from his skill as a painter, but from his devotion to FREDERICK THE GREAT, for his pictures are interpreted as if they were efforts which prepared the Prussian mind for the struggle and triumph of 1870-1. The two painters are about the same age. An Academician who is three years older is RUDOLF VON ALT, who was born in 1812. He is an Austrian, and if water-colour art is admired by his countrymen it is owing to the success of his drawings of old buildings. EDUARD PAPE, another painter, is the youngest member of the group, for he is only eighty-eight.

THE FATE OF FRENCH CHURCHES.

IN September last we published an article on the fate of French churches, in which we endeavoured to explain the risks awaiting the glorious ecclesiastical architecture of France if the political projects connected with them were carried into execution. The article was suggested by one of M. MARCEL PROUST'S. A writer of a different class has now taken up this subject. The Count d'HAUSSONVILLE is a member of the French Academy, and is believed to possess the moderation which is considered characteristic of that illustrious body. His anticipations are, however, quite as gloomy as those by M. MARCEL PROUST.

It is true there has been a change of Ministers in France. But it remains doubtful whether the cathedrals and churches will be more safe under the new régime. M. BRIAND'S project still continues to be recognised as the most practical solution of the problem. Like the majority of French schemes, no matter what may be the subject, it is systematic, and on that account many of its imperfections may be overlooked. As we explained before, he proposes "that at the end of five years the churches of France can or shall be *désaffectées*, or, in other words, the buildings can be transformed into museums, conference halls or even casinos." The Count d'HAUSSONVILLE, no doubt through policy, does not deal with that possibility. He confines himself in his arguments to the supposition that it will not be necessary to secularise the buildings, for they may be continued to be utilised for ecclesiastical purposes. It is not, however, denied that the opposite course would be no less legal.

All the proposals turn upon the value to be attached to the Concordat which was entered into in 1801-2. By that agreement the cathedrals and churches were recognised as public buildings, and religious ceremonies were to be guarded by the authorities. In the course of the Revolution ecclesiastical buildings were destroyed or appropriated to secular purposes, and it was considered more prudent that the State should possess such rights as would prevent any efforts on the part of individuals to change their character. In practice no condition of the Concordat interferes with the use of the buildings by ecclesiastics as if they were proprietors.

All the buildings which existed at the beginning of the nineteenth century will continue to be public property. By M. BRIAND'S project the State can make new arrangements with those who wish to employ them for public worship. They will, however, be regarded as belonging to the departments or communes in which they are placed. In that way there is a possibility that local officials will exercise their little authority to an annoying extent. There is a second class of buildings, viz. those which have been erected since the signing of the Concordat. They will be treated like ordinary secular property. If it can be demonstrated that the State has not contributed any funds to their erection they will be allowed to be recognised as belonging to whatever body has most interest in them. Although buildings of this latter class comprise some admirable works of architecture, their fate does not excite many apprehensions. It is the ancient cathedrals and churches which arouse alarm among lovers of art and archaeology. The danger which awaits them is not confined to their being devoted to base uses.

It may be remembered that when arrangements were in progress for a display of Mediæval antiquities in connection with the last Paris International Exhibition the bishops demurred to lending objects from their treasuries. It was feared that if the objects in the precious metals, ivory, enamels, &c., found their way to an exhibition or a museum they were not likely to be restored. It would, perhaps, be too flagrant a breach of honesty if Church property were seized under such conditions. But M. BRIAND proposes that the whole of the objects are to become the property of the State as well as the buildings in which they were contained. It is not suggested to place them

forthwith in museums or to dispose of them to collectors. But they will be turned into sources of profit for the benefit of local establishments for the relief of the poor. France has no Poor Law, and the funds for the relief of people in distress are obtained by taxes on theatrical performances, exhibitions, entertainments, &c. Any congregation who may care to retain objects which belonged to their churches for generations will be able to do so on payment of a certain amount, which will be fixed by scale for every crucifix, chalice or whatever forms part of the movable property which will belong to the State. By coming under the hiring system, but without option of purchase, *instrumenta ecclesiastica* are likely to lose much of their old interest.

The old churches and cathedrals can be let for periods of ten years, but the leases will be repairing leases, for the buildings are expected to be left in the same condition as they were when lent. If when under the control of the Historic Monuments Commission and its staff of the ablest architects in France feats of restoration have been achieved which must make the judicious grieve, what is to be expected hereafter? The ostensible purpose of the State is simply to make money which can be applied to benevolent purposes, and it can hardly be hoped the authorities will be exacting in upholding the ancient character of a structure. The rent which will have to be paid will be calculated as amounting to one-tenth of the sums received in donations. But the whole of the income can if necessary be compulsorily applied to restorations. The relations between the worshippers in any building and the officials are not likely to become more friendly under the new condition of affairs, and there is a possibility that before long the people will look on old cathedrals and churches as white elephants which cost far more than they are worth.

There is another matter which also deserves attention. In letting churches the prefects are supposed to take the place of agents in respect of ordinary property in land or houses. An agent is expected to possess local knowledge, and he will avoid letting a house or a farm to tenants about whose means there is any doubt. The French prefect can hereafter also fix the number of churches it is desirable to have in any district. He may think that the expenses of conservation for two churches will be too heavy to be borne, and can tell the people they must be satisfied with one. But how the closed church is to be kept in a state of repair does not appear to be provided for. Old buildings do not suffer much from the wear and tear of congregations at services. There are other dangers which are more potent and which will be in operation no matter how careful a building may be locked.

We have no occasion to consider the inconvenience likely to arise from having the performance of religious ceremonies controlled by lay officials. From our point of view the most important consideration is the fate of the buildings. The modern governments of France consider cathedrals and churches as public dangers, and as such are not likely to feel much anxiety about their preservation. The majority of congregations have grown up with the belief that the cost of conserving their places of worship should not fall on them as individuals, and under new conditions they will not be more generous in paying money for such purposes, whatever may be the occasion. It is therefore to be doubted whether money will be always forthcoming to meet expenditure, and the inevitable consequence will be that many Mediæval buildings will perish or will be deprived of essential characteristics.

The French Minister of Public Instruction and of Fine Arts has conferred the Cross of the Legion of Honour on Signor Vincent Bonnani, the Italian sculptor residing in London. Among his works are busts of the Duke of Cambridge, the Speaker of the House of Commons, Lord Davey, Judge Bacon, Mr. Algernon Charles Swinburne and Signor Marconi.

ITALIAN GARDENS.*

ABOUT twenty years ago a foreign publisher brought out a costly work on gardening, for which he expected to find subscribers in most European countries, but especially in England. He had heard of the large expanses of land attached to English mansions, and he supposed English gentlemen would be grateful to have representations of many varieties of the artistic manner of cultivating them. His hopes were disappointed. With the exception of copies obtained for public libraries we believe not more than half a dozen were sold to English subscribers. If a similar book were brought out in our day it would receive more generous patronage. Whatever may be the shortcomings of the Queen Anne style of architecture, it has led men to think of the prim gardens of the seventeenth and eighteenth centuries in this country, and has made them realise they were little more than adaptations of the gardens of Italy.

The characteristics of the English and Italian styles could not be more succinctly described than in LANDOR's words:—"We Englishmen talk of planting a garden; the modern Italians and ancient Romans talk of building one. Ours, the most beautiful in the universe, are not exempt from absurdities; but in the shadiness of the English garden it is the love of retirement that triumphs over taste, and over a sense of the inconveniences." LANDOR created a beautiful garden near Florence which has been often described. But it was more of an English experiment than an Italian. In spite of his long residence in Italy he was a true JOHN BULL to the end of his life, and he could not reconcile himself to the suitability of many things he saw around him. Statues seemed to him unfitted for a garden. The early impressions made on his mind by English attempts to employ statuary were depressing, for of many great gardens it might be said—

There's statues gracing this noble place in,
All heathen gods and nymphs so fair;
Bold Neptune, Plutarch and Nicodemus,
All standing naked in the open air.

But the spectacle they presented on a winter's day must have disturbed so ardent a man as LANDOR. Accordingly he makes his favourite philosopher EPICURUS condemn sculpture in gardens. For, as he said, "sparrows wooing on the general's truncheon (unless he be such a general as one of ours in the last war), and snails besliming the emblems of the poet, do not remind us worthily of their characters."

Statues in Italian gardens, however, recall the palmy days of Rome, and are therefore worth preserving in Italy, although they might appear out of place in other lands. We have nothing to show that the private gardens of the Greeks were adorned by such works. They were, no doubt, introduced in groves and walks devoted to the enjoyment of the citizens. But the Roman warriors carried away an immense number of examples, many of which were used for the decoration of gardens of individuals. Indeed, in numerous Renaissance examples it would appear as if the possession of sculpture dictated the character of the garden rather than the gardens provided positions in which sculpture could be set up. The air of the country is less deteriorating than English air, and it took a long time, unless in marshy grounds, for a figure to present the woebegone appearance which we so often see in England.

The air had also another effect. There is some truth in the saying of CHARLES II. that a man could spend more hours out of doors in England than in any other part of Europe. But our weather is uncertain, and cannot be relied on for alfresco entertainments. In Italy it was and is still possible to fix days for such pleasure. The gardens were therefore laid out

with long walks with ascending and descending steps to platforms which seem to be mainly intended to display costumes. This characteristic appears to have struck Sir HENRY WOTTON more than any other peculiarity. And in fact the whole constructive part was meant to enhance spectacles. In pictures, novels and poems we have confirmatory evidence of the purposes for which the gardens served. In England it was believed what characterised the gardens could be readily transplanted, but attempts at imitation often ended in failures, and hence many people considered Italian gardens corresponded with the Gothic ruins which were at one time regarded as a necessary feature in demesnes.

The adaptation of Classic architecture to English needs has had, however, the effect of renewing the interest in the gardens. They are used as subjects for water-colour artists, and, indeed, occasionally there are exhibitions in which no other subject is admitted. Whether adapted for imitation or not, it is beyond doubt delightful pictures can be made out of those views. The general absence of flowers is to an English eye a drawback, and the shrubs are supposed to be of a less homely kind. But the combination of trees which seem in keeping with the architecture and the statuary, water in ponds and fountains, the glorious sky and the brilliant colours are among the most successful examples of co-operation between man and nature.

We are so accustomed of late years to look on Italy as a whole, and "an Italian garden" has become so familiar a phrase, there is a common belief that throughout the country more or less similarity is to be found in the arrangements. In the new book, "Italian Villas and their Gardens," the rational plan is adopted of treating the varieties according to their geographical position. It is therefore easy to discriminate between Florentine, Siennese, Roman, Genoese, Lombard gardens and those of Venetia. The illustrations are numerous. Some are in colour and are far more suggestive of Italy than those commonly given in books. The authoress has a genuine regard for architecture and sculpture, and her descriptions will afford pleasure to artists.

The relation between design and success is nowhere more marked than in Italy. It is pointed out:—"The inherent beauty of the garden lies in the grouping of its parts—in the converging lines of its long ilex walks, the alternation of sunny open spaces with cool woodland shade, the proportion between terrace and bowling-green, or between the height of a wall and the width of a path." It would therefore have been an advantage if plans were introduced in the pages. They might detract from the popular character of the book, but they would give a definiteness to the descriptions which a view or photograph from one spot cannot yield.

At one time the vicinity of Florence must have offered the spectacle of many beautiful gardens to a traveller. But foreign fashions have exercised their effect, and it is not the best part of Italy to see the glory of a Renaissance garden. The Boboli Gardens are the most important, and several plates are devoted to it. Among the Siennese villas is one which belonged to the DE' GORI. A small open-air theatre formed a part of it, and fortunately survives. It is thus described:—

Another antique alley of pleached ilexes, as densely shaded but not quite as long, runs from the end of a terrace to a small open-air theatre, which is the greatest curiosity of the Villa de' Gori. The pit of this theatre is a semicircular opening, bounded by a low wall or seat, which is backed by a high ilex hedge. The parterre is laid out in an elaborate broderie of turf and gravel, above which the stage is raised about 3 feet. The pit and the stage are enclosed in a double hedge of ilex, so that the actors may reach the wings without being seen by the audience; but the stage setting consists of rows of clipped cypresses, each advancing a few feet beyond the one before it, so that they form a perspective running up to the back of the stage, and terminated by the tall shaft of a single cypress, which towers high into the blue in the exact centre of the background. No mere description of its plan can convey the

* *Italian Villas and their Gardens.* By Edith Wharton. Illustrated by Maxfield Parrish. (2) *The Book of Topiary.* By Charles H. Curtis and W. Gibson. (London: John Lane.)

charm of this exquisite little theatre, approached through the mysterious dusk of the long pleached alley, and lying in sunshine and silence under its roof of blue sky, in its walls of unchanging verdure. Imagination must people the stage with the sylvan figures of the "Aminta" or the "Pastor Fido," and must place on the encircling seats a company of *nobil donne* in pearls and satin, with their cavaliers in the black Spanish habit and falling lace collar which Vandyke has immortalised in his Genoese portraits, and the remembrance of this leafy stage will lend new life to the reading of the Italian pastorals, and throw a brighter sunlight over the woodland comedies of Shakespeare.

It is a pity that some arrangement of the kind could not be adopted for the open-air performances of SHAKESPEARE'S plays, which, if weather permitted, would often be a success. There are so many scenes laid in Italian gardens, and there are so many words which suggest their beauty, it is only reasonable to suppose that the dramatist was often able to be a spectator of such entertainments as the Gori Theatre afforded.

The surviving villas in Rome and the surrounding country are numerous enough to fill a volume with descriptions. Several of the most prominent are described, including those of the Villa Borghese, which were modified in 1789 by JACOB MOOR, the English expert. His employment is a proof that the Italian nobles were not always satisfied with the arrangements adopted by their fathers, and were ready to prefer the system which prevailed at the time in this country. Caprarola, which is some distance from the city, is unlike any other villa in Italy. The garden, however, and especially the lower one, is a mere wreck; the plaster statues have all decayed, and it is now difficult to trace the plan. An Italian villa requires continual conservation, otherwise it falls into a state which is without the dignity of Gothic ruins. Another beautiful suburban villa is at Lante. At the Villa d'Este the gardens absorb interest rather than the building. The villas at Frascati have been the subject of admiration by Englishmen since EVELYN'S time.

Genoa is associated with buildings which do not seem to indicate fitness for either villas or pleasing gardens. The Genoese gardens, we are told, "are mere pockets of earth in coigns of masonry, where a few olives and bay trees fight the sun glare and sea wind of a harsh winter and a burning summer." There are, however, a few which are remarkable for the character of the architectural features. Among the Lombardy villas are those of the Isola Bella, which have fascinated generations of tourists. In Lombardy, however, foreign fashions were received with favour. But there France obtained the upper hand. We are told how—

In Lombardy the natural conditions were so similar that the French geometrical gardens did not seem out of place; yet even here a difference is felt both in the architecture and the gardens. Italy, in spite of Palladio and the Palladian tradition, never freed herself from the Baroque. Her artistic tendencies were all toward freedom, improvisation, individual expression; while France was fundamentally classical and instinctively temperate. Just as the French cabinet-makers and bronze-chisellers and modellers in stucco produced more delicate and finished, but less personal, work than the Italian craftsmen, so the French architects designed with greater precision and restraint and less play of personal invention. To establish a rough distinction, it might be said that French art has always been intellectual and Italian art emotional, and this distinction is felt even in the treatment of the pleasure-house and its garden. In Italy the architectural detail remained Baroque till the end of the eighteenth century, and the architect permitted himself far greater license in the choice of forms and the combination of materials. The old villas of the Milanese have a very strong individuality, and it is to be regretted that so few remain intact to show what a personal style they preserved even under the most obvious French influences.

Venetia does not at first suggest beautiful gardens. Of one at Val San Zibio it is said there are few in Italy comparable with it. Padua also has a fine

botanic garden, which some think is the oldest in Europe. The volume on Italian villas and their gardens will be found worth the study of those who have yet to visit them, or of tourists who have had the satisfaction of making their acquaintance. It recalls beautiful scenes, and is a tribute to the efforts of Americans to become independent of foreign books on all subjects relating to art.

The book on topiary by Mr. CHARLES H. CURTIS and Mr. W. GIBSON, which is also published by Mr. LANE, is one of a series of handbooks on practical gardening. The subject is allied to Italian work, for in both we see an effort to control nature. Dr. JOHNSON'S saying about one green field being like all other green fields expresses much else besides the partial views of a near-sighted old man who was most at home in Fleet Street. Nature if left to her own ways does not satisfy gardeners, and they are always desirous of imparting regularity to what is irregular. Where the Italian would use a stone or plaster figure, the topiarist would find substitutes in yew and box. There is no accounting for taste, and the formal garden of England will probably in the future display a more general use of topiary. There is a surprising amount of information in the volume by Messrs. CURTIS and GIBSON, which even opponents of the process will find to be interesting.

ROYAL INSTITUTE OF BRITISH ARCHITECTS.

A MEETING of the Institute of Architects was held on Monday evening last, Mr. T. E. Colcutt, vice-president, in the chair.

The Late Mr. T. Blashill.

MR. ALEXANDER GRAHAM, hon. secretary, announced the decease of Mr. Thomas Blashill, elected Associate in 1866 and Fellow in 1877. Mr. Blashill had for three years been an active member on the Council of the Institute, and there was no member, said the speaker, who had not a pleasant word to say of the deceased. During the many years Mr. Blashill had fulfilled the responsible position of superintending architect to the London County Council he had rendered much assistance to his brother architects, setting them right on many vexed points in the Building Act, and the profession would not forget those good services. But whether in Spring Gardens in his official capacity, or as a member of the Institute, Mr. Blashill had always brought with him an air of good-fellowship, which never left him. In their condolence with the relatives members wished to express their high esteem of the merits and works of their late colleague.

MR. W. WOODWARD said he well remembered spending a pleasant evening with the late Mr. Blashill, who surprised and delighted him with notes and sketches made on continental journeys. The speaker endorsed all that had been said about the assistance rendered to architects while Mr. Blashill was at Spring Gardens. Although the busiest of men, the deceased constantly attended the meetings of the Institute, and in the discussion which followed the papers gave members the benefit of his experience and knowledge.

MR. E. W. HUDSON alluded to the great assistance and interest taken by Mr. Blashill in the charities of the district of St. Pancras.

The Prizes and Studentships, 1905.

The Council's deed of award, made under seal pursuant to By-law 66, and read at the general meeting of January 23, states that the Council have examined the works submitted for the Institute silver medals, the Soane medallion, the Owen Jones and Pugin studentships, the Godwin bursary, the Tite prize, the Arthur Cates prize, and the Grissell gold medal, and gives particulars of the competitions and the results thereof as follows:—

THE ROYAL INSTITUTE SILVER MEDALS.

The Essay Medal and Twenty-five Guineas.

Fourteen essays on "The Development of Architectural Art from Structural Requirements and Nature of Materials" were received for the silver medal.

The Council have awarded the medal and twenty-five guineas to the author of the essay submitted under motto "Dil Aram" (Miss Ethel Charles, Cliff Cottage, Flushing, near Falmouth); a prize of ten guineas and a certificate of

hon. mention to the author of the essay bearing the motto "Beauty is Truth, Truth Beauty" (A. Romney Green, Foundry Meadow, Haslemere); and certificates of hon. mention to the authors of the essays submitted under the mottoes respectively of "Brunelleschi" (J. Jeffrey Waddell, Drumoyne, Uddington, N.B.); "Hawk" (J. Murray Kendall, 38 Canfield Gardens, St. Hampstead, N.W.); "I bide my time" (Leslie Patrick Abercrombie, 13 Victoria Terrace, Prince Alfred Road, Wavertree); "Nick *"Arrepos"* (Walter H. Godfrey, 8 Glebe Place, Chelsea, S.W.); "S. Edmund King and Martyr" (Cyril E. Power, Associate, 112 Kenilworth Court, Putney, S.W.); and "Ubique" (Hugh P. G. Maule, 16 Great Marlborough Street, W.).

The Measured Drawings Medal and 10l. 10s.

Seventeen sets of drawings went sent in of the various buildings indicated. The Council award the silver medal and ten guineas to the delineator of Haddon Hall, Derbyshire, submitted under the motto "Unicus" (Edward G. Wylie, 39 Airlie Gardens, Partick Hill, Glasgow), and certificates of hon. mention to the delineators of Somerset House, London, and the Pazzi Chapel, Santa Croce, Florence, submitted under the motto "Thames" (W. Harold Hillyer, Lyncroft, Shortlands, Kent), and the device of a Red Disk (Arthur R. H. Jackson, Royal College of Art, South Kensington, S.W.).

The Travelling Studentships.

The Soane Medallion and 100l.

Twelve designs for a royal palace were submitted. The Council have awarded the medallion and (subject to the specified conditions) the sum of 100l. to the author of the design bearing the motto "Crumpets" (S. Herbert Maw, Wentworth Villa, Wentworth Street, Bolton, Lancashire), and certificates of hon. mention to the authors of the designs bearing the motto of "Benedick" (Robert White Pickering, 25 Torrington Square, W.C.) and the device of a Lion rampant (W. S. A. Gordon, 20 Trafalgar Square, Chelsea).

The Owen Jones Studentship and 100l.

Three applications were received for the Owen Jones studentship from the following:—W. B. Brown, jun., six strainers; James McLachlan, six strainers; Harry Morley, six strainers. The Council awarded the certificate and (subject to the specified conditions) the sum of 100l. to Mr. H. Morley, 66 Sydney Street, South Kensington, S.W.

The Pugin Studentship and 40l.

Seven applications were received for the Pugin Studentship from the following:—A. R. Barker, six strainers; Norman Culley, five strainers; H. A. Dalrymple, six strainers; Frank Dyer, six strainers; E. Garratt, six strainers; W. H. Godfrey, six strainers; L. Wilkinson, six strainers. The Council have awarded the medal and (subject to the specified conditions) the sum of 40l. to Mr. Edward Garratt, 87 Penfold Street, Darlaston, near Birmingham, and a certificate of hon. mention and 10l. 10s. to Mr. Hugh A. Dalrymple, 45 Judd Street, Bloomsbury, W.C.

The Godwin Medal and 65l.

One application was received for the Godwin Bursary from Mr. F. R. Hiorns (Associate), of 71 Pepys Road, Wimbledon, S.W., and the Council have awarded to him the medal and (subject to the specified conditions) the sum of 65l.

The Tile Certificate and 30l.

Nineteen designs for an hotel lounge and staircase were submitted. The Council awarded the certificate and (subject to the specified conditions) a sum of 30l. to the author of the design bearing the motto "Palladio" (Robert Atkinson, 29 Sherwin Road, Lenton, Nottingham); a certificate of honourable mention and 5l. 5s. to the author of the design bearing the motto "E. Angle" (Alick G. Horsnell, South Primrose Hill, Chelmsford); and a certificate of honourable mention to the author of the design bearing the motto "Vista" (C. L. Wright, 66 Bolingbroke Road, West Kensington, W.).

THE ARTHUR CATES PRIZE, 40l.

Two applications for the Arthur Cates prize were received from the following gentlemen:—Vincent Hooper, 6 strainers. F. Winton Newman, 6 strainers. The Council have awarded the prize to Mr. F. Winton Newman (Associate), 31 Savenake Road, Hampstead, N.W., and a certificate of hon. mention to Mr. Vincent Hooper (Associate), 19 Elmes Road, Redhill, Surrey.

PRIZE FOR DESIGN AND CONSTRUCTION.

The Grissell Gold Medal and 10l. 10s.

Five designs for a winter garden in iron and glass were submitted. The Council have awarded the medal and 10 guineas to the author of the design bearing the motto "Onward" (James A. M. Hunter, Schoolhouse, Portlethen, by Aberdeen).

THE ASHPITEL PRIZE, 1904.

The Council have, on the recommendation of the Board of Examiners (Architecture), awarded the Ashpitel prize to Mr. Charles Lovett Gill, 17 Albert Street, Regent's Park, N.W. Mr. Gill was registered probationer in 1901, student in 1902 and passed the final examination in November 1904.

THE TRAVELLING STUDENTS' WORK.

Soane Medallist, 1903.—The Council have approved the drawings executed by Mr. Edwin F. Reynolds, who was awarded the medallion in 1903, and who studied in Egypt, Greece, Italy and Turkey.

Pugin Studentship, 1904.—The work of Mr. F. C. Mears, who was elected Pugin student for 1904, and who studied in Somersetshire, was also approved.

MR. JAMES RANSOME, consulting architect to the Government of India, read a paper entitled

European Architecture in India.

The tendency in recent years in India was, he said, to erect buildings in the styles and upon the lines of those found to be suitable in England, and he proposed to demonstrate the obstacles which opposed this practice, and to stimulate discussion upon the advisability of its continuance as a principle. For though the dearth of good European buildings in India was undoubtedly largely due to the lack of proper architectural training in their designers, it was at least open to debate whether this deficiency might not be, in an even greater measure, the result of an insistence upon European traditions in the face of climatic opposition. To enable those who had not visited India to form an opinion on the subject the author described such of the main conditions as must necessarily influence its architecture. In this connection he dealt with the cheap and abundant labour, the capacities of the native workman, the building materials and conditions influencing their use, climatic conditions, &c.

Except where earthquakes are of frequent occurrence, and in the case of buildings erected immediately after such disturbances, the possibility of their occurrence does not appear to have influenced the construction or designs of buildings; on the contrary, there seems to be a feeling that even the smaller buildings are incomplete without a tower, dome, minaret or turret. Cyclones affect construction rather than design, while dust-storms render it advisable that all apertures ordinarily left open may be closed on occasions. In many districts the prevalence of flies necessitates the addition of gauze shutters to every opening, which requires special treatment if it is to escape disfigurement.

A really water-tight roof is an unusual luxury in India, and as failure in this respect is attributed to the severity of the rains rather than the inefficiency of the roofs, but little effort has been made towards their improvement. Latterly pitched roofs have come increasingly into use, and though contrary to the traditions of the country, seem likely to survive the prejudices against them. It is something of a surprise to find that sheet-iron, either corrugated or plain, is largely used for roof-coverings in India, since it offers but little resistance to the outside temperature, is very noisy and rarely water-tight during the rains, requires constant attention, has no lasting properties, and is always unsightly.

In a country where buildings are rarely to be seen except beneath a brilliant and cloudless sky, the influence of cast shadows calls for greater consideration than in places blessed with less sunshine; hence much of the European work in India appears at its best only on the comparatively rare occasions when the sky is clouded. The native work is often richly inlaid with marbles, stones and tiles, and when carving is employed externally it is usually in low relief. For the most part Indian bricks are of excellent colour and quality, and susceptible of sufficiently fine treatment. The bricks are rubbed so that their joints are hardly perceptible, and the whole of the face is finely carved. Such work is abundant in many of the native cities, and is still being executed, but unless encouraged by Europeans, will shortly cease to be practised.

Dealing with the temperature of India so far as it affects building designs, the climate was classified under three head-

ings, viz., that of the Hills, that of the Plains, and that of the Coast, describing typical cases of each to convey an idea of the general conditions. The temperature of the hills tallies so nearly with what we are accustomed to in this country that, so far as heat and cold are concerned, there is no reason why buildings suited to an English climate should not serve their purpose equally well if transplanted to the hills of India. Unfortunately most of the buildings in the hills have been designed by those accustomed to deal with the buildings in the plains. Hence the type of building ordinarily found there, has rooms opening into verandahs which contain the staircases and offer the only means of access from one room to another. In private dwellings it is customary to glaze these verandahs on account of the cold, and this treatment has the effect of restricting the light and air admitted into the living-rooms. These, in consequence, fall into disuse during the day, and are deserted in favour of the glazed verandahs, which have ordinarily the temperature of a hot-house during the day and are often bitterly cold at night. This unhealthy arrangement is probably responsible for much of the illness to which residents in the hills are subject.

While the temperature of the coast may be considered as uniformly hot, that of the plains, though rising many degrees higher during the hottest days, falls considerably at night, and is some 30 degrees cooler in winter than in summer. Hence it is customary in the plains to close all apertures and exclude the outside air during the hot days, while around the coast windows and doors are thrown open all the year round, and the windows are frequently left unglazed. In the older buildings these opposite conditions produced a marked difference in the plans of buildings for the plains and those for the coast, for whereas the former were as a rule compact, with lofty rooms grouped around a large central apartment usually unlit by windows, the plans of buildings for the coast were extended and arranged so that the rooms had as many outside walls as possible. In the more modern buildings this difference is less marked, for on the one hand the introduction of cooling by evaporation has opened out the plans of buildings for the plains, while increased cost of building has curtailed the area of those for the coast. As a rule, however, the older arrangements were more satisfactory, and it is not desirable that the conditions which gave rise to them should be overlooked.

But whether on the coast or inland the comfort of buildings in the plains of India is chiefly dependent upon the extent to which their walls are protected from the rays of the sun. Many of the European buildings are now built without verandahs; but as their omission entails great discomfort, and ultimately results in the disfigurement of the building by various devices for protecting it from the sun, there can be no question as to the necessity for verandahs around the external walls of every habitable room except those facing north. It follows, therefore, that the appearance of an Indian building must necessarily be largely dependent upon the treatment given to its verandahs, and one of the chief difficulties in this connection is that of exposing a sufficient feeling of solidity in a building of which so large a proportion of its main walls must be concealed.

It would probably occur to most architects that these conditions should be favourable to the employment of Classic colonnades; and that this was the opinion of the designers of the early European buildings is demonstrated by the fact that nearly all of them were thus treated. The author went on to show, however, that the application of Classic architecture to Indian buildings was attended with difficulties, and that the achievement of a successful Gothic building under conditions which entailed the concealment of its windows was an even greater problem. In ecclesiastical buildings it has been the custom to indulge Gothic traditions at the expense of any considerations of climate. No advantage appears to have been taken of the natural adaptability of cloisters to serve the purpose of verandahs, which are usually omitted from designs for churches, and large, unprotected east-and-west windows are frequently introduced; hence Indian churches are for the most part unbearably hot, and frequently useless for purposes of worship during the hot weather. The author referred, however, to an effective arrangement in the cathedral at Allahabad (Sir William Emerson, architect), where the windows are in deep recesses and flanked by buttresses of considerable projection; this arrangement has the advantage of throwing the windows in shade during the greater part of the day.

In many of the modern designs for buildings attempts are made to follow the lines of native Indian architecture; as a rule, however, not with very satisfactory results, as they are based upon a too perfunctory study of native work. Considering it inevitable, and probably desirable, that European architecture in India should be influenced by the native styles of the country, the paper gave a rough outline of their chief characteristics and some illustration of the designs they have inspired.

For this purpose Indian architecture may be broadly classified under two heads, viz. Hindu and Saracenic. Instances of satisfactory structural forms are rarely to be met with in Hindu work, which seems never to have shaken itself free of the timber and rock-cut traditions upon which it was based. Yet much of this work is covered with beautiful detail and enriched with refined and graceful ornament.

It is strange that such a monument to the power of simplicity as the Taj Mahal should stand in a country so much in need of the lesson it should teach, and the fact that its influence upon the architecture of the country is imperceptible is perhaps even more surprising. Much of its effect is undoubtedly due to the increased play of light and shade, induced by its walls meeting at obtuse angles—a form of treatment which might be applied more generally to the walls of verandahs without detriment to their utility, and with some advantage to their appearance; for the excessive accentuation of right angles, produced by the brilliant sunlight of the plains, is not always beneficial to the appearance of a building. A dome is not ordinarily an economic form of roof, and it is not easy to find any useful employment for minarets and the little domed structures with which the roofs of Saracenic buildings are usually decorated, and which play so large a part in their composition. Nor is there much need in European buildings for the finely-pierced stone tracery which was extensively used in the windows and balconies of this style, or for those curious and typical features known as Jhomkes, examples of which are to be found on the gateway of the Taj. On the other hand, the Chujja, or wide projecting slab cornice, which is one of the most characteristic features of Saracenic work, is exactly what is required to shelter clerestory windows and exposed walls. The Kingras, or ornamented battlements, many of which are of very beautiful design, can be introduced effectively in place of the European parapet, while the great variety of form in the Saracenic arches affords sufficient scope for judicious selection. The style is also rich in oriels and balconies, designed in admirable taste and executed with considerable skill.

In conclusion, reference was made to a competition recently instituted, in which architects practising in England were invited to submit drawings illustrating their suggestions for the external treatment of a block of offices in India, of which a plan was supplied. Certain stipulations were made with a view to insuring that the designs should be suited to the climatic conditions of the plains of India. Although no stipulations were made as to the style of architecture which should be followed, in no instance was any attempt made to adhere to European traditions.

Mr. R. F. CHISHOLM, in proposing a vote of thanks to Mr. Ransome, said the paper was able and interesting for the reason that it went over a very large area in as few words as was possible, and represented with great fairness and impartiality the main features of an exceedingly difficult subject. The treatment of modern architecture in India, from an Anglo-Indian point of view, presented many difficulties, but the speaker in his practice of upwards of thirty-five years had never heard anybody treat those difficulties with so much ability as Mr. Ransome had done. He had grasped and placed before the meeting the one great problem in all Anglo-Indian architecture—i.e. the treatment of the external wall. To avoid, on the one hand, having the external wall so open that the building appeared to be a mere cage of architecture frequently only half concealing a more solid structure behind; on the other hand, to gain solidity by exposing a large surface of wall. This was the great problem in Indian architecture, and he did not think the solution had yet been solved. With regard to the division of the whole of India into two great classes, Hindu and Saracenic, the speaker thought the point was apt and true. India imbibed its arts, including architecture, from five different sources. First, there was the Chinese; and a second influence from the same source in the south-east of India; thirdly, there came a wave from Egypt and Arabia; fourthly, on the North-West frontier, through Europe and Persia; and lastly came that very strong Byzantine wave which

greatly modified all the native architecture of India. He endorsed Mr. Ransome's statement when he alluded to the Taj Mahal, and said that no photograph could do it justice or convey any idea of what the building was like. Words could not express the impression it made on the beholder, for its influence was really spiritual. All the styles which he had noted spread out like fans, and overlapped each other and modified each other, so it would be seen that although Hindu and Saracenic influences divided the architecture into two convenient classes, yet those influences went no further than the fusion of all European architecture into Gothic and Classic. With regard to the modern treatment of buildings, as to how far they should be native in character and how far they should be European, was a very difficult question to settle. He thought it best to make good use of local materials, employing the native craftsmen for the ornamentation, but remembering the amount of ornament should be in ratio to the value of the materials. He understood Mr. Ransome to say that the dome was not an economical form of construction. He believed the cost of a dome lay chiefly in the cost of the centring, but if the dome were made on true Hindu principles without centring, the cost of doming was only the cost of walling. The other points of the subject were so exhaustive that it was almost impossible to take them up. The paper was rather one for careful consideration, and it would need more than one evening or a week of evenings to decide any one of the many questions which had been put before them.

Mr. JOHN SLATER, who seconded the vote of thanks, said it must be a source of regret to all members that Sir William Emerson had been unable to attend the meeting. It was very interesting to notice Mr. Ransome's remarks about the natural building materials in India, because it could not have failed to strike those present that Sir William Emerson had gone to the expense of having marble from quarries in Greece, and such an introduction would be a magnificent addition to all the buildings in Calcutta. It might interest some members to know what so many had forgotten, that the great Gothic genius, William Burges, in 1866 or 1867 designed a building for Bombay which was to be a school of art, and it was remarkable how his genius adapted itself to the new conditions under which he had to work in designing a building for a very hot climate. In touching upon some practical points raised by the paper, the speaker did not know whether anyone had tried in India the use of slag wool for keeping out the heat. It seemed an extremely useful material for the country.

Mr. W. H. ATKIN BERRY said he could not help feeling that it was impossible to appreciate many of the points in the paper without some knowledge of the country. It was his good fortune to visit India some years ago, and travelling about the country he received some impressions, and one very strong one was that all attempts at European architecture were too truly European in character. It seemed to him then that it was fatal to transplant the traditional characteristics of our climate into a country that was so entirely different as that of India. He believed, to be successful in India, an architect must seriously study the traditional native style: it was no doubt difficult to grasp properly, but a mastery of it was the whole secret of success. He wished to say a word about corrugated iron roofs. It was wrong to paint the material red, to make it represent tiles; but he had noticed many pleasing examples in corrugated iron painted white. He was a little disappointed that the paper had not given more descriptions of the bungalows on the hill stations, because dwellings of that type afforded examples to architects of simple and picturesque buildings.

Mr. W. H. SETH-SMITH said he believed the purport of the paper was chiefly to illustrate civil architecture in India, and not the domestic. He questioned whether there was any great advantage in endeavouring to copy or develop the indigenous style in designing civil buildings, for such work had been carried out in wholly Classical styles. Nearly all Hindu architecture was to be found in temples, domes or palaces, and the palaces were very few in number. Therefore instead of trying to work on the traditional lines of Hindu architecture it might be better to treat such designs with a regard to local conditions, but also under modern scientific principles.

Mr. RANSOME briefly replied, and the meeting then terminated.

The designs and drawings submitted for the Institute prizes and studentships are now on exhibition in the gallery

of the Alpine Club (entrance in Mill Street, Conduit Street, W.). The exhibition is open every day from 10 A.M. till 8 P.M., until it closes on February 4. The presentation of prizes takes place on February 6.

LEONARDO DA VINCI.

A LECTURE was delivered by Dr. W. Wright, illustrated with lantern slides, on "Leonardo da Vinci," at the Birmingham and Midland Institute last week. Referring to Leonardo's early days, the lecturer said that his personality was even then singular and winning. A number of associations were attributed to him which were now more or less of a mythical character. Many tales were told of his precocious childhood which were scarcely believable. Leonardo da Vinci went to Florence, and at the age of seventeen he entered a workshop. There were many collectors of art in Florence at that time, to dine with some of whom provided a liberal education. The zeal for collecting and the interest in art was not confined to aristocrats, but was diffused throughout the whole population. It was as a painter that Leonardo was best known, and it was as a painter he (the lecturer) would first consider him. There were many crude paintings—in fact, almost all the paintings of Leonardo da Vinci were left unfinished. Among the pictures thrown on the screen was one of the famous "Last Supper." He was a painter who was always experimenting with methods of painting. He was very fond of grouping his figures mathematically in his pictures. He was fond of horses generally, and fond, too, of painting horses. The best-known painting of Leonardo, "Mona Lisa," was found in the Louvre. The picture had suffered a good deal from time. The enigmatical smile haunted the people of to-day as much as it did in the time of Leonardo. Perhaps the last of his paintings was "John the Baptist." There were many features in this which were the same as in "Mona Lisa." Subsequently the lecturer came to deal with Leonardo as a sculptor. None of his sculpture was at present to be seen in Italy. Although we had nothing to show of him as a sculptor, still one could form some idea from bronze, also partly from contemporary opinion, and also partly from the fact that he was a pupil of Verrocchio, who formed one of the greatest bronze equestrian pieces of statuary in the world—now in Venice. Speaking of Leonardo as an artist, Dr. Wright said there was evidence that Leonardo studied shells and spirals. The latter ran very much in his mind. He almost invariably wrote with his left hand, and wrote from right to left. Some of his signatures were written from left to right. He was ambidextrous. He drew with his left hand, although he painted with his right. When towards the end of his life he had a paralytic stroke his right hand was so affected that he was not able to paint, although he was able to draw. Leonardo was always studying nature in connection with his art. He was constantly trying to copy the methods of nature. In making an estimate of him as a painter one naturally compared him with Raphael and Michel Angelo. These two, however, followed him, and they were able to gain much from the study of Leonardo, just as he was only too ready to own that he had gained much from a previous artist, Masaccio. Dr. Wright also spoke of Leonardo as an engineer, and dealt with his interest in chemistry, zoology, music, anatomy, botany, geography, architecture, poetry and philosophy. He had an intense interest in everything. He did not seem to have been literary, and in fact discounted a good deal of the classics. He was particularly impressed with the order of the universe and the unity of the universe. He died in 1519 apparently from apoplexy, and his will was still extant. A large amount of antiquarian effort had been given to the explanation of an orthodox finish to a life which was marked by great heterodoxy as regards religious matters. His career, to Dr. Wright's mind, was inspiring as well as consoling.

A JOHANNESBURG SYNAGOGUE.

THE building committee of the Witwatersrand Old Hebrew Congregation invite architects to take part in a limited competition to be held for a proposed new synagogue for the congregation. It is to cost a sum not exceeding 25,000*l.*, and to be erected between End and Davies Streets, Old Doornfontein. Designs are to be sent in on or before March 15 to the President. Premiums of 200*l.*, 100*l.* and 50*l.* will be paid to the authors of the designs awarded respectively the first, second and third places. Mr. G. A. H. Dickson, president of the Transvaal Institute of Architects, has been appointed assessor.

NOTES AND COMMENTS.

THERE could be no better testimony to the honesty with which the late Mr. THOMAS BLASHILL carried out his duties as superintending architect to the London County Council than the respect with which he was treated after his resignation. He had been a city architect prior to his appointment, and it surprised some of his friends when it was found that he accepted an offer which was likely to put some restraint upon him. His experience would have enabled him to have served architecture as a referee and in other ways. But a short illness overcame a constitution that was once vigorous, and he died on Friday last in his seventy-fifth year. He always took his share in any movement which was thought to be for the benefit of architecture. He was one of the oldest members of the Architectural Association, having joined it in 1857, and he served as vice-president in 1861-2, and as president in the following year, when Mr. NORMAN SHAW held the position of vice-president. He joined the Institute as an Associate in 1866 and was elected a Fellow in 1877.

As about forty years have elapsed since Sir CASPAR PURDON CLARKE became connected with South Kensington, he is familiar with all the details of the system or systems connected with that institution. It can claim to have made him an architect, an expert and a director, and his example offered encouragement to other students. The Board of Education will, no doubt, regret the departure of an officer who in many respects represented the Government system. There is, however, cause for satisfaction in official circles. Few of the men who have occupied prominent positions at South Kensington have been able to convince the public of their merit. To appoint one as Director of the Metropolitan Museum of Fine Art in New York is therefore a victory for circumlocutionism, and almost the only one which can be recorded. In no museum is there a better opportunity presented for a director to display his courage. The collections have cost an immense sum of money. But some experts believe that a great many of the objects are not genuine. Sir PURDON CLARKE should be allowed to weed the collection of all doubtful "antiques," in spite of the admiration they receive from Americans. But to do so without the support of a courageous committee would be almost suicidal. Americans are very shrewd, and they imagine they cannot be deceived in examples of Mediæval and Renaissance art, but sooner or later they will have to submit to being disillusioned about their treasures in the New York Museum. In any case we hope Sir PURDON CLARKE will be enabled to render the services for which his ability and experience qualify him.

STUART MILL looked upon co-operation among the labouring classes as one of the ways to a change in society, in which the freedom and independence of individuals would be combined with the advantages of aggregate production, or, in other words, a realisation of the best aspirations of the democratic spirit. The history of those aspirations has, however, shown that the working-men shareholders have little consideration for the employes who do not hold shares. They look on themselves as the pioneers of a new system, but of one which retains many of the tyrannical ways of those which are ancient. Respect for what is established is not among the virtues of co-operation. Of this an instance relating to architecture has been lately afforded. The Royal Arsenal Co-operative Society of Woolwich possess an estate on which dwelling-houses are to be erected. For that purpose an architect and surveyor is desired who will also serve as manager of works, comprising a large carpenters' shop with wood-working machinery, an artificial stone workshop and a chalk mine. He is to be between twenty-five and forty-five

years of age, must work on five days from 9 A.M. to 5.30, and on Saturday till 1 P.M. He will also have to devote one evening in each week to attendance on the committee, as well as such other times as may be arranged. He is to give his whole time to the Society; he is to prepare designs, take levels, comply with the requirements of local authorities, give all notices, get out quantities, specifications, estimates, details. In conjunction with the general foreman he is to purchase all materials required, to reject and condemn materials which are unsuitable, to accept responsibility for the economy of the works department, to advise the committee in estate management, &c., and to act in all things under the superintendence, direction and control of the committee. The Society is to have absolute property in all his correspondence as well as all the plans and documents prepared for the Society. Each applicant is to state the inclusive salary with which he will be satisfied. If the conditions are in accordance with the aspirations of the democratic spirit, then for an architect, at least, it would be preferable to have the more ancient days which recognised that there existed a difference between his employment and that of an ordinary labourer. The Royal Arsenal labourers probably are dismissed at a moment's notice, while with the architect a month's notice on either side will be necessary. But can the committee expect that a man tied down with such conditions as are imposed will be respected by the foreman or workmen, or by those who will have to supply materials? A man who has all the qualifications demanded can find temporary employment in other ways, and will have the satisfaction of feeling that he can think of his occupation without a pang.

MISTAKES will arise in human organisations, and contractors who have to deal with a multiplicity of items cannot at all times guarantee their infallibility. When lapses occur, public bodies should remember their own perfectibility is not secure, and leniency becomes advisable. For instance, Messrs. HARSTON, the architects, reported to the Metropolitan Asylums Board that Messrs. LESLIE & Co., the contractors for the Joyce Green Hospital, informed them that by an erroneous interpretation of the specification they had executed works of the value of 770*l.* without any authority. In such a case the Board were not responsible, and might decide against payment. But the works committee having recommended that a sum of 600*l.* should be granted to the contractors, that arrangement was approved. It is not, however, to be supposed that such generous dealing is to be taken as a precedent for condoning carelessness in keeping contractors' accounts.

ON Wednesday Mr. C. J. HOLMES delivered his inaugural lecture as Slade Professor of Fine Art in the University of Oxford. He treated of "Practical Work as an Aid to the Study of the Fine Arts." He referred to the increase of knowledge in all departments of art during the last half century. The literature had also grown, and was now almost as complicated and bulky as the objects with which it dealt. The aims of the University in dealing with this vast and complicated mass of material might be summarised thus:—(1) To provide every student with a sound general knowledge of the theory of the principal branches of the arts. (2) To see that those who were studying special subjects, whether connected with the schools or not, should have every possible help in their work. (3) By means of the University collections to bring students into actual contact with works of art, so that their knowledge should not be mere text-book knowledge. Mr. HOLMES proposed to commence his lectures with an exposition of ancient sculpture, to be followed by descriptions of the work of some of the Renaissance and modern artists. In the summer term he will lecture on graphic design, and utilise the prints and drawings belonging to the University as illustrations.

ILLUSTRATIONS.

CLOISTERS AND CAMPANILE OF S. FRANCESCO, PISA.

THIS church stands near the town walls in a very quiet locality, and is, as regards the interior at least, in an almost ruinous condition. "I believe," says Mr. HAIG, "it is intended to be repaired, and is well worth it, as, besides being a church of good proportion, it contains on the soffits of the arches and on the ceiling of the chancel some very interesting frescoes by TADDEO GADDI, dating from 1342. The church is mainly of the thirteenth century, and of a generally plain exterior, the best part of which is the campanile shown in the sketch. It is built of red brick, and is characteristic of this part of Italy; the top is probably an afterthought. The cloisters, the largest in Pisa, are two centuries later than the church, of Early Renaissance architecture, and, with the exception of the capitals and the corbels, without ornamental features. The richly-decorated columns, mentioned in a well-known guide-book as existing in these cloisters, you will look for in vain, but the cool and pleasant arcade will be found a desirable retreat on a hot day. The place is nearly deserted; an aged priest may be seen now and then, but the once appropriate inmates, the monks, will be seldom seen here now. The enclosure is somewhat neglected, but two olive trees, fit accessories, adorn the place, and with their cool green foliage harmonise well with the rich colours of the surrounding buildings."

A DOORWAY IN GENOA.

IN the immediate vicinity of the small church of S. Matteo, in the old part of Genoa, will be found the doorway seen in the sketch we publish. There are in the neighbourhood three or four similar portals, this one being by no means the most elaborate, but chosen because it took the shortest time to sketch on an occasion when every minute was of importance. Like most of the best work in Genoa, these doorways are of marble, with which material the lower part of the palaces to which they belong is faced. The marble is either entirely of the light brown Genoese kind, or this alternated with broad bands of black marble, as in the palace facing S. Matteo in the small piazza. The portal to this palace is similar to the one sketched, but rather more elaborate as to the sculpture in the panel. The panel shown is much decayed and difficult to make out. The date is somewhat earlier than the better known palaces of Genoa, which are generally of the latter part of the sixteenth and the beginning of the seventeenth centuries, and the work, though smaller in scale and altogether less pretentious, is nevertheless in better taste than that we meet in the world-famed Palazzo Doria Tursi, for instance, or any other of the gigantic palaces of Genoa; but as these doorways are to be met only in the old, narrow and gloomy streets, they do not appear to receive the attention which they deserve. The column in the interior is of a type frequently to be seen in the courts and staircases of this part of the town, and, although scarcely "grammatical," is yet effective. The columns appear to be of a later date than the portals.

SAVOY HOTEL, STRAND, W.C.

THE OLD CHURCH HOUSE, LEWES.

LEWES was at one time noteworthy for its castles and churches. The Church House, now used as offices by Messrs. ERNEST RÜNTZ & FORD, is a relic of ecclesiastical property. In 1525, according to a record, it was the property of the parish of St. Andrew, but was subsequently united to St. Michael, to which it now belongs. The following entries appear in the churchwardens' book:—

1525 "M^d that John Kotmot and Richard frankwell hath reckned wth thomas awdley for the Church house the xxvith day of December the xviith yerre of the rayne of Kyng harre the viiith and the same day John, and Rycharde frankwell hath resefyd a yere rent of the howse, and at

owher Ladey day yn Lent next Komynt, the same thomas oweth a half yeerre rent."

1527 "M^d that L. Richard colpeper and John parker wardens of Sent Andrews have recevd of Thomas Audele for the Cherche howse xiiii s, iiii d. the xxth day jennuary."

In 1540 Thomas was sold up on distraint, and we get this inventory:—

"And the next folowyng goods are the emplements of the howse belonging as to the Cherche howse.

"Item in the hall a table with a payr of trestells.

"Item a round cowberd: item in the parlour a table with trestills and form belonging.

"Item a cuberd standing next the Strett by the dore.

"A bedstead in the same parlor: item a bedsted in the Chamber, with the sealing over. (The 'sealing' is the tester or top of the bedstead.)

"Item in the ye Chomney in ye Kydchin a barre of iron with ii potte hangyers."

Then it contained three rooms, a parlour or hall, a chamber overhead and a kitchen beyond. The same arrangement continued until reconstruction.

FALFOUR PLACE, W., FROM SOUTH-EAST.

NEW MAGISTRATES' OFFICES, BARGATE, SOUTHAMPTON.

THE HECTOR MACDONALD NATIONAL MEMORIAL, TO BE ERECTED ON THE GREEN HILL, DINGWALL, ROSE-SHIRE.

LIVERPOOL CATHEDRAL.

A MEETING of the Liverpool Cathedral committee was held on Monday at the Church House, Lord Street. Sir W. B. Forwood presided. The balance-sheet to be submitted at the annual meeting of subscribers on Monday next, at which Lord Derby will preside, was considered and approved. The architects reported very considerable progress with the evcavation for the foundations of the cathedral, the concreting having already been commenced. It was resolved to erect a shelter for the workmen where they could take their meals, and it would also be available for the holding of occasional services. The committee decided that the roof of the lady chapel be groined in stone. It was reported that the model of the cathedral was nearly completed, and it was decided to ask permission to place it when completed in the Walker Art Gallery for public exhibition.

HIGH SCHOOL, EDINBURGH.

A T a meeting of the Council of the Cockburn Association held recently the following report submitted by a sub-committee appointed to consider the proposal to convert the Royal High School, Edinburgh, into a National Gallery was unanimously adopted. A copy has been sent to the Secretary for Scotland:—"The committee beg to report that they have had before them the report to the members of the Royal High School Club prepared by Mr. Henry F. Kerr, architect, upon the question of the adoption of the Royal High School as a National Gallery. They feel that the Association is not called upon to enter into the question of the suitability or otherwise of the building or site for a picture gallery, but that it should confine itself strictly to the question of the effect that any alterations might have upon the external appearance of the building. It would seem from the requirements for lighting in a picture gallery that if the High School be acquired as a National Gallery alterations to obtain suitable lighting must at once be required, and that these alterations could not be made without affecting to some extent the exterior of the building. Looking also to the smallness of the superficial area of the High School, the committee feel that extension would be required, if not now, at least in the near future. The building as it stands is one of the finest in the city, and the committee recommend the Council that, unless a guarantee be given that alterations for lighting and possible extensions will be carried out so as in no way to affect the present lines of the building, the Council should express its strongest disapproval of the scheme. The committee further recommend the Council to state that in their opinion, if an art school or any other building is placed on the west playground of the school, it would, by interfering with the fine prospect of the buildings from the west, most injuriously affect their beauty. They would also deprecate the erection of any extensive new building in the immediate vicinity of the present structure, as they consider that its effect might be in this way endangered."

THE LATE ROBERT BROUGH, A.R.S.A.

THE collision on the Midland Railway at Cudworth was followed after two days of agony by the death on Saturday evening of one of the most promising of modern painters. The loss is not one to Scottish art alone, says the *Scotsman*, but to British art, for Mr. Brough, though only thirty-three years of age, had taken a position as a portrait-painter, both in London and in Scotland, to which very few at so early an age ever attain. To his exceptional painting power this was solely due, as the deceased artist had no adventitious aids in his youth, and had to rely solely on his own abilities, which were undoubtedly great, and on that industrious application of them without which even genius cannot go far in this world. He was probably the most brilliant student that has passed through the Royal Scottish Academy's schools in recent years; his success as a practising artist was rapid; and his friends, of whom this tall, handsome, young Scotsman from the north, with cosmopolitan instincts and charming manners, had many, were looking forward to his rising at no distant date to the very top of his profession. Their hopes have been rudely dissipated by this grievous calamity, and, though the works that he has left behind will entitle him to a niche in the gallery of fame, that thought will not assuage the grief that one so gifted should have by so cruel a fate been cut off when everything seemed to forecast so prosperous a career.

Born in Invergordon, Ross-shire, in 1872, Robert Brough was early brought to Aberdeen, where he attended school. Subsequently he served an apprenticeship with Mr. Andrew Gibb, lithographer and engraver, the successor of the firm of Keith & Gibb, where Sir George Reid, ex-president of the Royal Scottish Academy, worked when a young man at the same occupation. Mr. Brough studied art at the Aberdeen Art school, but his apprenticeship ended, he set out for Edinburgh, resolved to embrace art as a profession; and in 1891 he was admitted a student of the Royal Scottish Academy's life school, of which, as has been said, he was a distinguished student. In 1892 he gained there the Chalmers bursary and the MacLaine-Waters medal, and in the following year he won an extra prize for painting. From Edinburgh he proceeded to Paris, and spent four months in hard work at Julien's studio, where Jean Paul Laurens and the late Benjamin Constant were the visitors, and even among the cosmopolitan crowd attracted to this famous atelier the young Scotsman more than held his own. In 1894 he returned to Aberdeen, and began the practice of his profession, filling in his time with work of various kinds, and doing drawings for two of the local illustrated papers—the *Scottish Figaro* and *Bon Accord*. He gained his first success as a portraitist with a portrait of Mr. W. D. Ross, which was exhibited in 1896, and from that day onwards his success has been of a marked character. While still retaining his connection with Aberdeen, he, in 1897, took a studio in 33 Tite Street, Chelsea, in the same building as Mr. Sargent, R.A., who manifested a very friendly interest in him, and he exhibited at the Royal Academy, the New Gallery, the Royal Scottish Academy, and the International Society, and never forgot when it came round the art exhibition of Aberdeen, for which he always kept some of his best works. Last year he was elected an Associate of the Royal Scottish Academy, and it was only about three weeks ago that at a meeting of the Academy he received his diploma. His work was mostly portraits, though in 1898 he exhibited a fancy study of a girl holding at arm's length an image called "Fantasie in Folie," and a landscape with figures, "Twixt Sun and Moon," which showed that he had a fine fancy and much poetical feeling. "Fantasie in Folie" was exhibited at the Paris International Exhibition of 1900, and was awarded one of the few gold medals given there to British painters, while another picture of his, "St. Anne of Brittany," shown in Edinburgh in 1896, was purchased by the Italian Government. Among portraits of ladies from his brush which were greatly admired were those of Miss Julie Opp, the actress, the Viscountess Encombe (posed in profile to the right and wearing a rich red evening gown), which was considered a masterpiece; Mrs. Milne of Kinaldie, and of children's portraits those of Miss Alice and Miss Kathleen Crombie, Miss Edie Edinger and Master Philip Fleming—the boy seated on a spirited black pony—a work which in its breadth and simplicity of treatment recalled the art of Velasquez. Of his men's portraits one recalls his Mr. John Duthie of Cairnbulg, Surgeon-Colonel Gallway, C.B., in military uniform, the Rev. James Geddie, the Hon. Herbert Maxwell, Mr. Justice Vaughan Williams, Mr. John Donald, Aberdeen, and the

Marquis of Linlithgow—the last-named being in the Royal Academy last year. In the Aberdeen permanent collection he is represented by a portrait of Dr. Alexander Ogilvie, formerly head-master of Gordon's College.

Mr. Brough possessed in an eminent degree one of the first requisites of a portrait-painter—style. There was nothing commonplace about anything he ever did; it had always great individuality and variety. He was also gifted with a fine decorative sense of composition and arrangement, could preserve a nice balance in his light and shade, and there was a breadth, simplicity and dignity of effect in his portraits of men and women alike, and in his ladies' portraits a keen appreciation of feminine beauty, which showed he had imbibed to good purpose the teaching of the great masters of portrait-painting. He was a beautiful colourist and a brilliant executant, a little too fond sometimes, in the exuberance of youth, of displaying his technique, but it was a slight fault which further experience would no doubt have corrected. Not many painters could vie with him in the charming bloom and suavity of his flesh tints—a gift which, with his fine sense of style, helped to make him so successful a painter as he was of the portraits of ladies and children. His figures also were always invested with a life-like quality. His last work was the painting of the children of Sir Charles and Lady Tennant of The Glen, and on this he was engaged when he left on his fatal journey to London. Personally, Mr. Brough had a buoyant, cheerful nature, and was a great favourite with all who knew him. He was unmarried. He is survived by his mother, who was with him at the end. He has also an uncle, Mr. John Brough, dairy farmer, Hazelhead, and several cousins.

ARCHITECT'S OFFICES AND SPECIAL LIGHT.

A CASE having peculiar interest for architects has been decided by Mr. Justice Bray, for according to his Lordship's judgment an architect's business is only an ordinary business, and therefore comes under the decision in Colls's case. The circumstances in *Ambler v. Gordon* are described as follows by the *Times*—

This was a special case stated by Mr. Thomas Blashill the umpire appointed by the arbitrators in an arbitration between the above-named parties. The plaintiff, Mr. Herbert Ambler, was an architect, and the owner of certain premises in Cookridge Street, Leeds, and the defendant, the Roman Catholic Bishop of Leeds, was erecting a cathedral opposite. The plaintiff contended that it interfered with the light to which he was entitled, and which had hitherto been enjoyed in connection with his premises, part of which had been used for upwards of twenty years past by the plaintiff for the purposes of his offices, including a drawing-office for which a special amount of light was required. All the lights were ancient except as to the additional amount of light coming through certain new shop-fronts. A slight but not material interference with light was caused to those parts of the plaintiff's premises for which no special amount of light was required. The plaintiff claimed that he was entitled to damages. The umpire awarded and found as follows:—"Notwithstanding the defendant's buildings there remains sufficient light to the plaintiff's premises for all purposes of ordinary user, and the plaintiff is not entitled to damages for interference with such ordinary user; but if I am entitled to take into account damages which the plaintiff has sustained in respect of loss of light to those parts of the premises used for occupations in respect of which a special amount of light is required, then I award 600*l.* damages." At the request of both parties the umpire submitted for the opinion of the Court the question whether on the foregoing facts he was bound by the decision in "*Colls v. Home and Colonial Stores*," and therefore could not award damages to the plaintiff, or whether he could award damages to the plaintiff in respect of interference with such special user of light as aforesaid. It was argued for the plaintiff (1) that the umpire had found that an architect's business was not an ordinary business, and as he had found that the light was insufficient for this business, therefore, according to the law as laid down in Colls's case, there had been an actionable interference with the plaintiff's ancient lights, and the plaintiff was entitled to the 600*l.* damages. In the alternative it was contended that the question whether an architect's business was an ordinary business was a mixed question of law and fact, and the umpire must have misdirected himself or misunderstood Colls's case, and the case ought to be sent back,

aim to have the facts more fully stated. It was concluded (2) that the twenty years' enjoyment had given the plaintiff a right to the special light, and (3) that the defendant agreed to pay for actual damage whether there was or was not a reasonable interference or not.

Mr. Justice Bray, in delivering judgment, said that, in determining the contentions put forward for the plaintiff it was necessary to see what was meant by the expressions which were to be found in the special case and in judgments in Colls's case, "ordinary user," or "ordinary business," or "ordinary purposes." He thought that the word "ordinary" was used solely with reference to light, and an ordinary user or an ordinary business, not a user or business which, in fact, required only an ordinary amount of light. This was a question of fact, and not of law, and it depended on the evidence in each case, and it could not be predicated as a matter of law whether an architect's business or any other business was an ordinary business. He did not think that it was even mixed fact and law; but even if it were, he felt quite unable to see where the plaintiff had misdirected himself, or how he had misunderstood Colls's case. The second point did raise a question of law, namely, whether use or enjoyment of a special light for twenty years gave a right to that special light, and thus enlarged the easement and increased the value of the servient tenement. It was important to observe that the umpire did not state as a fact that the owners of the servient tenements were aware that the premises were being used for businesses that required special light. It was said by the plaintiff's counsel that no evidence was given at the hearing before the umpire about that, and that if it was a relevant fact the case ought to be sent back to the umpire to find it. His Lordship did not agree with that contention. A plaintiff had to prove his case, and if he did not prove a necessary part of his case he must fail. The only fact, therefore, to be dealt with was the use and enjoyment of the special light for twenty years. What did that give a right to, it? This point was not decided in Colls's case, but was referred to in some of the judgments, which, however, there was nothing that assisted the plaintiff's contention; on the contrary their inclination seemed to be against it. There was a dictum in *Lanchester v. Mackenzie* distinctly opposed to the plaintiff's contention if knowledge was not to be assumed, and the reasons there given for thinking that no right could be gained in the absence of knowledge seemed unanswerable. If the origin of the right to light was a supposed lost right or covenant, as the cases seemed to show, who would assume that the owner of the servient tenement intended to grant a special right beyond the ordinary right when he was ignorant of the special user or enjoyment? His Lordship was, however, prepared to go further, and to hold that even twenty years' enjoyment to the knowledge of the servient tenement would not give a larger right. The result of the judgments in Colls's case was to show that the test of the right was whether the obstruction complained of was a nuisance. If one turned to the nuisance cases, did one find any trace of the doctrine that a person carrying on a delicate trade was entitled to more freedom from annoyance than ordinary people because for twenty years his neighbours had been aware of the trade he was carrying on and had left him undisturbed? His Lordship was not aware of any decision that suggested such a proposition, and it sounded absurd. In the judgments in Colls's and other cases it was implied, if not expressed, that in measuring the quantum of light to which the owner of the dominant tenement was entitled, the purpose for which he desired to use or did use the light should be regarded, and did not either enlarge or diminish the easement which he had acquired. It was well observed by Mr. Waugh, in his argument for the defendant, that the special user on which the claim was founded was a user on the dominant tenement, and not on the servient tenement, which was not in any way affected by it. If the doctrine was that laid down in Colls's case, that by twenty years' user all that was acquired was a right to prevent the defendant from building so as to interfere with the light previously enjoyed so materially as to amount to a nuisance, it would be logically inconsistent with this doctrine to hold that a larger right could be acquired. To produce the element of quantum of user would also work inconvenience and cause uncertainty. If the only right capable of being acquired was sufficient light for the ordinary uses of inhabitancy and business, the owner of the servient tenement knew his exact position; he knew within reasonable limits how high he could raise his buildings,

and whether, during the twenty years, it was worth his while to obstruct his neighbour's windows. If a right to special light was capable of acquisition without his knowledge he could not know his position, and if he had notice of some special light being required for his neighbour's business he could not measure the extent with any exactitude. It seemed altogether unreasonable to presume that any man would have made a grant of such an indefinite easement. On the whole, both reason and authority compelled him to decide this point against the plaintiff. The last point depended on the construction of the agreement for reference; but his Lordship could not draw from the words of the agreement any inference that the defendant intended to give up any legal defence. The dispute was whether the plaintiff had sustained legal damage for which an action would lie. The umpire had found that sufficient light remained for all purposes of ordinary user. That finding was substantially the same as that on which, in Colls's case, it was held that no action would lie. His Lordship, therefore, held that the plaintiff was entitled to no damages, and directed judgment for the defendant.

A stay of execution was granted with a view to an appeal.

THE TOMBS OF KNOSSOS.

A COMMUNICATION from Mr. Arthur J. Evans relating to the tombs of Minoan Knossos was read at the meeting of the Society of Antiquaries last week. Mr. Evans's last season's work at Knossos had been largely devoted to the search for the tombs in relation with the Minoan Palace and city. On a hill about a mile north of the Palace a large cemetery was discovered. One hundred tombs were here opened, the contents of which showed that the bulk of them belonged to the period immediately succeeding the fall of the Palace. The civilisation was, however, still high, and the character of the art displayed by the relics found showed the unbroken tradition of the Later Palace style. Among the objects brought to light were a number of bronze vessels, implements and arms, including swords, some of them nearly a metre in length. One of the shorter swords had a gold-plated handle engraved with a masterly design of lions hunting wild goats. The jewellery and gems discovered were of the typical "mature Mycenaean" class, and a scarab found in one of the graves is of a late eighteenth dynasty type. Among the painted ware "stirrup vases" were specially abundant, some with magnificent decorative designs. The tombs were of three main classes:—(a) Chamber tombs cut in the soft rock and approached in each case by a *dromos*; in many cases these contained clay coffins, in which the dead had been deposited in cists, their knees drawn towards the chin. (b) Shaft graves, each with a lesser cavity below, containing the extended skeleton, and with a roofing of stone slabs. (c) Pits giving access to a walled cavity in the side below; these also contained extended skeletons. Unfortunately, owing to the character of the soil, the bones were much decayed, and only in a few cases has it been possible to secure specimens for examination. A certain number of skulls are to be sent to England. On a high level called Sopata, about two miles north again of this cemetery and forming a continuation of the same range, a still more important sepulchral monument was discovered. This consisted of a square chamber, about eight by six metres in dimensions, constructed of limestone blocks, and with the side walls arching in "Cyclopean" fashion towards a high gable, though unfortunately the upper part had been quarried away. The back wall was provided with a central cell opposite the blocked entrance. This entrance, arched on the same horizontal principle, communicated with a lofty entrance hall of similar construction, in the side walls of which, facing each other, were two cells that had been used for sepulchral purposes. A second blocked archway led from this hall to the imposing rock-cut *dromos*. In the floor of the main chamber was a pit grave covered with slabs. Its contents had been rifled for metal objects in antiquity, but a gold hairpin, parts of two silver vases and a large bronze mirror remained to attest the former wealth of such. A large number of other relics were found scattered about, including repeated clay impressions of what may have been a royal seal. Specially remarkable among the stone vessels is a porphyry bowl of Minoan workmanship, but recalling in material and execution that of the Early Egyptian dynasties. Many imported Egyptian alabastra were also found, showing the survival of Middle Empire forms, besides others of early eighteenth-dynasty

type. Beads of lapis lazuli were also found and pendants of the same material, showing a close imitation of Egyptian models. Four large painted "amphoras" illustrate the fine "architectonic" style of the Later Palace of Knossos, in connection with which the great sepulchral monument must itself be brought. The form of this mausoleum, with its square chamber, is unique, and contrasts with that of the tholos tombs of mainland Greece. The position in which it lies commands the whole South Aegean to Melos and Santorin, and Central Crete from Dicta to Ida. It was tempting to recognise in it the traditional tomb of Idomeneus; but though further researches in its immediate vicinity led to the discovery of a rock-cut chamber tomb containing contemporary relics, it was hardly considerable enough to be taken for that of Meriones, which tradition placed beside the other.

Mr. Theodore Fyfe, architect to Mr. Evans's excavations, gave an account of the architecture of the Royal Tomb, accompanied by plans and sections.

CIVICS AS APPLIED SOCIOLOGY.

ON Monday a paper was read before the Sociological Society in London by Professor Patrick Geddes. In the course of it he said:—

Civics is, first of all, concrete sociology. It starts with a descriptive survey of each town, no less definite and detailed than is the naturalist's or the geologist's of his region. Comparison is next needed, and study of the actual stages of development; hence the desirability of studying the cities of each region by descending its river valley from the simplest mountain hamlets through minor towns and cities before reaching the great seaport or metropolis, which has developed not only from its own geographic situation, but from all the simpler communities above. The fundamental rustic occupations—hunting, pastoral, agricultural, &c.—are described by many economists as phases preliminary to the industrial and commercial development of a great city, the imperial and financial order of a metropolis; but we must view our existing civilisation as the complex struggle and resultant of these simple types and their complex developments. Geographic environment, pasture or vineyard, mine or seaport fundamentally conditions occupation; this in turn determines industrial organisation, and this the family type. From this in turn arises the characteristic type of institutions, and from this not only custom, but a tradition of morals and law. In this way we obtain an orderly method for description and comparison, which admits of graphic statement.

As a first and obvious application of this mode of geographic study of cities appears the criticism of the city's plan, and when possible its amendment; the monotonous rectangularity of the American city and the petty irregularity more common in our own being alike uneconomic and inartistic because ungeographic, irrational because irregular. With the improvement of communication the physicist's point of view thus introduced—that of the economy of the energies of the community—is only beginning. The economy of fuel, the limitation of smoke and fogs are further examples of this, and point to a more economic organisation of industrial activities generally. But this next carries with it the improved efficiency of the producers themselves. With these, however, the standpoint changes from the mere economisation of physical energies to the higher economy of organic evolution. The convention of traditional economics, that the productive capacity of the actual labourer is the sole concern of his science, thus gives place to what is at once the original conception of economics and the evolutionist one, viz. that the success of industry is ultimately measured neither by its return in wealth to the capitalist nor in money wages to the labourer, nor even by both put together, but in the results of industry upon the concrete environment, the family budget, the home, and the corresponding state of development of the family—its deterioration or progress. The organisation of industrial groups or of representative institutions found conducive to the well-being and progress of these prime civic units, the families, may next be traced into its highest outcome in city government. The method of analysis and graphic statement thus outlined may be shown to be even capable of useful application towards the statement of the best arguments of both progressive and moderate parties in city politics.

Passing from politics to culture, the needs of this also become clearer, each community developing a broadly

similar series of culture institutions, from the simplest presentation of its geography, landscape and architecture to the complex development of industrial, technical and scientific instruction, and with provision also for the institution of custom and ethic in school, law and church. Just as place, occupation and family are intimately connected in the practical world, so their respective culture institutions must more and more be viewed as a whole. Civic improvers will find their ideals more realisable as they recognise the complex unity of the city as a social development of which all the departments of action and thought are in organic relation, be it of health or disease. The view of theoretic civics as concrete sociology, and of practical civics as applied sociology may be more simply expressed as the co-adjustment of social survey and social service, now becoming recognised as rational, indeed in many cities being begun.

But the preceding view is as yet too purely determinist and the due place of ideals, individual and corporate, in their reaction upon the function and the structure of the city and even its material environment has next to be recognised. For where the town merely makes and fixes its industry and develops its corresponding schools, where its habits and customs become its laws, its morality, the community sinks into routine, and therefore decay. To prevent this a twofold process of thought is ever necessary, critical and constructive; on the one hand, a continual and critical selection of the ideas derived from experience, and the formulation of these as ideals, and, further, the organisation of these into a larger and larger whole of thought, in fact, a synthesis of a new kind. This critical spirit it is which produced the prophets of Israel, the questioning of Socrates, and so on to the best criticism of life to-day, journalistic and other. The corresponding constructive endeavour is now no mere school of traditional learning or of useful information, but of science or philosophy, which sooner or later react upon the view and conduct of life: hence the Academe of Plato, the Lyceum of Aristotle, the Mediæval cloister or the modern research institute have each and all been so fertile in their reaction upon the city's life, from which they seemed to be retired. For instead of simply deriving our thought from experience we now project our clarified thought into action. Similarly in art, we no longer imitate nature nor copy traditional design: art proper appears, shaping bronze and marble into its visions of the gods, and on a burnt and ruined hill-fort upraising the Parthenon. In general terms, instead of simply adjusting, as before, our mental image to the outward facts, we reverse the process, and with a new art conception, be it good or bad, we transform the outward world, like wax under the seal. Similarly for the material and moral organisation of the city, its temporal and spiritual powers; of these the Temple of Jerusalem, the Acropolis of Athens, the Capitol of Rome are Classic examples, and for the Mediæval city, pre-eminently the cathedral. The same evolution is traceable in the history of education, the university, past and present alike, ever finding its germ in the school of local and corporate tradition, but next developing as the cloister of meditation or of research, and finally expressing itself in that great collegiate life, unhappily lost or undeveloped in most universities, but which it has been the special world-service of Oxford and Cambridge in some measure to preserve and continue. These two elements of the complete, or dual city—the town and acropolis—are thus related like the two sides of a coin; and, in fact, throughout history are constantly presented upon the civic coinages.

In conclusion, then, our study of concrete cities is, in the first place, one of orderly geographic developments, but in the second is of the complementary development, that of the ideals, temporal and spiritual, intellectual and artistic, which men are ever projecting into their city's life. We have thus at once a view of historical developments and a wealth of suggestion towards the worthy continuance of these; our applied sociology will be on one side an increasingly economic and utilitarian development, on the other an increasingly idealist development also. The evils of existing city life are thus largely reinterpreted, and if so more efficiently combated; since the poverty, squalor and ugliness of our cities, their disease and their intemperance, their ignorance, dullness and mental defect, their vice and crime are thus capable not only of separate treatment but of an increasingly unified civic hygiene, and this in the widest sense, material and moral, economic and idealist, utilitarian and artistic. For even the most earnest and capable workers towards civic betterment in these many

fields may gain at once in hope and in efficiency as they see their special interests and tasks converging into the conception of the city as an organic unity, and this not fixed and settled, nor even in process of progress or degeneration from causes beyond our ken, but as an orderly development which we may aid towards higher perfection, geographic and cultural alike.

To guide the steps or phases of our civic growth, we must distinguish these. Just as we see the historic city declining, and the manufacturing, the imperial, the financial city as obviously dominant, so may we not also discern the incipient city, at least in its main aspects? Are not these (1) Neotechnic, *i.e.* of finer industries and arts, with correspondingly advancing specialism in sciences; (2) Geotechnic, *i.e.* of arts organised towards rustic and civic betterment (engineering, architecture, hygiene, &c.) with corresponding return towards the unification of knowledge, and (3) Eugenic, in which all these better organised resources of action and knowledge are concentrated upon the elevation of man. Specialised sciences and their returning synthesis thus rise into ethical and social idealism—civics proper; and this now seeks its increasingly clear and concrete expression in the legitimate "Eutopia" of the city, which action must advance if it would not delay. To discern, to define, to promote this realisable Eutopia of our city thus becomes the supreme problem of civics, as its survey was seen to be the fundamental one. The fuller awakening in cities of their existing agencies, their actual citizens, to their opportunities in both these parallel fields, of survey and of service, the calling forth of yet higher activities, individual and civic, are thus the urgent and the hopeful tasks of civics as applied sociology.

ART IN BIRMINGHAM.

ON Monday night was the prize distribution at the Moseley Road Branch School of Art, Birmingham. The Right Hon. William Kenrick (chairman of the museum and school of art committee) presided, and an address was also given by the head-master of the Municipal School of Art (Mr. R. Catterson Smith).

The Right Hon. William Kenrick said that one object which they had in view when the school was built had not been realised. That object, according to the Birmingham *Daily Post*, was the establishment of day classes for drawing and painting, which they hoped would be filled by the advanced pupils of private schools, and that those who, having left private schools, yet showed a taste for drawing, would go there to complete their studies in that building, especially designed for the purpose, equipped with all needful appliances, with beautiful examples, and where instruction was carried on by a staff of highly-experienced teachers. The evening classes, attended by 432, fully justified the establishment of the school. The average attendance had increased during the year, being partly due to the opening of a new class for designers, modellers and pattern-makers.

Mr. R. Catterson Smith, in the course of his address, said it was wise and pleasant sometimes to take stock of themselves, and to ask themselves what they were doing and why they were doing it. It was doubly wise to do this when they were struggling hard amid a rather confusing state of things, and that confusing state of things was just now very common, and particularly so in the matter of education. Indeed, we were in many ways in a state of revolt against worn-out methods or no method. Let them take such an institution as that school, which had been working along smoothly with some changes, not startling, but still changes, and let them ask why the city of Birmingham carried on such a place. Why were they taught to draw, to paint and to model? Mankind spent an enormous amount of time and money and energy in trying to make things nice to look at. It might be very stupid and a great waste of time, but still we would do it; we could not prevent ourselves. And drawing, painting and modelling had a good deal to do with many things pleasant to look at. Beautiful things were put before them to draw, model and paint from; these were often products of nature and often pieces of old art. If they went straight from the elementary school into the factory or workshop to make things which were intended to be pretty or beautiful, they would not be taught to draw or model or paint pretty birds, flowers or well-chosen casts, but would be put to the bench to cut, file, twist and solder things which they had no hand in designing and knew

little about the forms of, and consequently they would do many things they understood little about, and took very little interest in because of the lack of knowledge; and they would have very little chance of improving upon anything they did, except in what was called a mechanical way. To avoid this unsatisfactory state of things it had been thought advisable to establish those schools at great expense to the city and country at large, because the Government supplied funds to enable the schools to be carried on. Let them remember that they did not pay in fees anything but a small proportion of the cost; let them remember that well. They did not in form of fees pay for what they learnt in those schools; but it was hoped they would return sevenfold by their industry, and the beauty they would put into their work in their after life for the teaching they received. It would be quite evident to them that things might be done badly or well, in what was called good taste or bad taste. Those schools were not established to supply people skilled in the "new art style" or whatever style was in fashion, but to teach the best that they could, if possible, what was good to-day, to-morrow, and for ever. These Government municipal schools should set a standard of good taste and excellent work, and should not cater for the fashionable manufacturer or teach in any way what was believed to be inferior as testified by the opinions of the best judges. That was the high and honourable position the city had taken. Art, like religion, was open to many interpretations. In fact, art was closely allied to religion and always had been so. We must never forget what we owed to art in the way of making us happy. If they went to the services in a church or cathedral, they at once came under the influence of art. In fact, art was the medium through which religion was conveyed. Every little story they read, tune or song they sang, was all art—he might go on counting up until they perhaps would think there was nothing else but art in the world. Man's efforts in the art direction were very great indeed. But art might be good, bad or middling, and it was very difficult to say which was good, or bad, or middling. Those schools were started with the idea of "going for" good art. Ruskin, he observed, was one of thousands of writers and thinkers who had devoted their lives to the understanding of what art meant, for our Shakespeare, in his art-play writing, also thought there was a difference between good and bad art, and that it mattered. The Birmingham Corporation were convinced that it was worth while spending thousands of pounds a year to keep the art teaching of the city at a high level; and the School of Art committee were convinced that there was good and bad art, and that the good alone should be fostered. Well, how had they decided to treat what was good art in those schools? Art must in one way or another represent things we saw, and of these the objects of nature were the most beautiful. The more we knew about the things we saw the better chance we had of being able to represent them; and the best way they could get to know those things was by drawing and modelling and painting them. So they gave them in these schools birds, dogs, rabbits, &c., alive, and many things stuffed, as well as flowers and plants. Along with these they gave them a taste of old art—such as was done hundreds and sometimes thousands of years ago. He was more inclined to ask them to look at the old work than to draw from it—because, after all, we did not want to do the old work over again badly—that was to copy it—we wanted, on the contrary, to do work which represented our own feelings in the twentieth century, not the feelings of men who lived 1000 B.C. They found, too, that young people preferred to draw from things they saw about them than from old things they did not understand. They asked their students to draw from natural things, and also to draw them from memory, which was very important. He feared few could tell how many petals a wild rose had, or how the acorn was set on the oak branches, with all our talk of "the rose for England" and "hearts of oak are our men." That was the sort of happy art he was aiming at, and what would alone raise our English art to the level of foreign art. He felt sure we could hold our own with any race on earth if we only tried in the right way. He advised the students to work calmly and with perseverance, and if they had ambition let it be to prove that we could do as beautiful things as our forefathers did. And to parents he would say a lofty aim paid in the long run much better than always measuring things by *£ s. d.* Let them remember that youth was the time to sow the right sound seed in their children's minds. They there were pledged to do

their best to plant in them the ideas which should lead in after life to the highest results. "Let us not be weary in well-doing, for in due season we shall reap if we faint not." The certificates and prizes were then distributed.

THE ANCIENT RUINS IN RHODESIA.

AT a meeting of the Royal Geographical Society, held on Monday in the theatre, Burlington House, Mr. Richard N. Hall delivered a lecture on "The Great Zimbabwe and other Ancient Ruins in Rhodesia."

In his opening remarks Mr. Hall expressed his high appreciation of the work of the late Mr. Theodore Bent at the Great Zimbabwe. The recent researches, he said, had yielded additional internal evidence in support of Mr. Bent's conclusions that the oldest portions of the Great Zimbabwe, and a certain number of ruined structures elsewhere, testified to Southern Rhodesia having once been a colony of the ancient empire of Saba, in South Arabia. Not a single one of the hundreds of ruins in Rhodesia could be said to have been more than partially explored. Many ruins of major importance, some rivalling in certain respects the Great Zimbabwe, had never been seen save by casual travellers, while it still required more than the labour of a lifetime to unearth but a portion of the Great Zimbabwe area. Dr. Petrie informed him that his difficulty in Egypt was not that of means, but of obtaining sites to explore. In Rhodesia they had the sites, but not the means. Research in Rhodesia had always been by unassisted individual effort, and hence it had been spasmodic and without organised system. Sir William Milton, the Administrator of Rhodesia, had shown in a practical form his deep interest in the preservation of the ruins of Great Zimbabwe, but every pioneer bemoaned the preventable dilapidation at many of the most important ruins throughout the country. This was a matter of grave concern for archæologists everywhere, and one that demanded prompt attention. Since 1892 decided progress had been made both at Great Zimbabwe and elsewhere in the investigation of the ancient monuments. Mr. Hall proceeded to describe the advance made during the last three years in researches. Among the researches which had been made were the re-examination of Great Zimbabwe, the re-examination in the light of discoveries at Zimbabwe of ruins elsewhere in Rhodesia, the discovery and examination of numerous and altogether fresh ruins, Mr. Hall's inspection on behalf of the Rhodes trustees of the ruins of the Myanga area, the plans prepared by Mr. Franklin White of certain ruins in Matabeleland and also his recent survey of the elliptical temple; the inspection and reports on some scores of stone-built villages and stone rampart forts on hills of the Makalanga and Barokie, the successful tracing of several additional chains of forts, and the securing of the exact locations within numerous ruins of some 200 relics and "finds" representing periods extending from prehistoric times to within a few score years ago. But while these and other internal evidences had been obtained from the actual ruins, other researches had within the last few years been prosecuted in various quarters from which much additional light had been shed on the origin of the Rhodesian monuments. The progress made and the results obtained, he said, enabled them to pronounce some judgment on certain of the distinct types of ruins to be found in Rhodesia. It might be taken as a very modest estimate that there had been located in Rhodesia no fewer than 300 distinct ruins and groups of ruins; and these, or such of them as were first discovered, were classed by all writers as "ancient," this term having also been applied to many of such ruins which were of Mediæval and even of later times. Probably it would be more correct to say that the term "ancient" as relating to the suggested Sabæan occupation of Rhodesia could only be applied to a few scores of the 300 of Rhodesian buildings, though later investigations might show that certain other ruins were also entitled to rank under the title of "ancient" as so understood. Of this older class of ruins, the oldest portions of the elliptical temple and of the Acropolis ruins, and probably certain walls in the Valley of Ruins, might safely be considered to represent the most ancient form of architecture extant in Rhodesia. But there were many ruins showing distinct forms of architecture and construction hitherto termed "ancient," and once considered to be such, which could now be shown to be ancient in a modified sense only. There existed a further type or class of ruins of certain well-defined style of architecture and construction, which gave evidence of erection at a still later date, and these yielded no relic which, in the opinion

of the highest expert authorities, could date back beyond the thirteenth, fourteenth or fifteenth centuries of this era. To these two latter classes he believed that the bulk of the ruins in Rhodesia belonged. Ruins also existed which had clearly been the work of some comparatively later indigenous people, the construction of which did not suggest any controlling influence of a foreign race. In "The Ancient Ruins of Rhodesia" the authors defined two principal classes of ages of ruins to be found, and these were respectively called first and second period buildings. It was from a consideration of the type of first period ruins alone that authorities could demonstrate that the architecture of the oldest ruins was not evolved in Rhodesia, but was directly imported from the Near East. Looking at the Great Zimbabwe, they found the evidences of ancient civilisation to be abundant. There was overwhelming proof in this direction in the actual walls, in the relics discovered on the lowest floors, and in the "finds" of gold of the early period, and in the character of a religion which constrained the ancients to devote such an immense amount of patient labour and such marvellous constructive skill in the plan, erection and decoration of their temple. The Zimbabwe temple, he said, was now admitted on all hands to be the finest and most intact example of a nature-worshipping shrine known to the world. The mural decoration of the chevron pattern, the monoliths, and also the remains of small towers on the summit of the east wall over the pattern, the great tower of conical form, the platform, and the general plan of the structure—all pointed unmistakably to some knowledge of geometry and astronomy on the part of the builders. The application of these sciences for nature-worshipping purposes was common to the ancient Semitic peoples, whether of Babylonia, Phœnicia, Arabia or elsewhere. The astronomical knowledge of the Semitic race was profound. One had but to glance at the grandly sweeping and massive walls of the temple for convincing proof of a high state of skill in architecture on the part of the builders. Many devices of a people thoroughly conversant with military engineering and defence were the prevailing features of all the Sabæan buildings throughout the country. These, in their ingenuity, massive character and persistent repetition at every vantage point, astonished the best experts of modern military engineering science, and compelled the conclusion that their constructors must have been a civilised race. This was proved also by the minute and delicate engravings on gold ornaments—so minute and delicate that nineteen out of twenty people examining them would not detect the presence of decoration. The carvings on soapstone bowls and beams told of a sculptor's art which was by no means crude, and their gold-mining operations showed that these ancients possessed a wonderful knowledge of mineralogy. The sinking of shafts, the driving of long adits, the avoidance of the more refractory ores, testified to their skill as miners.

"TASTE."

IN his last Academy lecture, according to the *Morning Post*, Mr. Clausen said that a picture began its life when it left the studio. The painter in his work had done something that had expressed what his insight into nature had given him, and that conformed to his standard of taste. People might like or dislike it, but in any case contemporary criticism was of such uncertain value that the picture could not take a definite place for fifty years at least. So, in seeking standards of taste—and there were many—we must go back to the old painters. There were pictures that might in some ways be good but yet were not attractive to us—in fact were repellent—and we call them in bad taste. Taste in a picture was like a naturally good manner in a man, a matter of temperament rather than of clothes. If we chose a friend we liked him to be simple, reliable, without swagger; and so should a picture be—in accord with the best we know. But we were not to imagine that the taste we admired was the only one. Each quality in a picture had its own standard, and in really great works the qualities were balanced as they were in nature. Phidias, Michel Angelo, Raphael, Velasquez, Titian, Rembrandt—these men, by common agreement, were our standards, and theirs was the best work. To the painters we might add Claude and Constable. We might take Raphaël as our standard of taste for composition and generalisation, but for actual painting the standard was Velasquez. The only reference of Velasquez was to nature, and this was the reason of his greater modernity as compared with Raphaël. The

portraits of Velasquez seemed so much closer to us because the art in them was so concealed that we did not recognise it but saw only nature. In Rembrandt we were appealed to by the beauty of light and shadow, and in Titian by the beauty of colour in light.

If we accepted the theory that taste must depend on some standard of truth it did not always follow that truth was in good taste. We saw pictures in the Salon—decapitations, hospital scenes and so forth—that though truthfully painted were repugnant to our senses. Of course, said Mr. Clausen, he did not mean to say that we should paint only pleasant subjects, but that the things represented should be in general accord with the feelings of human nature. And Rembrandt raises this question, for with all his magic his pictures were sometimes repellent, as in the case of the "Butcher's Shop" in the Louvre. Despite its splendid beauty of paint and of colour it could not be considered in good taste. The tavern scenes of Teniers, Jan Steen and Brouwer touched us in the same way, though not so strongly, but we forgave the bad taste because of the qualities of painting and light and colour. If we compared Steen and Brouwer with Watteau we found in one case that all the elements of the picture were poor and mean and ugly, and that in the other they were all chosen to please—chosen for their beauty. When we thought of taste our minds turned naturally to Watteau. Yet Watteau's charm depended much less on his chosen elements than on his technical qualities, his beautiful jewel-like colour and his light and shade. When we compared with Watteau the work of his imitators, who used the same properties, how poor and undignified their pictures seemed. Harmony of colour and truthful lighting were therefore elements of taste. Mr. Clausen justified in the case of Watteau the forcing of his shadows, for in no other way could he have got his brilliant, sparkling lights.

Addressing himself especially to the students, Mr. Clausen said that we all had our ideals, and in trying to get near them nothing was better than self-criticism. Let them—he had done it himself—get a good photograph of some fine old painting and hang it on the wall beside a picture of their own. Let them see which they would tire of first. It was selection and expression that generally made the old work so much better than our own. But it was almost impossible to work without coming under the influence of the taste of our time; we were in the current and could hardly help being affected by it. Some of the greater men were probably but little affected by the current—Hogarth, for example, and Chardin. Nor were Millet and Corot, artists whose work their own times found it difficult to accept, though we wonder at the difficulty now. The difficulty in accepting new views was probably not so much their novelty as a kind of resentment that the current ideals were wrong, for no one liked to be asked to reconsider his ideal. Public taste, of course, rested on the standard made by painters. In fact, it was a question whether there was a standard of taste in painting at all except among painters. The public, with very few exceptions, did not bother their heads about the matter at all, and all the problems that painters worry over interested them far less than an earthquake in China. Exhibitions of pictures in some form were as old as the hills, but the modern development of large exhibitions had brought about a change that was not altogether for good. The painter at these exhibitions was tempted to bid for public rather than artistic approval, and, as frequently at the Salon, the object had been to try who can shout the loudest. There was less of this over here, but yet we said sometimes, "A good exhibition picture—yes; but I shouldn't like to live with it." But what was a picture good for except to live with? The tendency of the large exhibition was to make the painter force the colour of his pictures, to exaggerate their light and shade, to disregard all the modesty of nature, and to be in fact out of taste. All painters knew how subtle was their art, but only as they got on in life could they appreciate the qualities of the greater men. Those who did not paint could not appreciate those qualities—how should they? But the painter had good standards to guide him, and he had only himself to blame if he neglected them and followed the taste of the public, who preferred to see in pictures the facts that they understood rather than the finer qualities that they could not appreciate. Mr. Clausen concluded this the last of his present series of addresses with a further reference to Watts, of whose work he had spoken more than once. "He was, I think," said Mr. Clausen, "the greatest artist of our time."

The attendance at the lectures was unusually numerous.

GLASGOW ARCHITECTURAL ASSOCIATION.

AT the last meeting of the Glasgow Architectural Association Professor Eugène Bourdon read a paper on "The Education of the Architect." He said that it was only by assisting a good practical architect that the pupil could profit by the theoretical tuition that was imparted to him in school. Without any practice the pupil might become a good draughtsman, an able calculator, but he could never be truly an architect. Still, there was a necessity for schools. Architecture must be taught in all its branches in a school of architecture. School and office training were both necessary, and the question was how to divide a young man's time between school and office. He suggested a four year's course at a day school of architecture, or, where students were unable to attend such a school, they might go to evening classes, and in seven years cover pretty nearly the same ground as a student in the four years' course at a day school.



The Angel Steeple, Canterbury.

SIR,—I shall be glad if you will allow me to state that the application of whitewash to the exterior of the tower would, in my opinion, for scientific reasons be ineffectual and an extremely grave mistake.

It was demonstrated by Professor Church, F.R.S., in his memoranda to the First Commissioner of Works (1901-3), that at Westminster the chief cause of the decay in stonework, consisting of sandstone cemented by carbonate of lime, has been the action on the calcareous matter of sulphuric acid in the atmosphere of the neighbourhood, the result of this action being the production of soluble gypsum and other substances. And I have myself shown, in a paper read before the Chemical Society (Proc. 17 (1901), 201), that a similar action has proceeded to an astonishing extent in some of the upper portions of the fabric of St. Paul's Cathedral; so much so that on the underside of the coping-stone of the stone gallery the gypsum produced during the past 200 years forms a species of stalagmite, in places three-quarters of an inch thick. In more exposed situations the sulphate of lime, being soluble, has been washed away, leaving the Portland stone scarred, pitted and exhibiting other evidences of the erosion it has suffered.

The layer of carbonate of lime left by the process of whitewashing would be subjected to precisely the same chemico-mechanical influences; it would quickly be converted into soluble compounds; the preservative effect could only be a negligible quantity; and there are other reasons for regarding whitewash as a most undesirable and injudicious external application to a glorious specimen of ancient architecture.

Admitting that the air of Canterbury contains less sulphuric acid than that of London, there must be a large and increasing amount of coal burnt in the Kentish city; and the difference in the atmospheric action on buildings is doubtless only one of degree. Moreover, apart from sulphuric acid, rain and carbonic acid alone would possibly exert sufficient solvent action upon the whitewash film, within a brief period, to render nugatory its supposed preservative influence.

For these reasons, Sir, I am an earnest advocate of the treatment with baryta-water recommended by Professor Church. By the action of sulphuric acid in the atmosphere this solution will yield a compound (sulphate of barium) almost totally insoluble in water—unlike gypsum. If the baryta method be not used, I am strongly of opinion that it should be a *sine qua non* with regard to any other process that the result of atmospheric action shall be an insoluble substance.—I am, Sir, yours obediently,

E. GODWIN CLAYTON, F.I.C., F.C.S.

Chemical Laboratory, 32 Holborn Viaduct, E.C.:

January 19, 1905.

Land Transfer.

SIR,—It is gratifying to read in the papers that Mr. Gerald Balfour announced at the dinner of the Leeds Law Society on the 21st inst. that it was not the present intention of the Government to introduce any measure for the compulsory extension of the Land Transfer Act. This disposes satisfactorily of the reports that, apparently on authority, have been in circulation since September last.

It would, however, have been still more gratifying if Mr. Balfour had been able to announce that the Government were now prepared to grant the inquiry into the working of the official system of conveyancing that was to have followed the three years' experimental working of the system in London—a period that expired in December 1901. Why should London alone be saddled with the system if it is not good enough for the rest of the country? Unless the authorities intend that London shall have the system for all time, it is clearly in the public interests that the overdue inquiry should take place at the earliest possible moment.

The facts set out in my letter of the 9th inst. that you favoured me by inserting in your paper are surely sufficient to prove that an ample case is made out for holding an immediate inquiry.—I am, sir, your obedient servant,

J. S. RUEINSTEIN.

5 Raymond Buildings, Gray's Inn :
January 24, 1905.

GENERAL.

An Election took place at the Royal Academy on Wednesday evening, when Mr. David Murray, painter, was selected an Academician, and Mr. David Farquharson, painter, and Mr. Reginald Blomfield, architect, were elected Associates.

Mr. Birnie Rhind, A.R.S.A., has been commissioned to execute a colossal statue in bronze of Colonel Light, the founder of the city of Adelaide, South Australia. The sculptor shows Colonel Light in the uniform of 1830, the figure poised on the left leg, pointing forward with the right hand as if in the act of indicating to his subordinates the site where the town should be, while in his left hand he holds a plan. The statue will be 9 feet high.

A Mausoleum with crypts patterned after the plan of those in Westminster Abbey is to be constructed in Montrose cemetery, Chicago. The structure is to cost 150,000 dols.

Mr. A. E. Powles, architect, Northwich, has been successful in the limited competition for the proposed new elementary school, Northwich, of which Mr. H. Beswick, county architect for Cheshire, acted as assessor. The estimated cost is 10,500*l.* The committee have accepted the plans.

The Royal Institute of Public Health will hold a congress in King's College, London, from July 19 to July 25. There will be nine sections, including one dealing with engineering and building construction:—(a) Municipal; (b) educational. In connection with the congress an exhibition will be held in the Polytechnic, Regent Street, W.

A Series of Lectures, which will be continued weekly till the middle of March, has been inaugurated at the Glasgow Art Gallery. These lectures will deal with the peculiar features of early Dutch art, partly by Mr. Paton and in part by Mr. Rennie, alternating with a series by Mr. Macnair devoted to the geological history of the Clyde valley. The final lecture will be delivered by Mr. D. S. Riddoch, president of the Glasgow Ruskin Society, on Holman Hunt, *apropos* of the famous work "The Flight into Egypt" by that artist, now in the Gallery on loan from Mr. J. T. Middlemore, M.P.

Mr. Holman Hunt announces that he has completed his long protracted and oft abandoned book on the pre-Raphaelite movement. The final reason for completing it is that there has been not only misunderstanding about persons concerned and their priority, but also as to the very nature of pre-Raphaelitism itself.

The Louvre authorities have given to the British Museum a cast of the block of black diorite upon which the Babylonian King Hammurabi, about 2200 B.C., inscribed what is usually called "The oldest code of laws in the world." Professor De Morgan, the director of the French expedition to Susa, discovered it about two years ago.

The Stock Exchange Art Society have arranged for the following lecture to be given at the London Institution:—Sir W. B. Richmond, R.A., on "St. Paul's," on Thursday, February 2, at 4.30.

Mr. Henry Theobald, F.S.I., of 6 South Street, Finsbury Pavement, E.C., desires us to state that he is not the surveyor who was plaintiff in the recent action of Theobalds v. Clements, nor is he in any way related to him.

The Council of the Surveyors' Institution announce that with a view to the encouraging of reading of papers at the ordinary general meetings it has been decided to award a gold medal for the best paper, if of sufficient merit, read during the session.

Applications are invited for the post of secretary of the Surveyors' Institution, Great George Street, Westminster the salary offered commencing at 600*l.* per annum. Particulars may be obtained of Mr. P. Currey, hon. secretary of the Institution, 37 Norfolk Street, Strand.

The Lord Mayor of Liverpool (Mr. John Lea) will open the annual exhibition of the Royal Glasgow Institute of the Fine Arts on Saturday, February 25.

The Buckinghamshire Archaeological Society celebrates its jubilee in July, and arrangements are being made for an exhibition of antiquities from all parts of the country.

The Carnegie Dunfermline Trust offered premiums of 25*l.*, 15*l.* and 10*l.* for plans of a branch library at Townhill, and upwards of sixty sets of plans have been received.

The German Emperor has had a letter written to Dr. Corbould, Kensington, paying a tribute to his father, the late Mr. Edward H. Corbould, R.I., who acted as drawing-master to the Kaiser's mother.

Lady Constance Shaw-Lefevre is making an appeal on behalf of four daughters of the late Marquis de Foulon, who settled in England and practised as an architect. Among the designs in which he co-operated were those of Bridgewater House and the Marble Arch. The daughters were left penniless at his death, and are now unable to support themselves.

The Postmaster-General received a deputation on the subject of the disfigurement of commons, open spaces and places of natural beauty by the erection of lines of posts and wires. The deputation was arranged by the Commons and Footpaths Preservation Society.

The Minister of Education in Italy has, through the Italian Ambassador, tendered the warmest thanks of the Italian Government to the University of Oxford for having so generously gone to the aid of the National Library of Turin with the gift of books, so as to partly lessen the great loss sustained through fire by that institution.

The Memorial to Canon Ainger will take the form of a stained-glass window in the eastern side of the Newton chapel at Bristol Cathedral, as well as a marble tablet, probably in one of the Berkeley recesses in the nave.

The Institute of Archaeology connected with Liverpool University have arranged for a course of lectures dealing with recent researches on the ancient sites of Greece and with the historical geography of Western Asia, particularly Palestine, to be delivered on successive Wednesdays of this spring term in the engineering theatre of the University. They will be copiously illustrated with the lantern. The lecturers are Dr. Caton, F.R.C.P., and the Rev. M. Linton Smith.

Mr. John Murray Scott, the legatee of Lady Wallace, last week sold the château and grounds of "Bagatelle" to the city of Paris. As the first instalment the sum of 2,000,000 frs. was paid. A second million will be paid in 1906, a third in 1907, and a final payment of 2,500,000 will be made in 1908.

Mr. James C. Inglis, general manager of the Great Western Railway, has been nominated by the Council of the Institution of Civil Engineers as one of their representatives on the Engineering Standards Committee, in the place of the late Mr. John Allen McDonald, engineer-in-chief of the Midland Railway.

The Royal Academy will open its summer exhibition on May 1. Friday, March 24, will be the receiving day for water-colours, miniatures, drawings in black and white, architectural designs and all works of whatsoever nature that are sent in under glass. Oil-paintings will be received on Saturday and Monday, the 25th and the 27th, and sculpture on Tuesday, March 28.

The Free Library Committee of Preston Town Council recommends that a stained-glass window by Mr. Henry Holliday be inserted in the central window at the west end of the principal floor of the art gallery at a cost of 300 guineas.

The Tower of St. Andrew's Church, Denton, Lincolnshire, which was built between 1350-1400, was reopened on the 12th inst. after undergoing complete restoration. Owing to dilapidations which had rendered it dangerous, immediate renovation was necessary, and the advice of Mr. Weir was obtained. On his advice the interior of the tower was strengthened by a broad belt of solid brickwork, the exterior repointed, the vane and pinnacles renewed, a lightning conductor placed in position, and the clock regilded.

A Paper on "Designing for Mosaics and Stained Glass" will be read before the Northern Architectural Association by Mr. J. Eadie Reid on the 31st inst.



"INK-PHOTO" SPRAGUE & CO. LTD. 4 & 5, EAST HARDING STREET, FETTER LANE, E.C.

NEW MAGISTRATES' OFFICES, BARGATE, SOUTHAMPTON.

E. F. HARMER, Architect.



THE HECTOR MACDONALD NATIONAL MEMORIAL, TO BE ERECTED ON THE GREEN HILL,
DINGWALL, ROSS-SHIRE.
(ACCEPTED DESIGN.)

The Architect, Jan. 27th 1905.

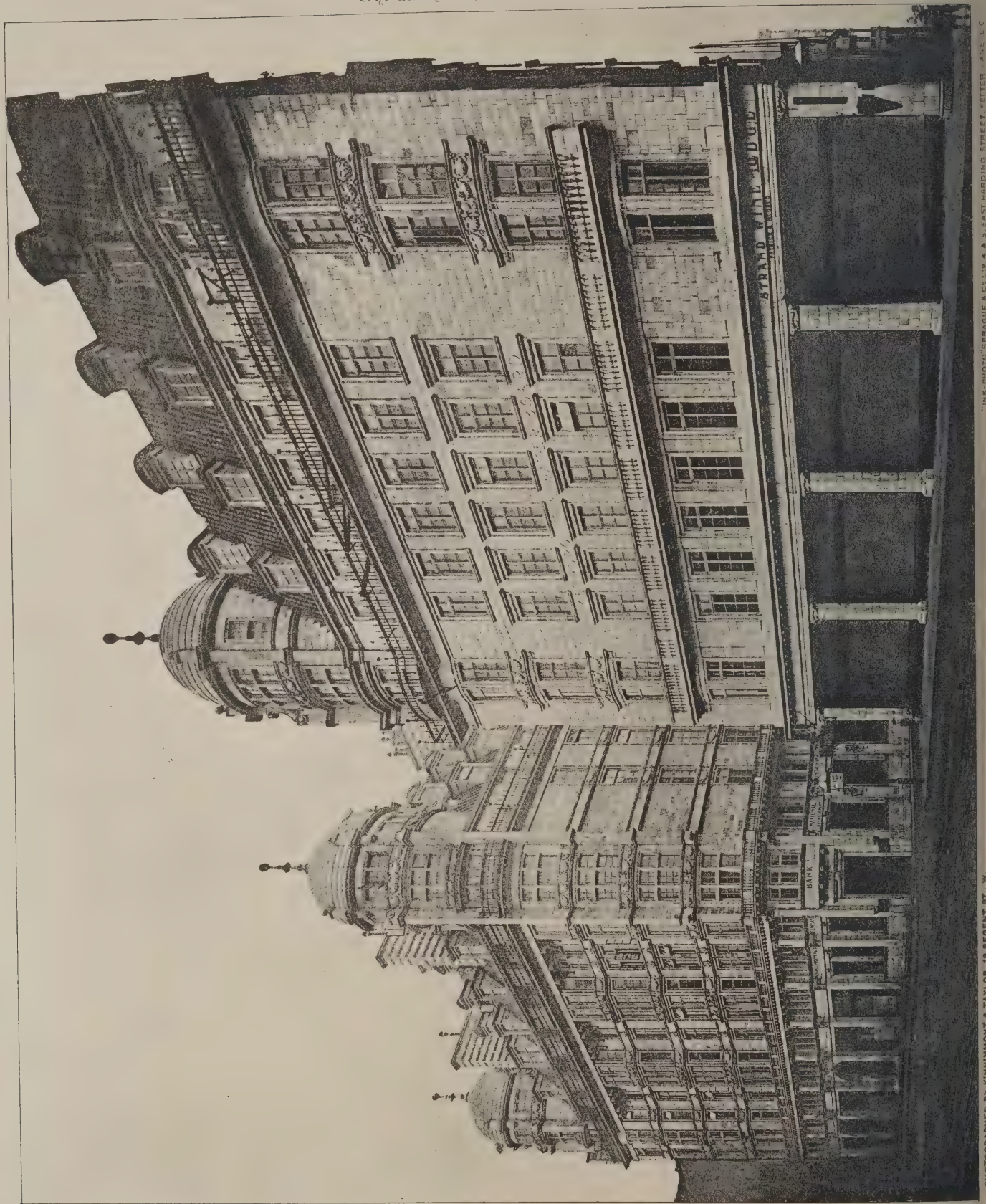
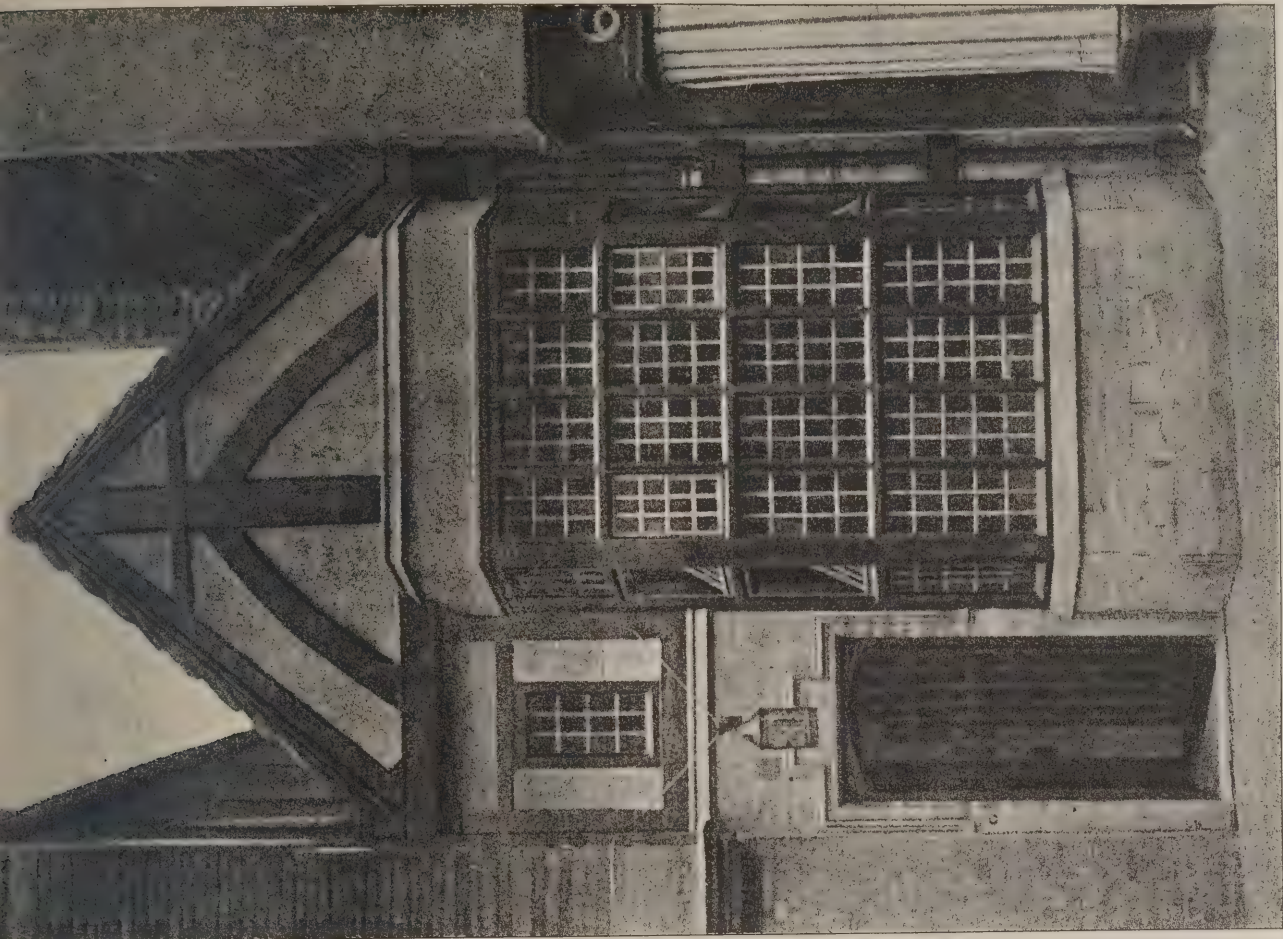




PHOTO BY EDWARD REEVES, LEWES.

ORIGINAL FORM.



1/4" PHOTO SPRAGUE & CO. LTD. 4 & 5, EAST HARDING STREET, FETTER LANE, E.C.

AS ALTERED.

THE OLD CHURCH HOUSE, LEWES.

Messrs. ERNEST RUNTZ & FORD, Architects.



PHOTO-LITHO. SPRAGUE & CO. LTD. 4 & 5, EAST HARDING STREET, FETTER LANE, E.C.

*Continental Sketches by A. H. Luig
In the Cloisters of S. Francesco, Assisi*



PHOTO-LITHO. SPRAGUE & CO. LTD. 4 & 5, EAST HARDING STREET, FETTER LANE, E.C.

*Continental Sketches by A. H. Haig
A Doorway in Genoa*

The Architect, Jan. 27th 1905.





PHOTOGRAPHED BY BEDFORD LEMERL & CO.

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BALFOUR PLACE, FROM SOUTH-EAST.

R. S. BALFOUR, Architect.

The Architect.

THE WEEK.

TH inside and outside the County Council there are people who would be glad if it were possible to see the Strand restored back to its former condition. The chase of property and the expenses in connection with the clearance have made building sites so valuable, that latitude must be allowed to those who will acquire them. Already it has been objected that the single building which has been put up, viz. the Gaiety Theatre, is too colossal to be in keeping with Somerset House and the churches. The plans for the Gaiety showed a more expensive building than could be erected under ordinary circumstances. At the London County Council wished to have it still more ornamental. Accordingly an agreement was entered into between the Council and the Gaiety Theatre Company by which it was provided that the company should build in the Strand a new theatre according to plans, elevations, &c., to be approved by the Council, but that if the Council required such elevations to be of a different and more elaborate and more costly character the company should comply with the Council's requirements on condition that the increased cost should be paid by the Council. The extra cost to the company amounted to about £1000. The claim was referred to the arbitration of Mr. A. FRANKLIN, and he has awarded £17,217. together with costs amounting to £716. 7s. There was some dissatisfaction expressed at the meeting of the Council on Tuesday that so much of the ratepayers' money was to be expended on what was called embellishment. And the chairman of the improvements committee could only reply that the buildings to be erected should be worthy of the site. The same law should, however, be applied to other buildings along the frontage. If ordinary business principles are accepted it is impossible to erect buildings that will be profitable to the owners, and at the same time will correspond with any of the numerous plans which have been proposed for adoption. The Council committed one great error in listening to advisers who are indifferent to economy, and the metropolis will have to pay a heavy penalty for that weakness.

IN buying pig-iron in large quantities it is not always easy to fix a definite standard. The ores found in Great Britain are of various qualities according as the carbonates, the hematites and other constituents abound in them. A rough and ready nomenclature exists, and what are known as "mixed numbers" are accepted as signifying a fairly determinate quality. But in all such cases it must be expected that the interpretation of the name will be uniform. A vendor may consider "mixed numbers" applicable to ores which a purchaser believes to be of inferior quality. A difficult case of the kind came to an end before Mr. Justice CHANNELL on Monday. Mr. WATSON, an ironmaster, sought to recover from Messrs. WATSON, of Middlesbrough, balance of an account for pig-iron and damages for breach of contract by not taking the quantity ordered. The case for the defendants was that the iron received was not up to the "mixed numbers" standard, and they were compelled to make an allowance of 1s. 6d. a ton to the people to whom the iron was sold by them. Mr. Justice CHANNELL came to the conclusion that there was not such a standard expressed by "mixed numbers" as was supposed to be generally understood. The defendants were not entitled to anything better than West Cumberland iron, but they were not to be put off with worse. He came to the conclusion that the iron was not of the quality which the defendants were entitled to receive, and the plaintiff's claim for damages was set aside. The

defendants were also granted the 1s. 6d. per ton which they had allowed to their customers. The decision, therefore, unsettles the belief that "mixed numbers" means more than an average product. If a special iron is required, it will be advantageous to have stipulation to that effect which will make the agreement definite when it has to be considered in a court of law.

THE phrase "the engineer for the time being" is tolerably familiar, and is supposed to designate the person who holds a special appointment. If in a deed it were mentioned that something was to be done by Sir ALEXANDER BINNIE, the engineer to the London County Council, or the engineer for the time being, the words would be interpreted as pointing to Mr. FITZMAURICE, who at present fills that office. That the phrase may have another meaning has been exemplified in the case of *STRACHAN v. Cambrian Railway Company*, which came before the Court of Appeal on Monday. The plaintiff was the contractor for two light railway companies which are vested in the defendant company. In the contract deed it was stated that "any dispute which may arise under this contract shall on the completion of the works, and not before, be referred to ALFRED JONES COLLIN, or other the engineer for the time being of the light railway, and his decision shall be final and conclusive." When a dispute arose it was referred to Mr. COLLIN, but he declined to act, partly on account of ill-health and partly through his having a personal interest in one of the lines. The company considered the subject should be referred to Mr. COLLIN's successor, Mr. M'DONALD, who was the engineer for the time being, and this conclusion was approved by the Master of the Court. The case was brought before Mr. Justice BRAY, who held that the engineer for the time being referred to the engineer who was acting at the time of the dispute, or, in other words, to Mr. COLLIN. As he had retired there was no definite arbitrator according to the terms of the contract. The defendants appealed, and the Lords Justices affirmed the decision of Mr. Justice BRAY. The phrase "for the time being" is employed every day, but evidently there is some risk attached to it.

THE discontent which arose lately in Liverpool when it was found that the contract for the new building of the Liverpool Infirmary was given to Messrs. W. BROWN & SONS, of Salford, instead of a local firm, was referred to at the annual meeting of the supporters of the Institution on Tuesday. Mr. ANDERSON considered the charges against the committee were unjust. It appears from his statement that (1) Messrs. WILLIAM BROWN & SONS have premises in Liverpool for which they pay rates and taxes, and can consequently claim to be a Liverpool firm; (2) the contractors are now employing exclusively Liverpool labour on the job, and have promised to continue to do so; (3) the sub-contract for slating and plastering is placed with a Liverpool firm; (4) the sub-contract for plumbing, painting and glazing has been placed with a Liverpool firm; (5) the sub-contract for the ironfounder's work has been placed with a Liverpool firm; (6) the fire escape staircases have been placed with a Liverpool firm; (7) Liverpool firms are to be asked to compete for the boilers and heating apparatus generally; (8) Liverpool firms will be asked to compete for the cooking apparatus; (9) the asphalt used on the job is obtained from and laid by a Liverpool firm; (10) the lime used on the job is obtained through a Liverpool agent; (11) the cement used on the job is obtained through a Liverpool agent; (12) when the furnishing comes to be done local firms will be asked to compete; (13) the clerk of works is a local man; (14) the quantity surveyor is a Liverpool man; (15) the architects are a Liverpool firm. One of the reasons for giving the contract to Messrs. BROWN & SONS was that Portland stone will have to be used for the windows, and their price for stone was the lowest.

ALBRECHT DÜRER.

A VIEW of Nuremberg inevitably recalls the life of its great artist, ALBRECHT DÜRER. As the American poet wrote some sixty years ago:—

Here, when art was still religion, with a simple reverent heart,

Lived and laboured Albrecht Dürer, the Evangelist of Art; Hence in silence and in sorrow, toiling still with busy hand, Like an emigrant he wandered, seeking for the Better Land. *Emigravit* is the inscription on the tombstone where he lies; Dead he is not, but departed—for the artist never dies.

It is now perceived there was a special fitness in his having such a birthplace; for DÜRER possessed so many of the highest characteristics of the German nature he is to be considered as a representative Teuton. But there can be no question he was dissatisfied with Nuremberg, and some of his contemporaries believed he was out of place there. VASARI wrote of him:—"If this diligent, industrious, universal man had been a native of Tuscany, and if he could have studied as we have done in Rome, he would have been the best painter in our country [*i.e.* Italy], as he was the most celebrated that Germany ever had." DÜRER was discontented in Nuremberg, but that to some extent arose from his natural susceptibility to the influences of his time. He could not, however, fail to perceive how different his life might have proved if he had been born in Venice, Rome or Florence. He described himself as being treated by the Venetians as if he were a gentleman, while in Nuremberg he was simply a parasite. "Hie bin ich ein Herr—daheim ein Schmarotzer." Evidently the seeking of commissions was distasteful to him.

The publication of ALBRECHT DÜRER's writings, of which a volume has just appeared in Berlin under the editorship of Herr MAX OSBORN, revives the particulars about the artist's visit to Venice, which was one of the few agreeable incidents in his life. It is generally supposed that he journeyed to the city in order to assert his rights as the designer of a number of plates which MARC ANTONIO had imitated, and to which he attached DÜRER's monogram. In Venice he made acquaintance with ARETINO, "the scourge of princes," who was influential although a young man. DÜRER had also a commission to purchase some jewels for his friend PIRKHEIMER. He was therefore able to study many classes besides lawyers and senators. DÜRER recognised the good qualities of the Venetians. But he adds that they were among the greatest rascals on earth. In conversation with the painters he realised the shortcomings of his own works, in which they discovered no trace of the antique, which in Italy was a serious omission. But there was a novel power in him which they recognised. TITIAN's *Tribute Money* is supposed to owe much to DÜRER. JOHN BELLINI, who was very old, "but still the best in painting," requested the favour of his portrait. An important result of the visit to Venice was the correspondence with RAPHAEL.

To us DÜRER is mainly known through his etchings and engravings. But Lord LEIGHTON said that as a colourist he was rich and vivid, although not always unerring as to his harmonies or alluring in his execution. It is believed he was one of the artists whose works were admired by Lord ARUNDEL, and his pictures must have been familiar to Lord BACON, for he remarked "a man cannot tell whether APOLLO or ALBERT DÜRER were the more trifler; whereof the one (DÜRER) would make a personage by geometrical proportions, the other by taking the best parts out of divers faces to make one excellent. Such personages, I think, would please nobody but the painter that made them—not but I think a painter may make a better face than ever was, but he must do it by a kind of felicity (as a musician that maketh an excellent air in music) and not by rule." DÜRER's geometrising and his endeavour to establish an invariable scale of proportion for the human frame (for which he is said to have been inspired by JACOPO

WALSCHKE), as well as for letters in printing, created prejudice against him with FUSELI, and he declared that DÜRER had shown what was to be avoided rather than what was to be followed. But as a colourist he says that DÜRER "went beyond his age, and has far excelled in truth and breadth and handling the oil-colour of RAPHAEL, as RAPHAEL excels him in every other quality.

That his etchings are still appreciated is shown by the fact that the strange print *The Virgin and Child with Monkey* was sold on Monday last for 57*l.* A representation of the kind would be impossible for an Italian artist, although monkeys were often enough introduced in their works. But DÜRER's monkey, like many other things from his hand, is a mysterious being which each of us can interpret in our own way. To the artist the animal must have given pleasure, for it would be easy to imagine he wished, if possible, to represent every one of its hairs. The blinking eyes also are neither human nor simian in their expression. No artist was more successful than DÜRER in creating puzzles. If we can believe that the *Adam and Eve* dates from 1504 it becomes evident that prior to his Italian journey DÜRER was able to draw the nude figure with marvellous skill. Probably there was an earlier journey southwards, although not attended with any pomp or circumstance. The subject is one which has caused much controversy among connoisseurs.

DÜRER was about twenty years younger than DA VINCI. But there was a curious similarity between the two men. Both of them were handsome, and not unconscious of the gifts which nature lavished on them. Both had a leaning towards science, which was unusual with artists. DA VINCI was born amidst people who were prepared for novelties, and whenever he hit upon an idea he had some chance of realising it. He made drawings for fortifications, and was offered opportunities to have them carried out in masonry. DÜRER's project for military engineering never went beyond the paper stage, unless we accept the legend that a part of the walls and bastions of Nuremberg represent his system. There was, however, one great difference between them. DÜRER was sincerely a religious man, and was eager for the Reformation. His appeal to ERASMUS is by itself sufficient evidence of his travail. DA VINCI apparently gave no attention to subjects of that kind, and it is doubtful whether he was more than a Christian in name. Some believe he was converted to Islamism in Egypt. According to tradition, DÜRER was most unhappy in his married life. There is no record of any marriage of LEONARDO. The financial affairs of DA VINCI caused trouble to himself and to his creditors. DÜRER, if not rich, contrived to keep out of debt and was able to leave money to his wife. The two artists were possessed of the Renaissance spirit in its full strength. They were always aspiring after something which was unknown or had not been attempted. DA VINCI was the more successful, but the difficulties before him were unlike those which were found in Germany. The appreciation of the two seems to increase as time runs on, and with reason, for they are exalted specimens of humanity.

DÜRER became inimical to Mr. RUSKIN because he was always careful to introduce his monogram in the corner of each plate and sometimes rather ostentatiously. But it was a practice among the German engravers, only some of them employed symbols which have had the effect of creating doubts about their personalities. DÜRER was more careful. Then DÜRER was a realist. His Madonnas are unlike those in the Italian pictures. They are, as Mr. RUSKIN truly says, Dutch girls with all the beauty left out. But at the time there was an effort to make Scripture scenes appear as if they were modern incidents, and DÜRER did not rebel against the practice. Lastly, he was scientific, and Mr. RUSKIN was no advocate of the combination of science with art. DÜRER, according to the critic, was too anxious to display his knowledge of anatomy and of optics, and therefore was careless

but what was seen, preferring to suggest what he must exist. His three portraits of great men are therefore bad, "while he forces his soul out to draw the hoofs of satyrs, the bristles of swine, and the distorted aspects of base men and vicious women." It could have been remembered that DÜRER was philo-sophic. He could have formed pretty faces if he cared. Beauty was to him a mystery. The ALMIGHTY, he said, is able to judge of it. He owned the task was beyond him, but suggested that ugliness was within his power. The words seem like a key to the serious faces which DA VINCI drew, as if they were produced more easily than lovely outlines. It was wise in both artists to trouble themselves with such subtleties. DÜRER had the excuse he was a German and disposed to think after the Northern manner, for HAMLET took to etching, his figures might be open to the same objections as those raised against the Nuremberg artist.

DÜRER's house in Nuremberg has belonged to the municipality since 1816, and near it stands a statue by KAUCH. He was buried in the churchyard of St. John, but his grave was not respected and was subsequently assigned to another tenant. His best works are to be seen not in Nuremberg but in Vienna.

PUPILS v. APPRENTICES.

By JOHN HONEYMAN, LL.D.

WHEN the Royal Institute of British Architects decided that examinations should be a qualifying test for membership, it created a revolutionary change in the old system of architectural education, the effect of which seems to be but partially understood even now; and the adaptation of the old methods to the new conditions caused by the change has not yet been effected. Although the effect on the system of pupilage, for example, has been frequently discussed, practically no steps have been taken to make it possible for a young man desirous of passing the Institute's examinations to attend the preparatory classes during his apprenticeship, though it must be evident to any impartial person that the apprentice does not now receive from his master the knowledge deemed essential by the Institute—as he did when the relationship between master and apprentice was instituted—it is absurd to expect that he should give as much of his time to his master as in the days when he got an equivalent for it in the shape of instruction.

This is a point regarding which architects of experience and the Institute itself might reasonably be called upon to advise. Is it not the case that a young man who availed himself of the classes, now so well taught in our larger towns, could pass the three examinations of the Institute without an apprenticeship at all? I do not say that this ought to be done or allowed; but I do say that it *could* be done, and I lay stress upon this in order that we may rightly appreciate the respective values of the office tuition now given, and that which the pupil can and must get outside. It is evident that what he receives outside is distinctly the more valuable of the two, and therefore it necessarily follows that the greater part of his time ought to be spent in acquiring that knowledge, especially till he had passed his intermediate examination.

In apportioning the time to the various branches of study, it is necessary to bear in mind how much there is to dispose of. Here, I think, the majority of architects greatly err in their estimate. My opinion is that a working day of eight hours or nine hours is all that any lad of from sixteen to twenty should have to do. At that time of life a lad cannot do more with advantage or impunity. The whole teaching of the day, therefore, must be done between 9 A.M. and 6 P.M.

There can be no excuse for depriving the pupil of his evening hours. It is to be remembered that we expect the architect to be a gentleman, a man of literary tastes and general culture, a musician, it may be, and

one accustomed to social intercourse; and whether he uses the time for study or recreation we have no right to deprive him of it. It is between 9 A.M. and 6 P.M., therefore, we have to deal with him as a pupil, and can we fairly and impartially say, in view of the relative value of each branch, that half of his time should be devoted to office tuition, such as it is? I think not. It may be expedient, however—as old traditions and customs are hard to eradicate—to allow more, and yet find time for all the academic teaching required within the ordinary working day limit. It would probably suffice if the pupil got free from office work at 1 o'clock on four days in each week and the whole of Saturdays—to allow time for sketching and measuring ancient buildings. He should also have much longer holidays in summer—I would suggest that in each of his two first years he should have a month of holiday, and in the third, fourth and fifth years two months. If we intend to assimilate the architectural student's education to that of other learned professions, we must give to him similar conditions in the way of freedom from routine work, and also similar facilities for the attainment of theoretical as well as practical knowledge of his profession, whether this is to be obtained at schools or universities. Taking this view, to expect our students to have no opportunity of attending classes which are essential, or for preparation for such classes, till the evening after a full day's work has been done, is manifestly absurd.

As the acquisition of instruction given in our schools of art and technical colleges is now essential for the student who wishes the Institute's certificate, the continuance of this sweating system, so fraught with risk to the health and eyesight of our young men, must be regarded as discreditable to us architects.

It must not be inferred from what I have said that I undervalue the advantages of apprenticeship. On the contrary, if the choice lay between apprenticeship and what may be called academic training, I would unhesitatingly pronounce in favour of the former—that is, apprenticeship of the old-fashioned type, during which the master personally instructed his pupil, or at least saw that he was systematically instructed. But the practice now common of architects taking half a dozen or more apprentices at a time tends to reduce the value of the office training, and so it is almost necessary now to supplement such training by instruction which can only be obtained outside. But if a change in the system of apprenticeship necessitates the attendance of the student elsewhere for instruction, it follows that the time devoted to office training must be curtailed. In short, the system as a whole must be modified and harmonised, a fair proportion of the time available being devoted to each branch of study. But, it may be said, if our apprentices are to be at our offices only little more than half time, how are we to get all our tracings made, our printing, mounting, going messages, holding tapes and the like? That is a question very easily answered. Get one or two additional message boys and pay them for their work. By the course I advise you will all the sooner get more valuable services from your apprentices, which will amply repay you for the privilege you give them of working in your office. But it may again be urged, if young men get away from their offices they will go and amuse themselves and acquire indolent habits. But that does not follow. Only those enrolled in classes should be allowed to leave, and for the rest—those who trifle their time are welcome to do so; they will never be architects and they can be quite well spared. It would be a bad business for us if every apprentice became an architect. The lads who are destined to succeed will not trifle. They will not merely make the best use of the time they get during the day, but will devote much of the spare hours they have at command to study—working late and rising early, and improving every opportunity of gaining fuller knowledge of the art they love.

MUNICIPAL ENGINEERING.*

MANY complaints have been heard of late about the indebtedness of municipal corporations. Even the bankers who are familiar with financial catastrophes profess to be alarmed about its effects. It is true there are cases where the expenditure was unwise. Any man, for instance, who has acquaintance with property cannot look at the place which was destined for the Strand Improvement without realising that the change was brought about before the Metropolis was sufficiently ripe for it. The position is not adapted at present for expensive buildings, and the money expended must long remain without any return. In less important towns the vaulting ambition of members of councils who wish to claim credit for being in advance of their contemporaries has also produced results which, if measured by a financial scale, are disastrous.

On the other hand, there can be no question that the larger part of the outlay has been expended beneficially. Streets have been improved; efficient drainage has become general; water supply is more ample and entails less risk for the users, and, in a word, town life in Great Britain does not mean the sacrifice of a large number of human victims every year. It is true that in carrying out the works ruin has been caused which antiquarians and lovers of the picturesque may deplore, but unfortunately it seems to be a rule of life that every beneficial change must be unsatisfactory to more or less people.

At such a time it is an advantage to have an explanation of what has been achieved in municipal engineering. Mr. MAXWELL, in the three lectures which constitute the volume just published, confines himself to (1) road engineering and maintenance; (2) main drainage, sewage disposal, destructors; (3) water supply. He prudently avoids "those branches which by many are considered (whether rightly or wrongly it is not our present purpose to determine) to fall within the category of 'Municipal Trading.'"

There was a time when all the work of road-making and street-making was performed by hand labour. But in a few years we suppose H. WALLIS's pathetic picture of the dead stone-breaker, which RUSKIN considered to be the picture of its year, will hardly be understood as an exact representation of the preparation of material in the nineteenth century. Streets and roads are now subjected to such extraordinary traffic, the work could hardly be performed without the aid of machines. Quite recently we saw the co-operation of six men was required to raise a few paving stones in one of the narrow but busy streets of the City. The steam-roller had done its work so well the paving was as firmly united as any masonry in an arch. There are various other machines, such as scarifiers, and one of the latest brought out is a road edge-dressing machine invented by the road surveyor of Elgin. One great advantage of Mr. MAXWELL's book is that he introduces illustrations and descriptions of the various aids with which mechanical engineers have endowed the authorities for roads. There are also artificial pavements which claim special advantages. Scavenging machines, street-watering machines, road motors further co-operate in giving facilities for traffic.

The second lecture treats of drainage. The joints of sewers have been made the subject of many patents. Beside salt-glazed stoneware, rock concrete, silicated stone, steel-ribbed concrete and ironware pipes are also employed. Concrete and expanded metal have been recently utilised. The author particularly refers to Messrs. WALTER MACFARLANE & Co.'s traps, &c., and says:—"This firm also supplies every kind of iron fitting or appliance required in a complete system of house drainage. The castings are dipped in Dr. ANGUS SMITH's solution, or treated with MACFARLANE's im-

proved glass enamel, which latter renders the interior as smooth as glass, prevents rust, and is also a specially useful application for soil pipes." The design of a penstock used at one time to offer considerable difficulties. But manufacturers now supply them of large sizes, and some are self-acting. The hydraulic sewer-flusher by Messrs. MERRYWEATHER is found to be efficient, and an engine is not needed whenever there is a sufficient pressure from the main. Messrs. HUGHES & LANCASTER have devised an arrangement which is adopted in districts where the sewage must be raised. It is employed in many parts of the world, and a large contract for the drainage of Oporto has been entered into. The view of the station at Bombay is by itself sufficient to indicate the character of the power as well as the ease with which it can be increased whenever required. There are so many solutions of the sewage disposal problem it would be difficult to say which deserves preference, and, indeed, local conditions demand special adaptations. For the disposal of domestic and trade refuse, MANLOVE, ALLIOTT & Co.'s destructor as erected at Liverpool, Shoreditch, White-chapel and other places has proved to be well adapted.

Mr. MAXWELL refers to the great activity which the provincial cities have shown in obtaining possession of gathering grounds for water supply. To some extent this means a monopoly by a few, and the question is, what is to be the fate of towns which have not displayed so much hustling? In the days of BATEMAN and HAWKESLEY it was not difficult to arrange a water supply. The main point was, like Mrs. GLASSE's cook, to first catch the hare in the shape of a sufficient catchment basin, and to lay down a conduit from it to the reservoirs. An engineer found no difficulty in discovering sources of ample supplies; indeed, as in the case of Glasgow, they were almost obtrusive. Inventiveness was so little needed that extraordinary importance was attached to the ingenuity of forming a small conduit along the slope of a weir, in order that in times of flood the water would be likely to pass over without filling it, and turbid water would therefore not be conveyed to the reservoirs. Now, however, there are many important appliances invented outside the engineer's office, and which are found to be indispensable. What can be done by means of artesian wells is shown by a photograph of one for the Great Northern Railway near Peterborough station, sunk by Messrs. LE GRAND & SUTCLIFF, and which yields 300,000 gallons a day. The volume is so great it almost appears to have adhesion, and is not dissipated as so often happens. The great advantage of Mr. MAXWELL's book is that it will be a revelation to many of the extent of the co-operation of manufacturing firms in promoting "the safety and the health of the whole State." This is a debt which is too often ignored. The book is therefore of service as a record, and to some extent as a directory.

PIPE FLANGES.

IN theory the proportions of a pipe should correspond with the extent of the delivery for which it is intended. In German books on construction we find elaborate formulæ for calculating the proportions not only of large pipes or conduits for water supply, but for very small pipes meant to convey gas into houses. It is not intended, we suppose, to have extreme exactitude in the dimensions of pipes. The law of demand has already determined the sizes, and in the market a great variety is to be found. For the Glasgow Waterworks BATEMAN specified pipes which would vary by inches from 2 inches to 10 inches, and then generally by 2 inches from 10 inches to 20 inches. The largest sizes were 24 inches, 30 inches and 33 inches. To some extent that arrangement is still respected.

The Engineering Standards Committee could not, therefore, make many changes relating to the internal diameters of pipes. They suggest, however, that for

* *British Progress in Municipal Engineering.* A Series of Three Lectures by William H. Maxwell, borough and waterworks engineer, Tunbridge Wells Corporation. (London: Archibald Constable & Co., Ltd.)

general use $1\frac{1}{4}$ -inch, $4\frac{1}{2}$ -inch, 11-inch, 13-inch, 17-inch, 19-inch, 22-inch and 23-inch pipes should be dispensed with. They recommend that there should be four standards, viz. (1) low-pressure standard, for steam pressures up to 55 lbs. and water pressures up to 200 lbs. per square inch; (2) intermediate-pressure standard, for steam pressures over 55 lbs., but not exceeding 125 lbs. per square inch; (3) high-pressure standard, for steam pressures over 125 lbs., but not exceeding 225 lbs. per square inch; and (4) extra high-pressure standard, for steam pressures over 225 lbs., but not exceeding 325 lbs. per square inch. The pressure for water pipes of 200 lbs. is usual in this country, but in America one of 300 lbs. per square inch is generally prescribed. The purpose of the committee is to obtain uniformity in the flanges of pipes, and it is well to state the principles which guided them in their own words:—

Number of Bolts.—In the first place, it was decided that the number of bolts used should in all cases be a multiple of four, and that the bolt-holes should be so placed that spaces between them are bisected by the main centre lines. The committee are quite aware that in the case of flanges for certain sizes of pipes, and especially of those for $2\frac{1}{2}$ -inch pipes, the adoption of multiples of four for the number of bolts involves some change of practice; but, after carefully discussing the opinions and experimental data brought before them they are convinced that the advantages resulting from the adoption of such a principle outweigh the disadvantages.

Bolts.—For determining the sizes of bolts it has been assumed that, in the case of a joint just on the point of leaking, the full working pressure might be exerted over the area of a circle just touching the inner sides of the bolt-holes, and the sectional area of the bolts at the bottom of the threads has been fixed to meet this contingency. In the case of the smaller sizes of pipes, allowances have also been made for undue stresses in making the joints. It is considered desirable that all nuts should be chamfered on the side bearing on the flange, and that the bearing surfaces of the heads, nuts and flanges should be trued.

Sizes of Bolt-holes.—The sizes of bolt-holes decided upon were:—For $\frac{1}{2}$ -inch and $\frac{5}{8}$ -inch bolts the diameters of the holes to be $\frac{1}{16}$ -inch larger than the diameters of the bolts, and for larger sizes of bolts $\frac{1}{8}$ -inch.

Diameters of Flanges.—Practically the sizes of flanges are governed by the necessity of adopting such diameters as will meet the requirements of makers of stop-valves and similar fittings. The diameters decided upon by the committee are the smallest which will satisfy these requirements. The requirements of the valve-makers agree very closely with those which exist in the case of cast-iron pipes, or in pipes with rivetted-on flanges; while in the case of pipes with welded-on flanges, although the diameter of such flanges might be reduced, there are manifest disadvantages in having two sizes of flanges when connections have to be made to valves or other fittings. Experiments have shown, however, that with these welded-on flanges the strength of the joints is materially increased by reducing the size of the flanges, while the cost is, of course, also diminished. Under these circumstances the committee consider that in the case of long lines of pipes having welded-on flanges, it should be permissible to make such flanges of the dimensions given in Table III.

Thicknesses of Flanges.—In the opinion of the committee, the standard thicknesses tabulated for the various types of flanges are the minimum thicknesses consistent with satisfactorily meeting the requirements of ordinary practice.

From the tables which are given a few cases may be abstracted which will show the differences between the standard dimensions and those commonly employed. Take a 2-inch pipe. The ordinary diameter of the flange is $6\frac{1}{2}$ inches, the diameter of bolt circle $4\frac{7}{8}$ inches; the standard is 6 inches and $4\frac{1}{2}$ inches. For 4-inch pipes the diameter of the flange is 9 inches and of the bolt circle 7 inches; in the standard the sizes are respectively $8\frac{1}{2}$ inches and 4 inches. In the 6-inch pipe the ordinary diameter of the flange is 12 inches and of the bolt circle $9\frac{5}{8}$ inches; the standard figures are 11 inches and $9\frac{1}{4}$ inches. In the 12-inch, for 19 inches and $16\frac{1}{4}$ inches we have 18 inches and 16 inches. For the 6-inch pipe eight bolts are substituted for six. The 12-inch pipe

has twelve bolts instead of eight, and the 20-inch pipe sixteen bolts instead of eleven.

From these figures it will be evident that there is an alteration in the flanges. The thickness of the metal did not come within the scope of the committee's inquiries. The sub-committee have found it necessary to hold twenty-four meetings in order to consider the information given by manufacturers and users of pipes. A great many experimental tests were also carried out for them. The manufacture of pipes is one of the most important of British industries, and the adoption of uniformity in the flanges must be productive of economy while it will also be advantageous for users.

CHICHESTER CATHEDRAL.

A MEETING of the Great Chapter of Chichester Cathedral was held in the chapter-house last week "for the purpose of conferring upon the affairs of the cathedral church, its fabric, ordinances and statutes." From a report of the proceedings supplied by the Chapter clerk (Mr. Freeland) the following is taken:—The Dean of Chichester presided at the meeting, which was held in the chamber which for several centuries has been used as a muniment-room for the documents belonging to the Bishop and the Dean and Chapter. There is no doubt, however, that this was formerly the chapter-house erected by or under the auspices of Bishop Langton (1305-38), and frequently alluded to in the Cathedral Act Books as the upper or bishop's chapter-house, and it is understood that this chamber will henceforth be used and known as the chapter-house of Chichester Cathedral.

The chamber, which has been well warmed and lighted, has been partly restored by having the oak panelling at the west end renewed, while the President's chair has been restored to its proper place, the bulk of the muniments removed, and a number of the ancient pictures and prints belonging to the Dean and Chapter collected and displayed in the chamber.

The Dean, after reading prayers, shortly opened the proceedings. The agenda was a long one, and the first subject was the further discussion of the *ordo prœdicandi*.

The Domus Fund.

The state of the Domus Fund was the next subject for consideration, and the Dean explained the report and account which had been circulated among the subscribers and detailed the work done during the year. The works carried out by the Domus Fund during the year, besides the general yearly restoration of different parts of the cathedral, comprised among other things the re-erection of Bishop Stratford's sacellum, now nearly finished, the partial re-erection of the Arundel screen, repairs to the triforia, &c., removal of the reredos, and a large contribution to the repairs to the cathedral organ.

Removal of the Reredos.

The removal of the reredos as a separate subject then occupied the attention of the Chapter, and the Dean explained at some length that, although at the preceding Chapter there had been a general expression of opinion that room should be found for it in the cathedral, as in itself it was no mean work of art, it had been found impossible to do so. Mr. Somers Clarke, the cathedral architect, as well as Mr. Kempe, also an expert in cathedral buildings, had both separately examined it and had taken measurements and endeavoured to find a place for it, either in the north transept or elsewhere; but wherever they proposed to put it the expert evidence was that it would prove an eyesore, and the Dean and Chapter reluctantly came to the conclusion that it must go elsewhere.

The Dean explained that at first he thought a place might be found for it in the Colonial Church, and that it might be sent to adorn Cape Town Cathedral, but upon consideration this project had to be abandoned. The Vicar of New Shoreham then asked for it to be placed in New Shoreham Church, and the Dean and Chapter would have been willing to remove it there, but on the measurements being taken it was found that New Shoreham Church could not contain it. Canon Sanderson then endeavoured to find a place for it either in the chapel at Lancing College or at Ardingly, or in that at St. John's, Hurstpierpoint. The authorities were willing that it should be removed to one of those places, but again, on measurements being taken, &c., it was found to be wholly impracticable. When these pro-

posals had to be abandoned. Mr. Marona, the vicar of St. Saviour's, Brighton, applied to take it for his church. The church being a modern one, in which there would be nothing incongruous in the introduction of the reredos, the Dean and Chapter accepted Mr. Marona's offer, and he undertook to find 100*l.* towards the cost of removal if the Dean and Chapter would find the balance, which they had agreed to do. The removal has now been accomplished, and the reredos looks exceeding well where it has been erected. Thus, the Dean said, that which had long been an incubus in the cathedral had been removed and replaced by the old altar screen re-erected in memory of Archdeacon Mount, with the most satisfactory results.

Prebendary Pennethorne, who at the previous meeting of the Chapter had expressed a strong hope that the reredos might be retained in the cathedral out of reverence for the memory of the late Dr. Swainson, who had largely interested himself in its erection, now expressed his entire approval of the alterations which had been made after full consideration, and moved the adoption of the Dean's report upon the subject, which was seconded by Prebendary Hodges and carried unanimously.

The Mount Memorial.

Canon Masters was asked to make a statement as to the Mount memorial, and as the secretary for the memorial committee he stated that the whole amount required for the erection of the screen in its present form had been realised, and that it was hoped there would be a balance over towards further developments; but the committee had been unexpectedly met by a bill for extras sent in by the contractors, and until the return of the architect to England the accounts could not be finally presented.

Archdeacon Elwes asked whether it was not intended further to decorate the screen, and it was explained that the full intention of the Chapter was that a reredos should be erected some day, and, when this was done, that colour and gilding should be added so as to make the screen a more complete reproduction of that which had existed in the same situation from Bishop Shurburne's time down to the fall of the spire.

Canon Jones stated that many people had expressed an opinion that as the screen now existed it was too dignified and severe, and in his opinion it certainly required further embellishment.

The West Porch.

The next item on the agenda was that of the west porch. The Dean stated that Archdeacon Elwes and himself were trustees of a special fund of 500*l.*, which had been left by the late Mr. France, a member of an old Chichester family, to be applied especially to the restoration of the west porch and west front. The Dean then detailed the extensive work which had been done, and how the old work had for the most part been put back stone for stone, that the cracks which had appeared had been carefully watched, and it had been ascertained after two years that there was no settlement, that the foundations were in perfect order, and that the careful work of restoration which had been done would last with care for many years.

Prebendary Bennett then explained in further detail what had been done, and raised a laugh by stating that the Society for the Protection of Ancient Buildings had come down and had expressed an opinion that there had been a decided movement of the building towards the west. But the clerk of the works for the north-west tower had very carefully examined and plumbed the building, and stated that what movement there was was towards the north. But this had now been arrested in the most clever manner, and he thought the work which had been done by Mr. Vick was most satisfactory.

The Dean stated that the 500*l.* legacy was still intact at the bank and earning interest, the Domus Fund having temporarily lent the amount required for the work up to date.

Archdeacon Elwes moved that the Dean's report be received and adopted; this was seconded by Canon Deane, who expressed the opinion that thoroughly good work had been done. The west porch is now securely fixed between the buttresses formed by the north-west and the south-west towers, and the building is now quite safe.

The Bell Tower.

The Dean then explained that the bell tower was more properly the work for the restoration committee of the cathedral, who had taken it in hand; that a great deal of very careful work had been done, and that the experiments which had been made with baryta water were

successful; and the architect proposed in the summer to take this matter in hand with a view to the whole external face of the tower being treated in this way, so as to preserve the stone from further ravages. The campanile south-west pinnacle had been entirely rebuilt, and the three others would next be taken in hand. The Dean and Chapter were fully alive to their responsibility with reference to this ancient campanile, which was the only one of its kind in England connected with a cathedral, and the work would be steadily pushed forward. A meeting of the restoration committee would be held in February to consider the matter further. He moved that his (the Dean's) report be adopted, which was seconded by Prebendary Short and carried unanimously.

Arundel Screen.

The subject of the Arundel screen was then discussed, and the Dean called on Prebendary Bennett to explain in detail what was taking place, how the stones which had been littering in the cathedral and in the bell tower since the fall of the spire had been carefully gathered together, that the screen was being re-erected stone for stone in the base of the tower, that many people who had seen it in course of erection had been astonished at the beauty of it, and that Mr. Kempe had said that if this had been retained in the cathedral the latter would now be almost on a level with Westminster Abbey.

Prebendary Bennett then explained that when arranging the stones for the Arundel screen, those relating to Bishop Stratford's sacellum, a monument erected in the cathedral in 1356 or thereabouts to Bishop Stratford, then Lord Chancellor of England, had been discovered carefully stored, numbered and put away, and that the Dean and Chapter had at once decided that this must be re-erected, and the work was now nearly completed; and it had only been necessary to supply a very few new stones, nearly all the old ones having been found and restored to their original position.

Prebendary Fraser and Chancellor Davey both expressed their satisfaction at what was being done and how well they remembered these ancient edifices when they stood in the cathedral.

The report on this subject was then adopted.

The Chapter-house.

The new chapter-house, or rather the old chapter-house restored to its original use, was then discussed, and the Dean explained that there had been considerable difference of opinion as to whether this was the chapter-house of the cathedral, but he had no doubt that it was originally intended for the chapter-house—at any rate it was adopted as the chapter-house now, and he hoped would always remain. It would be remembered that it had been stated by Prebendary Bennett at the preceding Chapter that there was a precedent for an upper chapter-house in St. David's Cathedral, and that during the summer he (the Dean) had visited St. David's Cathedral, as also had Prebendary Bennett, and seen the chapter-house there, which was similar in many respects to the one which had been brought to light in Chichester Cathedral. He explained how the President's chair and the panelling had been restored, and stated that the key of the old treasure-house over the south porch, which led out of this chamber, and had been in the library for 250 years, had been oiled and fitted into the lock, and it was found that the lock was perfectly good, and the key had now, after this long period, come into use again and become one of the curiosities of the cathedral.

Removing the Muniments.

The Dean also alluded to the labours of Prebendary Bennett, who had collected the pictures, prints, &c., now displayed on the walls, and had taken infinite trouble in restoring the chapter-house to its present condition; and said that some day it was hoped that the panelling would be extended so as to cover the north and south walls, and that stalls would at the same time be provided for the members in the chapter-house.

The Dean then moved the adoption of the report, and this was seconded by Canon Jones. Prebendary Bennett then addressed the Chapter, and after detailing the steps he had taken in reference thereto, he explained that the bulk of the muniments had been removed to the chamber over the canons' vestry, and the remainder, namely, those in more modern use, stored at the east end of the chapter-house, where they could be conveniently reached by the Bishop's Registrar and the Chapter clerk and his assistants. He then expressed his thanks, and he wished the Chapter to

add theirs; to the Chapter clerk and his assistants for the great trouble and labour they had been at in removing the monuments, and the assistance they had given to him, and proposed a hearty vote of thanks to them for their labours, which was seconded by Prebendary Foyster.

Access to Documents.

Before, however, this subject was proceeded with, Canon Jones rose and proposed a vote of thanks to Mr. Bennett, which was seconded by Prebendary Mallaby. These resolutions were put by the Dean and carried unanimously.

The Chapter clerk, in returning thanks, explained that he had no doubt that this was the chapter-house erected by or under the auspices of Bishop Langton, as the records all pointed to this; but it had been the muniment-room of the cathedral documents for several centuries, and he had been obliged to demur to the entire removal of the documents from this chamber, inasmuch as they were in weekly or daily reference by himself or his assistants, and they must be kept in a chamber where access could be had to them at all convenient hours.

Prebendary Bennett then returned thanks for the vote which had been accorded to him, and some further discussion subsequently ensued, when several prebendaries wished that steps should be very shortly taken for the panelling and completion of the remainder of the room. After a remark by the Dean that this subject required careful consideration, the matter dropped.

The Cathedral Organ.

Canon Masters was then called upon to report as to the cathedral organ, when he made the satisfactory announcement that he had succeeded in collecting every shilling that was required, and that the restoration approved by the experts had been satisfactorily carried into effect and that after paying everybody a balance was left in the bank of 12s.

ETHICS AND ÆSTHETICS.

ON Monday Mr. A. Gilbert, R.A., delivered a lecture at the Royal Academy. After a brief reference to his absence from England, he spoke of the lectures on Greek art which Professor Waldstein will deliver at the Royal Academy in March. Those lectures, he thought, should be of great value to the students, whom he proposed to prepare for them in some degree by his addresses. He would speak chiefly of ethics and æsthetics. Ethics was to the commonwealth what æsthetics was to art, and the two together formed the ideal of the philosopher's dreams—the best that could be given for human welfare. With these might be combined beauty and ideality, and the ideal must be with them sleeping and waking. It was the one big gift, the thing that would teach them the shortest road to beauty. Ideality, brought about largely by religious influence, was one of the principal characteristics of Greek art, and it was that which produced the Phidian marbles—the works by which our standard has been set. After commenting on the influence of Greek art on modern work in Europe since the exhibition of the Elgin marbles in London, Mr. Gilbert, according to the *Morning Post*, spoke of its effect upon Watts—a painter, a poet, a sculptor and a greater man. The Greek influence could be seen in everything connected with this great prophet in art—in his life, in his sympathies, even in his letters. He remembered Watts telling him that when he was a youth he went to see and sketch the Elgin marbles when they were first shown at a house in London. He was coming out when someone tapped him on the shoulder, and after looking at his drawings from the marbles said, "You are quite right. Study those and you can't go wrong." The speaker was Benjamin Robert Haydon, a man who lived with the greatest ideals and died in the greatest misery. And Watts afterwards founded all his art—to use his own words—on the lines of the Theseus and the Ilyssus. That was why Watts was the great man of a great century. The great Italians of the Renaissance, less confined by their religion than were the Greeks, were frankly humanists, but showed in their work much of the Hellenic idealism. The idealism was especially remarkable in the portraits by the Italian painters. Michel Angelo had never seen Greek sculpture, yet he, because he was the fittest man to be the intermediate between Phidias and our own times, handed on the gifts his great forerunner had left to the world. The finest things by Michel Angelo were worthy to stand by those of Phidias. Donatello and Verrocchio were both essentially masters of humanism, and Donatello, of all

the Italian sculptors, was the most sentimental. He did not show his wonderful sentiment in his handicraft, in which he was below Verrocchio and Ghiberti, and very far indeed below Michel Angelo and Cellini. In borrowing from nature they should take the best side of their models, and try to see the inner man and show what of the beautiful was in him. That was a lesson that Watts, a great painter, had shown better than any sculptor. His portraits were biographies of the sitters and would outlast any mere material representation.

Flaxman was probably the greatest designer we ever had. Among his collected works at University College were preserved many of the innumerable little sketches of people and things that he made on all sorts of odd pieces of paper. This constant study of nature he combined with that of the people pictured on the Greek vases. So, in his illustrations, Flaxman was able to bring the Greek poets to our comprehension. He was the Donatello of his time, the forerunner of Watts, and the disabuser of the idea of mere material quality conveyed by the art of Banks, Nollekens and Roubiliac. Students probably would not agree with this, nor would he have done so when he sat in their places. To the student in art the man who could execute always seemed greater than the man who could design. The lecture was brought to a close with a few remarks on an English sculptor whose work has been the subject in modern years of general admiration and the cause of endless disputes. Alfred Stevens, said the lecturer, had many personal characteristics. No man living would dare to walk covered into a room before the personality or the work of Alfred Stevens, but nine out of ten who saw his work would say of the execution, "We could do better than that in the schools." Stevens was not a master of execution, but a dreamer. He formed himself on Michel Angelo, who was his bread and his life.

SHEFFIELD SOCIETY OF ARCHITECTS.

AT the last meeting of the Sheffield Society of Architects and Surveyors a paper was read by Mr. H. L. Paterson on "The Geometrical Period." It was pointed out that the fusion of the Saxons and Normans into one people and the gradual separation of England from France allowed each nation to pursue its own ideals and the architecture of each to assume a national character. It was in ecclesiastical architecture that the greatest development took place. The monasteries were the only places in which men could be trained, and in these the large stores of wealth gave them the opportunity of exercising their artistic faculties by erecting noble buildings. By the beginning of the thirteenth century the style known as Gothic was firmly established throughout Western Europe. This style, in which the greatest constructive skill was required, and in which the principle of elasticity was fully and consistently developed, contrasted with the architecture of the Greeks, in which dead height was the most marked characteristic. The practice of concentrating the thrust of a vaulted roof on large masses of masonry, the thrust being often carried across intervening space by flying buttresses, allowed the intervening wall to be largely dispensed with so far as any constructive purpose was concerned, and left it free to be utilised to the full for windows. These became large and more elaborate, and the increasing use of coloured glass hastened the process. Tracery, the progress of which was the most characteristic feature of the Geometrical period, had its germ in Romanesque and Byzantine times, and during the Norman and Lancet period which followed the evident desire to decorate the plain stone spandrels, as well as the desire to secure more light, led step by step to the piercing of the stonework. This took first the form of pierced plates, the stonework being reduced until it took the form of bars or mullions. When the common use of foliation or cusping was completely developed tracery was brought in. The lecturer showed some of the steps by which this development took place, in vertical windows and also in rose windows, and how eventually a traceried window included both types. The different kinds of cusping were noted, and also the change from a purely geometrical treatment to one in which intersecting bars and a combination of the two kinds led to the culmination of the style. Slides were shown also to call attention to the change which took place in the mouldings and also in the ornament during this period, and the lecturer concluded by calling attention by means of illustrations to some of the differences between English and continental work.

NOTES AND COMMENTS.

As architectural societies, regardless of the dignity which they claim and of the practice which prevails in other professions, have become advertisement agents and tolerate deluding promises by their subordinates who hold out prospects of contracts under liberal conditions, it is not surprising that individual architects endeavour to follow the example of the societies. The extent of this traffic in America can be judged from the following resolution which was passed by the Iowa Chapter of the American Institute of Architects:—"Whereas certain architects have been considered as receiving remuneration for advertisements of contractors, supply houses, &c., on plan covers, specification covers, illustrated pamphlets of designs and the like, and whereas architects have been represented as favouring those who thus advertised and discriminating against those who did not, therefore it is to be in future the policy of the architects of the Iowa Chapter to refrain from all such advertising for supply houses, contractors, &c., which might be considered as influencing or bringing remuneration for such advertising to the architect or any person acting or pretending to act for him." There would be more of a chance of reform if, instead of leaving the duty to local chapters, the American Institute as a whole were to declare that the practice in question must be derogatory, and as likely to affect the general belief in the independence of architects in their relations with contractors.

MODERN judges seem eager to demonstrate that they are not to be restricted by their duties in Court, and that they are authorities on much else besides the precedents found in law reports. The Lord Justice Clerk of Scotland was to be heard on Monday reading a paper before the Royal Scottish Society of Arts on "Roads: what they are, and what they should be." In spite of all that is said about the general depression, there is no doubt the traffic on roads in this country has enormously developed. The result is that the wear and tear is so excessive it becomes quite evident that we must approach nearer to the old Roman system and impart substantiality to country roads. That means an increase in cost, which would be more than many districts could well pay. The Lord Justice Clerk agrees with those who consider it is desirable to establish a central authority by which a uniform construction would be obtained throughout the country, poor and wealthy districts being treated alike. The expense of main roads would accordingly fall on the Exchequer. In conclusion, it was said the commercial prosperity of the country would be increased if a sum of five or six millions sterling could be at once granted towards accomplishing improvements in roads.

ILLUSTRATIONS.

MOUNT STUART, ISLE OF BUTE, N.B.

WHENEVER the history of architecture in the nineteenth century is written at the length it merits, credit will be given to the late Marquis of BUTE for two of the most remarkable among examples of residences, viz. Cardiff Castle and the mansion of Mount Stuart, near Rothesay. The former was the only work in which the late WILLIAM BURGESS was allowed to demonstrate the possibilities of Mediævalism when the expenditure was generous. We have published several plates which are almost enough to suggest the building was a romance in costly and beautiful materials. From its position Cardiff Castle, or at least the great tower, can be seen by all who pass. But in his residence in the Isle of Bute the late Marquis was able to gratify that love of seclusion which was one of his characteristics. It is only from the sea that an uninterrupted view of the exterior can be seen. The commission was given to Sir R. ROWAND ANDERSON,

and a comparison of the illustrations which we are about to publish with those of Cardiff Castle will show that another type of Gothic was adopted, but one which was well adapted to suit all the purposes of a modern mansion.

PARLIAMENT CHAMBERS, GREAT SMITH STREET, WESTMINSTER.

THE building, of which the view shows the front elevation, is a block of over 100 offices in Great Smith Street, Westminster, adjoining the public library and opposite the Church House, erected for Mr. E. J. READ, of the London Banking Corporation, under the direction of Messrs. PALGRAVE & Co., architects, 28 Victoria Street, S.W. The elevations are carried out in pressed red bricks and buff terra-cotta from the Hatherly Station Terra-cotta Company in bold free detail. The building is fireproof throughout, and fitted with electric light and passenger-lift. The contractors are Messrs. WHITEHEAD & Co., of Clapham.

A STREET IN NUREMBERG.

ARRIVING at this interesting town by rail, says Mr. HAIG, the first street usually entered as you proceed from the station, which is situated outside the walls, is the Königstrasse, and you have not gone far before the subject of the accompanying illustration bursts upon the view. The towers in front are those of the ancient church of St. Lawrence, the house with the angle turrets to the left in the drawing is the so-called Nassauerhaus, and as for the other buildings making up the group, they are some of the ordinary burgher-houses of Nuremberg. The church of St. Lawrence was commenced in the year 1274, enlarged in 1403 and 1439, and finished in 1477, by THOMAS NORITZER, of Regensburg. It has undergone several restorations, the first in 1568 and the last in 1838, and now stands a rich and picturesque example of German Gothic. The most elaborate ornament of the exterior is the great western porch, rich in sculptured subjects, representing highest in the arch, God the Father on a throne, with CHRIST and MARY kneeling, and below, the Crucifixion, and in rows of smaller figures various events from the Old Testament and from the life of Our Lord. Remarkable also is the north porch, called the Bride Porch, and the great rose window over the west doorway; this window is 32 feet in diameter. The interior contains some fine old altars and altarpieces, excellent late painted glass in the great windows of the apse, but especially the famous Sacramenthaus, a magnificent Late Gothic structure, rising from the pavement, with its finial bending under the lofty vaulted ceiling. It is a masterpiece of the great Nuremberg sculptor, ADAM KRAFFT, who flourished in the latter half of the fifteenth century. The other building in the sketch next in importance to the church is the Nassauerhaus, which dates from the end of the fourteenth century. It was built for the patrician Nuremberg family of SCHLUSSELFELDER, whose coat-of-arms is to be found on some of the earlier shields adorning the building, and also in a later rococo insertion just under the oriel window. The name of Nassauerhaus has been given in honour of a prince of the House of Nassau, by whom the western portion of the church of St. Lawrence is said to have been erected. Opposite to this building, to the north of the church, is a good modern fountain by BURGSCHEIDT, surmounted by a statue of the German Emperor, ADOLPHUS OF NASSAU. The other buildings represented in the sketch need no separate description, as such structures are common in Nuremberg; the oriel windows and dormers shown are similar to many others, but slightly varied, to be found in nearly every street.

CATHEDRAL SERIES.—ST. ASAPH: INTERIOR, FROM WEST END.

THE illustration of the magistrates' offices, Southampton, in last number is only a design for the building, which is now being erected from the design of Mr. R. MACDONALD LUCAS.

THE ARCHITECTURAL ASSOCIATION.

A MEETING of the Association was held on Friday evening last, Mr. E. Guy Dawber, president, in the chair.

The following were elected as members:—Messrs. J. K. Round, S. A. Whitehead, R. M. Kelly, H. D. Ward and I. E. Bunce. Messrs. C. M. Shiner, Ellis Marsland, E. Fowler and C. S. Yates rejoined the Association.

On the motion of the President a vote of condolence was passed to the widow and relatives of the late Mr. T. Blashill. The deceased, said the President, was known to most of those present personally. He was one of the oldest members of the Association, and served as President in 1862. He had also many years ago organised a very successful trip to Italy. Mr. J. B. FULTON read a paper on

Byzantine Architecture.

It was one of the first-fruits of Christianity in architecture, spreading over Southern Europe, Palestine and Asia Minor.

It would indeed be an interesting study to trace the influence of early Roman building down to the Byzantine period. The influence is evident, as the architects must have visited Rome, and there studied the great temples and baths; but the Romans, with all their power of knowledge in construction and imagination in design, could never have built S. Sophia. Now, I wonder if we have realised that the nations down through the ages have built their greatest works to their God; here, in this new religion, we have everything carried to a greater height of excellence. Byzantine architecture was a revelation to the world, because it was not only building in the knowledge of beauty and truth, it was also the beginning of a higher and nobler power—soul-passion moulded in building. I could have written an elaborate treatise on the history of this style, but history is not particularly helpful in design, and anything which I say to-night must be for the furtherance of this great study. In sketching a building one ought, I think, to try and see design first, material, &c., afterwards; so in our thoughts and studies let us ever seek after food for our creative faculty in architectural design. I desire to show you some examples of Byzantine architecture—examples well-known but not one-half appreciated, as we do not fully realise the beauty and truth of construction in this style.

Constantinople.

S.S. Sergius and Bacchus.—Originally there were two churches; the existing one is a gem, and is in a wonderful state of preservation. The exterior shows domes resting on a great square base which, although bold in conception, is not very beautiful, but here little or nothing of the original detail is left. The dome is supported by eight piers, the arches forming an octagon, but below arches the angle sides of the octagon are semicircular recessed (and it is these recesses which give to the interior such a charm). The entablature of the first order shows a breaking away from classical tradition, although retaining architrave, frieze and cornice. This entablature gives strong horizontal lines, which are required because of the semicircular recesses, &c. The whole proportion of the lower storey is perfect, and impresses one very much. The delicate detail of capitals is worthy of special note, although they are now half buried in whitewash; note also the bold and ingenious way in which a combination of capital and entablature takes the round to the square on the upper columns. There are numerous churches of a later period in Constantinople, such as—

S. Theodore.—The outer narthex is comparatively large, and although the façade in itself is good, I think it unworthy of the best traditions of this style, as it is false to the plan. The church in plan is a Greek cross. The columns supporting dome seem rather weak.

S. Theodosia (now Gul-Jami).—The plan is an interesting one. The whole effect of the interior is achieved by form, as there is no detail.

Church of the Monastery of the Chora (now Kahriyeh Jami).—The façade of this church is thought to have served as a model for St. Mark's, Venice. The glory of this church is the decoration. There we see what the Byzantine architects were aiming after—true architecture, which means the unity of the three arts, revealing the character of the building. Constantinople is well worth a visit to see these mosaics alone, even although they have suffered by fire and earthquakes. I had the privilege of drawing the figure of St. George in the outer narthex, which is undoubtedly the finest study in mosaic that I have ever seen. With the exception of the head, hands and feet it is very excellent,

showing in its every line the true spirit of decorative design. I wish you to return to S.S. Sergius and Bacchus, and from there we will go direct to S. Sophia. We see in S.S. Sergius and Bacchus the germ; in S. Sophia the idea fully developed. This is one of the most talked-of buildings in the world, and if it is not it ought to be one of the most admired. You must all be familiar with the general conception of S. Sophia's great dome, half-domes, semicircular recesses, narthexes, aisles and great buttresses. The exterior is said to possess little architectural beauty. I think this impression is arrived at because of the stucco with which the original material is covered. I would suggest the taking away of the stucco, the minarets, buttresses and innumerable small Turkish buildings, which are out of harmony with the main building. Now look at the design with all these removed, see the great buttresses, the arch between, the semi-domes and great dome rising from the square base. Is it not a magnificent pile? The glory of the building is the interior. Here the three arts meet in perfect harmony (as they also met 500 years before in the capitals of the north portico of the Erechtheum in Athens). The passion and mystery is marvellous. No other building can compare with it in beauty, fine proportion and delicate detail. I have often wondered why a building such as this can only be built at a particular place and at a particular time or period in the world's history. I have sought to penetrate the secret thoughts of Anthemius and Isidorus, the architects who built this church. Besides having a knowledge of construction and design, their lives must have been virtuous, and wholly concentrated to their profession or art—to the glory of their God. As Ruskin and others have said somewhere, no matter what we do, even draw one line, and that line reveals our character. What a beautiful moral tone must have been reached before this church could have been built, as down to the minutest detail great excellence and refinement is shown. Let us think of this subject seriously, as this power we must possess before our national style can become worthy of the nation.

Palestine.

St. Mary's Church in Bethlehem is one of the earliest Byzantine churches known; in plan it consists of a nave and double aisle. The Golden Gate, Jerusalem, is in this style, but I came across nothing to call for special attention.

Asia Minor.

In Brusa we came across some interesting details, such as panels, capitals, &c., but nothing of special note.

Greece.

Athens has quite a number of Byzantine churches; all are comparatively small, although interesting. Byzantine churches are scattered all over Greece. I will mention but two, the Convent of Daphni, situate about five miles from Athens on the Sacred Way; in plan a Greek cross, and, although the construction is not quite so excellent as in the earlier Constantinople churches, it is nevertheless straightforward and good. The mosaics on a gold ground are in fine preservation—at least what are left. The figure of Christ is specially beautiful.

I also made a pilgrimage to St. Luke's, Stiris. This perhaps is one of the most interesting journeys that an architect can make in the quest of Byzantine churches. To visit the monastery and taste the hospitality of the monks is an experience in itself well worth having. Combine the love of fellow-men with the beauties of a vast and absolute quietness in the midst of great ranges of mountains, and you will have an idea of at least two of the attractions to this monastery in north Greece. The glory of the monastery is the church of St. Luke. The adjoining church to the Mother of God is not quite so interesting. The church of St. Luke's is almost perfect in its general design and decoration. Parts have fallen into disrepair, but, as a whole, it is still in a wonderful state of preservation. Messrs. Schultz and Barnsley deserve praise for bringing this gem of Byzantine art to England in book form. From my notes taken on the spot I find that what impressed me more than all else was the beauty of construction and lighting, which gave so great a mystery to the interior.

Italy.

In Italy Byzantine art reached a high state of perfection. The centres are Rome, Ravenna and Venice. The church of San Vitale at Ravenna shows direct influence from Constantinople. In plan a semicircular recess is formed from each side of an octagon except the side forming the chancel. The glory of Byzantine art in Italy is the church of St.

Mark's, Venice. In plan it is a Greek cross. A glance at the plan will reveal piers, &c., carrying domes forming aisles &c. The conception of the interior is a glorious one although to me it cannot compare with S. Sophia; it lacks the vastness and dignity, although in wealth of colour it has no equal. The lighting is well-nigh perfect, giving true value to form and colour. Ruskin uses such expressions as:—"The effects of St. Mark's depend not only upon the most delicate sculpture in every part, but as we have just stated, eminently on its colour also; and that the most subtle, variable, inexpressible colour in the world, the colour of glass, of transparent alabaster, of polished marble, of lustrous gold." These expressions give but an idea of beautiful material and fine workmanship; besides all these, there is a beauty which forms a mystery which lighting and atmosphere can only give. The façade is the finest example of an exterior in this art. The Gothic addition in the fifteenth century might have been better, and as regards fine architecture is not to be compared with the Byzantine building, with its pillared recesses, delicate sculptured detail and rich material; but, above all, the magnificent conception.

Domestic.—I have seen and know but little of Byzantine Domestic architecture. The Palace of Belisarius, Constantinople, is a magnificent example, and we had the pleasure of measuring it. This is what I would term a study, a decorative study, in stone and brick. There is a remarkable richness and wealth of material, and yet it is but the two commonest building materials we have. The decorative flat quality aimed after is very refined and suggestive. Some of the spandrels are specially good.

General Thoughts.—Byzantine art we must study if we truly desire our national thoughts to develop into a recognised style. See in this style true construction and excellent blending of the three arts.

A paper was also read by Mr. E. F. REYNOLDS ON

Byzantine Plan-forms.

The development of early Byzantine building is a subject of much interest and also of much difficulty. It is of interest because it formed an unbroken sequence in a period of disruption and change, linking the classical age of Greece and Rome with the Mediæval age of Christianised Europe, and also because it was so pregnant a source of future development. It is of difficulty because the influences which shaped its course were so complex, and because its builded record is now so broken and incomplete.

The founding of Constantinople is sometimes regarded as the starting-point of Byzantine art, but such arbitrary divisions are always misleading, if not altogether untrue. The removal of the capital from Rome to Constantinople doubtless exercised a very deep influence, and the energy of building which it called forth must have quickened architectural development, but it was strictly a development and no sudden change of style. It is historically certain that the new capital was intended by its founder to be a direct continuation of the traditions of the old capital. In the Edict of Dedication its title was "The New Rome"; the general design of the city followed the Roman model, with its forum, its circus, its basilicas, baths and porticoes, and its population was drawn from other cities of the Empire, and especially from Rome itself. And it is evident that this was inevitable, for Rome had so long and so completely impressed its type of civilisation throughout the Empire that no other form would have then seemed possible. Even after its removal of almost a thousand miles eastwards the capital was still surrounded by Roman influences.

Thus, both by intention and circumstance, Constantinople was essentially Roman in its foundation. But there were also many influences which in their working could not fail to modify this tradition and prevent a mere reproduction of Roman art. The most formative of these may perhaps be summed up as (1) the renewed ascendancy of the native Greek genius, (2) the more direct communication with Oriental influence, and (3) the unrestrained play of the forces of the Christian religion.

1. The removal of the capital placed it at the source of that Greek intellectual energy which had originally brought the Romans under artistic subjection. They had largely borrowed their decorative art from the Greeks, but an inverse process was now to take place, for while the Byzantines developed that system of constructive design which had formed the real vitality of Roman work, they modified and eventually discarded the unrelated decorative

design which had obscured the structural conception. Under the Romans a burden of over-developed and conventionally-applied detail had been accumulated serving to bestow a pompous magnificence on their buildings, but only remotely expressing their realities, and it was reserved for the lively Greek sense of right expression to translate the simple grandeur of Roman building into its decorative equivalent. Under Greek discrimination its vital principles were disengaged and purified, and decoration was once more brought into intimate relation with structural facts.

2. By the removal of the capital contact was also established with a more direct Oriental influence, for the position of Constantinople has always rendered it the centre of commercial exchange between East and West. The East has always been the natural home of the vault and the dome, and it is there that the origin of these methods of covering must be sought. At a later time, in the great dispersal of Mahommedan conquest from its Oriental centre, the dome was always carried as a characteristic of building, and even now, in Persia and elsewhere, the dome is the common unit of roofing. To this Eastern influence, which flowed to Constantinople along the great trade routes, may be attributed that freedom in the use of vault and dome which formed so integral a part of Byzantine building. The Byzantine method of vault construction was similar to the Oriental method, the courses being laid with inclined beds and independent of centring, while the Roman construction of ribs and shell was essentially different. This influence also filtered through Asia Minor, where a local school had already established itself, experimenting with new combinations of plan-form and arriving at the principle of the pendentive. Even the Imperial Roman buildings at Baalbec and Palmyra show something of the same tendency to break away from the academic style, in the substitution of the arch for the lintel, and in freshness of decoration. It seems as though this meeting-place of Greek and Oriental formed a kind of hot-bed which fostered the early growth of many forms which afterwards became typically Byzantine.

3. Christianity was recognised as the State religion only a short time before the foundation of the new capital, and it was at Constantinople that it found full force of expression. It brought a new inspiration to building, needing fresh forms specially adapted to its ritual, and a new mode of decoration explanatory and symbolical of its creed. The perfunctory worship and comparatively insignificant temples of the Roman mythology gave place to an ardent and enthusiastic religion which penetrated and revitalised all the arts. Roman art had in reality been almost purely secular, and its most characteristic monuments had been the fora, the theatres, the baths and, above all, the great works of engineering. But from the rise of Christianity religious building again assumed the lead, and although this is now unduly emphasised by the better preservation of such works, yet there can be no doubt that the prime energy of the Byzantines was devoted to their churches.

These, then, were, some of the main factors which determined the difference between Roman and Byzantine work. Following the new foundation, there was a period of 200 years growth and formation, a time of experiment with the new forces, and a gradual assimilation of the various elements—yet a period fruitful of splendid works, and culminating with the erection of S. Sophia. The precise course of development during this period can be only imperfectly known owing to the destruction of so many intermediate buildings. Constantinople has especially suffered from the violence of its earthquakes and the still greater violence of its riots, but phases which are missing there may sometimes be found in such affiliated centres as Ravenna and Salonica, while a comparison of the developed Byzantine forms with the embryo ideas of late Roman work often suggests the source from which that development sprang.

I propose, with your permission, to give some slight study to the plan-forms of S. Sophia, and to trace some of the earlier forms from which they seem to have been derived. If, in doing so, I traverse familiar ground, it will only be in order to give some sequence to the procession, and if I seem to have drawn to a large extent on recognised authorities, it is perhaps unavoidable in dealing with such a subject.

The uniqueness and originality of S. Sophia lies in the combination of two types of planning which hitherto have been developed more or less separately. These may be distinguished by the terms "basilican" and "radial," the basilican type being founded on a repetition of bays in

length, the radial type being founded on a repetition of bays around a common centre, producing circular or polygonal apses. The essential parts of the scheme of S. Sophia are (1) a central square bay, defined by four arches set on piers and covered with a dome on pendentives; and (2) two complex apses, applied to opposite sides of the central square and regulated by its arches. Of these two principal parts, the first may be traced to a basilican origin, and the second may be derived from the radial type of plan.

Basilican.

Turning attention first to the basilican type, the Romans had already solved the problem of the vaulted basilica, and the application of the intersecting barrel-vault to the great halls or tepidaria of their thermæ furnishes a series of such instances on a grand scale. The weight of the vaulting was gathered on to piers which divided the length of the hall into bays, and buttresses were projected behind them to absorb the thrust of the vault. The depth of these buttresses was included within the building, by an outer wall, and the chambers thus formed between them were opened to the main hall by archways, while they communicated with each other by openings through the bases of the buttresses. Lighting was obtained by a clerestory, which was allowed by the difference in height between the main hall and the subordinate chambers. Such was the usual construction of the tepidarium, and the well-known basilica, which was commenced by Maxentius and completed by Constantine, closely followed its model. Here, in all essentials, were the principles of so called "Gothic" construction—the grouping of the vaults on to recurrent points of support, the articulation of the walls into buttress-piers and enclosure, the consequent formation of aisles and the method of clerestory lighting.

Church-building of the basilican type largely followed the earlier and simpler construction of continuous colonnaded halls and timber roofs, such as is shown in S. Sabina at Rome, in S. Apollinare Nuovo at Ravenna, in S. Demetrius at Salonica and in the Euphrasian basilica at Parenzo. But, concurrently with these, the Byzantines also developed the application of the dome to the square compartment, and then extended it in continuous series to the basilican plan. The Romans had always applied the dome to circular or polygonal ground-plans, and only in the latter case was any transition of plan-form necessary. In the Baths of Caracalla there is an instance of an octagonal hall covered with a circular dome, and the transition is made by means of orbelling, in the form of a slight pendentive; but the full development of the pendentive was essentially Byzantine, and seems to have originated in the East rather than the West.

The spherical vault is intimately related to the dome set on pendentives, for the construction of its lower portion is, in fact, that of a pendentive, and the construction of its upper portion that of a dome, although there is no break in the continuity of surfaces. Such a form of vault is used in the Tomb of Galla Placidia at Ravenna, where it covers the intersecting square of a Greek cross plan, the arms of the cross being covered by barrel-vaults. The spherical vault, however, afforded no opportunity of admitting light, and in buildings of a larger scale this led to the raising of the upper part of the vault so as to form a separate dome, and eventually to the raising of the dome itself on a drum.

Plans in the form of a Greek cross naturally result from the use of a central square bay set on arches, the arms of the cross representing the depth of abutment necessary to those arches; and the generalised form of plan was of very early origin and of almost universal use. The Romans were familiar with it, and it is supposed that its Persian tradition was imported in the cruciform mosques of Cairo. This type of the Greek cross formed a most important chapter in the history of Byzantine planning, for with the application of the dome to the central square, the constructional meaning of the plan was extended to the vaulting, the barrel-vaults over the arms providing abutment to the thrust of the dome.

The plan of S. Sophia at Salonica shows a development of this type. The central cruciform is abutted by four compound piers, which fill its external angles and bring it to a square outline. The dome is raised on a low drum and set on pendentives, and the shallow arms of the cross are covered with barrel-vaults. This inner part of the structure is complete and self-sustaining, but three apses are added to the east, a narthex to the west and aisles to the north and south. These aisles are opened to the central area by arcades, and they are of two heights, the upper storey being the women's gallery.

The application of the dome to the square compartment being solved, the basilican plan could be covered by a series of such bays. The church of the Holy Apostles at Constantinople (now destroyed) showed this development. The plan consisted of five compartments arranged in the form of a cross, and each of these was practically a repetition of the central construction of S. Sophia at Salonica. There were the same compound piers, the same shallow arms covered with barrel-vaults, and above them rose the domes set on pendentives, the central dome being pierced with windows. But here the repetition of the bays shows the development of their shallow arms into continuous aisles, and the division is emphasised by the colonnades carrying the women's galleries. Thus these aisles arose from the construction of the square domed compartment, their width representing the depth of abutment necessary for its arches, and their barrel-vaults giving abutment to its dome. The plan is particularly interesting, not only because the Greek cross form of each bay is repeated in the general disposition, but also because it was the prototype of St. Mark's at Venice.

This church of the Holy Apostles is known to us only by description, but, if it seems too hypothetical an instance, the existing church of S. Irene at Constantinople may be quoted. It was a contemporary building, and its plan consists of two great bays covered with domes, the eastern dome being raised on a drum pierced with windows. On each side are narrow abutment-aisles, and colonnades carry the galleries over. The building has been complicated by various restorations and rebuildings, but in its main lines the design is attributed to the same period as S. Sophia at Constantinople.

The Byzantine builders had thus arrived at the domed basilica, and the central square of S. Sophia may be regarded as being founded on the bay design of such a basilica applied on a grand scale. The plan-form is still remarkably similar to that of its Roman prototype, as shown in the vaulted basilica of Constantine, for the main transverse arches are still abutted by deeply-projecting buttresses, the aisles are still formed by the enclosure of their projection, and communicate in the same way by openings through the bases of the buttresses, while the same method of clerestory lighting is preserved. But the substitution of the dome for the vault gave rise to the necessity of continuous abutment between the main piers, and this is expressed on the plan by the increased depth of the arches which sustain the dome. This depth appears on the ground-plan as a narrow aisle on each side of the main square, and these correspond to the abutment aisles of the smaller basilican churches already discussed. Outside these are the aisles proper, formed by the penetration of the great buttresses, and beyond these again are narrow abutment aisles which absorb the thrust of the vaulting over the aisles proper. Thus the aisle system of S. Sophia shows the complete basilican design in itself, the piers being represented by detached columns.

Turning now to the apses which form the second essential part of the scheme. The apse was a favourite feature with the Romans, and had been applied by them in a great variety of ways. It seems generally to have been regarded as a method of terminating a vista or a series of repeated bays, its curving line satisfactorily returning their horizontal lines. In this way it was introduced in the basilican plan as the termination of the colonnades forming the nave, and this treatment was repeated at both ends in the Basilica Ulpia at Rome. This opposition of hemispherical forms may be seen on a large scale in the designs of the Roman fora, and in the enclosures around the baths the same *motif* was often employed. In the baths themselves the apse was used with the greatest freedom, and in some instances it was applied to opposite sides of square, vaulted chambers, thus almost approaching the plan of S. Sophia in a very simplified form.

The origin of the apse in the Christian church was probably derived from the "triclina" of the private houses, which were the earliest meeting-places of the new sect, but the form and position of the church apse exactly corresponds with its use in the judicial basilicas, and the ceremonial significance of the latter may well have influenced its use in churches. The repetition of apses at each end of the nave was probably another instance of such parallel influence, for while Roman traditions were quite sufficient to give its origin, yet it often seems to have arisen from a change in orientation, first toward the west and subsequently to the east. However this may have been, it is clear that the opposed apses of S. Sophia were no new

invention, and their originality lay rather in the special form which they assumed. For they were of no such simple form as was employed by the Romans, but were of a highly developed and complex character, which was due to an entirely different source. This source was the Byzantine development of that Roman type of plan which I have mentioned as the "radial" type, and it will be necessary to briefly indicate the phases through which it passed.

(To be concluded.)

THE SCOTTISH ACADEMY AND NATIONAL GALLERY.

AT the annual banquet of the Royal Scottish Academy on Friday, Sir James Guthrie, the president, delivered an important address upon the proposals concerning the School of Art and the National Gallery. According to the *Scotsman*, the President said:—We have heard from time to time that the Academy is suspect in some quarters because it is an interested party. Well, we are interested. How can it be otherwise? We are the Royal Scottish Academy of Painting, Sculpture and Architecture, with the responsibility of fostering these arts, but without means of doing so. But surely we are neither beggars nor sorners, for we have indicated our willingness to give an equivalent for improved means of performing our functions, and the real gains of such a transaction would fall, not to us, but to those who ought to have them—to the people of Scotland—who would be richer by our annual exhibition of worthier scope than we can provide at present, and by the possession of a notable collection of works of art. That, briefly, is our position, so far as the Academy *per se* is concerned. There is, however, other and larger ground which we have taken and which we must keep. As Scotsmen and as artists we realise that School of Art, Academy and National Gallery are not separate entities, but are parts of a whole. The School of Art laying that foundation of craftsmanship on which the fabric of art must rest; the Royal Academy presenting year by year the work of our own day, and the National Gallery garnering the artistry of all time, are, in any adequate view of the question, essential members of one body. While it is true, however, that these three units are indispensable parts of a whole, there are two notable distinctions between the School of Art and the other two factors. First, from the point of view of its claims on Government, it must be noted that if the School of Art is to be dealt with as the schools of art in the other great cities of Scotland, it remains for the community of Edinburgh mainly to provide for its wants, since there seems no real reason why these should be borne by Government. No doubt the Scottish Education Department might be relied on to do its part in this work, and no doubt an equivalent for the present premises, which are wholly unsuitable, could with justice be asked from Government. Secondly, as to the housing of the school. When the representative work of the artist is in our hands, let us honour it, let us enshrine it worthily. This is the position of a national gallery which, for this and other reasons, demands a distinguished site. But in supplying the wants of the budding craftsman we are utilitarians pure and simple. Give him facilities and equipment for his daily labour. Preserve room for any special work, say on a great scale, that demands it. Let his school be fairly accessible and comfortable, and the needs are met. Such a place may be a simple series of sheds—more is not a necessity. Impressive sites, elaborate buildings and so forth are so much extravagance. It would appear, therefore, that efforts to combine the National Gallery and the School of Art must suffer from the attempt to make one site do duty for two institutions whose wants are radically different, and the problem seems difficult enough without this complication. Any man who takes an impartial view of the matter will see that our interest in all this movement is one that rises from the necessity of our existence, and I would ask you to believe that no man who calls himself an artist can fail to be loyal to the National Gallery. It is no question of expediency with him. It is a necessity of his nature. Hence the Academy may be suspect here or there, but you will look long at any scheme that we support ere you see in it treason to our own estate. Having summarised the recommendations of the departmental committee appointed by the Government, Sir James continued:—Now, are the people of Scotland to allow weighty recommendations from an authoritative and impartial body to be whittled down or lost sight of? I trust not. But if these are to be carried out, we must not allow them to be

smothered by suggestions, well meant no doubt, but for the most part irrelevant, puny and irresponsible. Here I find I ought to say beware of the objector. It is an easy matter to point out difficulties and disadvantages, but a wholesome method of testing the value of an objector is to find out what he proposes to do constructively. This analysis will sometimes be found an illuminating process. Many of you are aware that proposals which affect more or less the interests of other bodies in the city have been in the air. Surely it is needless for me to say that we wish no one to suffer that art may gain. But I would ask you if the matter cannot be lifted out of the region of vested interests altogether and faced on national lines as so grand an issue ought to be? Either Scotland has the right to a greatly enlarged National Gallery or she has not. If she has, it is a full right, and its measure, so far as Government responsibility goes, is the treatment given to the national galleries of the sister kingdoms. Make the basis of calculation what you will, and if she has this full right, surely she should be satisfied now, inconvenient as this year of grace or that may be. Let us not forget this, and not forget also that she can only get her due if her representatives stand stoutly for it in Parliament and stand together as Scotsmen.

What form is it to take? Is it to be small or great? I have said that the measure of Government assistance is the treatment given to the national galleries of the sister kingdoms; but there is another measure which may well come into play in determining the scope of such an institution. That is the interest taken in art by Scotsmen. It is not for me to recount to you what has been done by Scottish artists, but I am entitled to say that our country has sent out men who occupy the highest positions in England, and that she has kept men who have received the highest recognition abroad. The walls of these rooms bear witness to the fact. What of the appreciation of art by her laymen? Simply this—and I say it deliberately—that the great art movements of our own times have been most quickly and most warmly welcomed by Scotsmen. It is indisputable that the work of the romanticists of the nineteenth century—French and Dutch—was appreciated, written about and owned by Scotsmen, in and out of Scotland, long before it was seriously taken up across the border. Insignificant as our hereditary possessions are compared with those of England, the collections of our own day are in the highest degree noteworthy, for acquired work by the greatest artists of all time is held to-day by Scotsmen in Scotland to an extent by no means generally known. One could easily give examples. Well, if the National Gallery is to reflect the state of things, we are driven to the conclusion that it cannot be set on a small basis. But it may be said it is easy to propose high matters; the carrying-out is the difficulty. It is. Yet surely Scotsmen do not require to be reminded that it is the large spirit that makes the large place, and that it is the small spirit that makes the small one. If this matter is to be handled on a worthy scale, how is the money to be found? What are the assets? I can only throw out suggestions, and I do so with some diffidence. Well, there is a considerable sum of Scottish money in hand. (1) In the capital saved by the Board of Manufactures out of their scant provision in the past; (2) in the Scottish equivalent money, which might be capitalised. This would cost the Treasury nothing, and we may fairly add to it the responsibility pronounced by the departmental committee to rest upon Government. Further, we have the interest of the Town Council of this city, without whose aid the present National Gallery and Academy would not have been as they are to-day. I do not believe they will neglect institutions which they helped to bring into their present state of existence. When all these items are allowed for we shall probably still be short of the financial requirements. This brings us to a grave issue. But if you agree with me, you will say that it need not bring us to a full stop. Is it necessary that the whole undertaking must be a dead lift on the part of Government, the Town Council and the Academy? I cannot see it. Looking to the interest that Scotsmen have in art matters, I should be slow to conclude that a plan conceived in a national spirit would not be responded to by men able enough and generous enough to help. When we think of the splendid benefactions to our universities, of which we are so proud, and of the gifts that have been made by public-spirited men in the art region itself, it seems to me that our compatriots in Scotland, in England, aye, and beyond the seas, might well be given a chance to do this great thing for the art life of their country. But it is necessary to be concrete, and if a concrete plan were

formulated in which the available resources could be defined and the plain issue were left that such-and-such a sum would be required if this boon were to be secured to our nation, I cannot think that we should look in vain to the interest and goodwill of our countrymen. No one who is familiar with the growth of such collections can view the present position of the National Gallery without the keenest regret. Here is a national institution practically stopped in mid-career, placed in such a position that substantial growth has long been impossible, and that the interest of those who might lend, give or bequeath art treasures to it is repelled rather than attracted, so that the collection on view to-day, excellent as it is, does not represent what we might have had, what one feels convinced we should have had, if circumstances had allowed us free course. In spite of the most anxious care on the part of the curator, who is to be congratulated on the improvements he has made, and to be sympathised with in a position made unusually difficult by circumstances, there is not only no room for any addition to the present collection, but the contents of the Gallery cannot be seen to anything like advantage. I would ask you all if people are likely to give works of art to an institution in this condition? Picture, on the other hand, a set of galleries with their contents displayed to advantage in ample surroundings, with plenty of blank spaces for the noblest works of art, and with room to expand as the years add to the collection. Add to that the knowledge and the enthusiasm of Scotsmen. Can we doubt the result? Yet this is no fancy picture; it is a simple statement of what we might have, and it has fact to back it. Not merely the national galleries, but the municipal ones in the great cities of England and Scotland bear testimony to the fact that where good housing is provided the growth of a collection proceeds apace. While these galleries are gathering examples of the art of past ages, they are year by year forming collections of the work of our own day, and providing a stimulus of the highest value to modern art. What are we doing in this respect in this city that seems made to be a centre for art encouragement? Absolutely nothing. It is both a mending of our ways, then, that is called for and a broadening of them, and I would appeal to you, and through you, to the people of Scotland, irksome as the present position is, to give patient effort to a solution of this question on a scale worthy of your country, rather than to be tempted by opportunist proposals which may indeed help at the moment, but which will effectually block the way for the realisation of the aspirations that all Scotsmen who wish to see art have a firm footing here must cherish. I could wish to speak more definitely upon this matter, but as the question is now being considered in detail by the Academy, it would not be proper for me to press my personal views.

I can, however, assure you that we desire to bring forward something more than general opinions, and that we hope soon to produce definite suggestions for dealing with this matter, and in any such plans it must be borne in mind that if certain things are desirable in a National Gallery other things are necessities. But I may perhaps, without impropriety, state that in the view of the Academy committee a building, affording at least a half more accommodation than this one in its entirety, is required as a worthy initial home for a National Gallery, and that such a building would require to have possibilities of extension. It ought to be set on a commanding site, and I know of no city more able to provide this, nor do I see that it need be placed upon the most crowded thoroughfare. I should lean rather to a point that may be easily reached, but that is set apart from the daily bustle of the streets. The Calton Hill is spoken of as if it were out of the way, but I have never been able to see this. If it is out of the way what of St. Giles? What of the University? What of the M'Ewan Hall? The truth is this city, so spacious and impressive in its setting, is yet on such a scale that there is no such thing as distance between its salient points. If the Calton Hill were enriched with appropriate buildings, I can see nothing to prevent it from being the Acropolis which an earlier generation, to whom the city owes so much of its beauty and dignity, plainly intended it to be. Nor can I see why it should not be a resort of peculiar value for inhabitants permanent and temporary.

Mr. Frank Rutter will give a lecture on "Impressionism." in the Grafton Galleries on Sunday next, the 5th inst. **Mr. John Lavery, R.S.A.**, will preside. The proceeds of the lecture will go towards the purchase for the nation of a work by one of the French Impressionists.

THE SINAI EXPEDITION.

IN his explorations Professor Flinders Petrie has been hitherto unusually successful. He can therefore afford to be philosophic over his disappointment at Sinai, especially as he must be confident the public will sympathise with him. The Professor gives the following account of his attempt in the *Times* :—

In considering the available sources for the early history of Egypt, Sinai seemed to be the most promising of them. Abydos had already yielded the story of the first dynasty, and some reigns before and after that. Saggara, which contains the second and third dynasties, is closed to scientific research at present. And the only other site for such early monuments was Sinai. The Egypt Exploration Committee therefore agreed to my proposal to completely record the remains there. A great aid to such work was that Captain Weill had just issued a corpus of all that was yet known, so that the list of sculptures and the existing copies were all before us. Half a dozen serious workers had all been in the field, but none of them had made facsimile full-sized copies. There were sketches, small-scale photographs and paper impressions which were often defective; but there was no adequate representation of the art, no complete publication and no plan of the monuments. Fortunately, Captain Weill has joined our party, and brought his knowledge of all the known material.

To our dismay we found that the mining company which tried in 1901 to work for turquoises at Maghara, without commercial success, had destroyed the larger part of the ancient sculptures, and the destruction is still continued by the natives. No restrictions seem to have been made by the Government; yet the wrecked sculptures are what no one would have been allowed to remove in safety to Europe as antiquities. Out of forty-one inscriptions only eleven remain in good condition, six more are injured and twenty-four have entirely vanished. The sale value to museums of what the miners have destroyed is worth more than probably all the turquoises they got. It is earnestly to be hoped that, if the Egyptian Government does not remove the remaining sculptures at once from the present mining, there will at least be no objection made to some museum saving what is still left here. Financial greed has destroyed a large part of the monuments of Egypt in the past century, and is yet going to destroy them rapidly.

The greatest gap in our knowledge of the history of civilisation in Egypt was in the period of the second and third dynasties. Even in the dark times of the tenth or sixteenth dynasties we at least know the general course; but what came between the two great periods of the first and fourth dynasties was yet unknown. Was there merely a slackening of art under the same people, or was there a political and artistic fall, and a new development by the Pyramid builders? This point, which we most needed to clear up, has been happily illustrated by a sculpture which I found representing King Sanekht, the first of the third dynasty. It had been twice seen by travellers, but never understood, described or copied. This figure shows Sanekht as a complete Sudani, of the dark yellow-brown type of modern times, with a fleshy, long hooked nose and very thick lips. His expression is truculent and brutal, and is much more markedly Ethiopian than even the Ethiopian kings of the twenty-fifth dynasty. The work is excellent; but the sculpture of his successor Zeser is the rudest of all known here. We are thus led to see an Ethiopian invasion as the cause of the overthrow of the second dynasty, and a fall of art as the result of that, out of which a new style arose by the close of the third dynasty, which brought in the glorious age of the Pyramid builders. One more great wave is shown to have occurred in the civilisation of the land.

It has been in doubt whether turquoise or copper was the object of the Egyptian miners at Maghara. From the ruins of their houses it is clear that copper was smelted here in the fourth and twelfth dynasties; but we cannot find any traces of it in the mines, which, in the few that remain unspoiled, seem certainly to follow the veins of turquoise. The ancient rubbish heaps of the mines also yield a large quantity of turquoise chips. So it seems that both materials were sought at Maghara.

There are three methods in the ancient mining. The third and twelfth dynasty mines were worked entirely by the chisel. In another period (which we cannot date owing to the destruction of inscriptions) holes were picked in the rock, about 5 inches across and a foot deep, and blocks were thus broken away. In none of the rubbish of these

mines are any flints found. But another class of heaps contains many flints, which were used for working in the sandstone, and these probably were the Bedawi waste of all periods, perhaps even prehistoric.

We have now copied in full-size facsimile and photographed all the inscriptions and sculptures which remain at Maghara. But our paper moulds have been delayed owing to the theft of a half-hundredweight roll of paper by the natives, and long delays in getting more from Cairo. The historical result is one of the most valuable that could be obtained, and well repays a month spent at Maghara. Our party is already in course of moving over to the other mining centre of Sarabit el Khadem.

DEVELOPMENT OF ART.

AN address was delivered by the Hon. and Rev. J. C. Adderley at the distribution of prizes to the Saltley branch of the Birmingham Municipal School of Art. He said there could be nothing more important for the development of art than the progress and success of municipal schools, and the Birmingham school, he was convinced, had more than justified its foundation. One result of the progress of art in Birmingham, and in a large measure due to the municipal school, was that no one now associated the name of Birmingham with shoddy and sham work. On the contrary, the name of Birmingham to any enlightened person now suggested real art and real beauty in design. The only practical acquaintance he had with the Birmingham School of Art had been as editor of a parish magazine, and his experience led him to value its work very much. He pointed out the opportunities which presented themselves for effecting an improvement in the artistic design and work of covers for books, and especially magazines, just as an improvement had been effected in many of the pictorial advertisements to be seen at the railway-station bookstalls and in other places. Some of the advertisements, instead of being terrible shocks to the observer, disclosed first-rate work and real pictures which it was a pleasure to look upon. That meant that we had artists among us, and that the taste of the public was improving. It meant that we had got beyond the stage of thinking there was a great gulf fixed between the ornamental and useful. Nature was the great exhibition of the eternal combination of the useful and ornamental. Instead of building colossal co-operative stores to supply mankind with food, nature gave us our food by means of ravishing cornfields, beautiful water-springs and gardens. Everything was useful in nature and beautiful at the same time. The artist copied nature in that by trying to make useful things beautiful. Among the artistic nations like Italy one never saw an ugly thing. The lamp-posts, warehouses, bridges, wine bottles and even slop pails were all beautiful, and he often wondered whether we should get the same artistic work in England. A great change for the better had taken place of late years in regard to the erection of buildings, especially in London, but one could still wish that the Council schools were built with more taste. In Birmingham they had done much better than in London, but even here there was still room for improvement. Everything depended upon the cultivation of taste among the people. In the Middle Ages, and, indeed, not so long before the days of machinery, there were real artists everywhere in England, and the cathedrals and old buildings were illustrations of the beautiful work which was accomplished by the artists in the past. Good work could not be obtained without hard work, whether it was in originality of design or in execution, and a busy school of art was a great object-lesson to all people. The establishment of municipal schools of art influenced the whole people, educating them to appreciate things which were beautiful in form and colour, and stimulating them to acquire that which was artistic. The public taste grew in proportion as beautiful things became common objects, and if we were not all great artists we could co-operate in the work of making the homes and the surroundings of the poor as pleasant as possible instead of permitting the continuance of the slums and miserable dwellings which caused so much sadness among all thoughtful people. He paid a tribute to Mr. Cadbury for the successful way in which he, almost alone among employers, had brought happiness and joy to so many of his employes, and urged that public bodies might do many things to help the common weal. He would like to see more attention paid to the election of men who possessed real taste. We must have business men, but on the public bodies men were required who had some real

artistic feeling. It was simply criminal that the making of streets should be so largely in the hands of men who had no idea of art at all. He had been a member of the housing and improvement committee of one of the London borough councils, and he had often felt ashamed of the way in which the municipality disregarded things of beauty in the making of streets. Principal schools of art might do something to teach municipalities. The clergy were also neglectful of art. They had tremendous opportunities of spreading good art by means of their churches, but they did not avail themselves of them. In the churches, and especially the old churches, they had ready to hand great homes of art. In the restoration of churches they had great responsibilities, and he might say the same in regard to the decoration of them, and he wished the clergy would pay more attention to that which was artistic. The social reformers, statesmen, clergymen and business men all needed the companionship of the artist.

MEDIÆVAL LIBRARIES.

A LECTURE was delivered lately in Wimbledon before the Arts and Crafts Guild by Mr. T. G. Jackson, R.A., on "Mediæval Libraries." He pointed out that when books were rare and precious it was natural that they should have been very carefully stored away, and that the strictest provision should have been made for their use. Private libraries could hardly have existed during the earlier centuries. Though most educated persons probably possessed a few books, the only large collections must have been those in connection with the religious houses or colleges, and, a little later, in the Universities. The earliest of these conventual libraries go back to the time of St. Benedict, of the sixth century, who made reading at stated times a part of his rules. But there were libraries in the churches before his time. At Jerusalem there was one in the third century, and the church at Hippo inherited the books of St. Augustine. This takes us back to the time when the great Roman libraries were still in existence, and when the great Alexandrian library still had its 400,000 volumes, in spite of the disastrous fire which had destroyed so many during the siege by Julius Cæsar. Private libraries of the Romans were of two kinds. The simpler plan was to store the books in a press, when the volume sought would be taken away to be read elsewhere. One of the chambers discovered at Herculaneum in 1752 was a library. It was a small room, the sides of which one could touch by spreading out one's arms, but in it over 1,750 papyrus volumes were found, arranged in presses round the walls. These cases (*armaria*) were about a man's height, and had been numbered. But the wealthy man among the Romans was not satisfied with this modest way of dealing with his books. He placed them on shelves in an elegant furnished room, and decorated the presses with busts or pictures and inscriptions below, and sometimes covered the woodwork with precious inlays. It became fashionable to have a library, and then many men to be in the fashion had their thousands of volumes, of which they never opened one. Seneca laughs at the man who set up bookcases of cedar and ivory, and collected volumes of unknown or worthless authors, and yawns in the midst of his books, of which he knows no more than the titles. "At the houses of the idlest of mankind," he says, "you will find all the orators and historians, and bookcases piled up to the ceiling; for a library has to be furnished out nowadays by the side of the bath as a necessary ornament of the house. Did this come as a love of study, it might be pardoned, but now these exquisite works of sacred genius are collected and adorned with their portraits as mere wall decorations." Luxurious libraries were not found in the Middle Ages among the churches and convents. A very modest provision was necessary for the few readers and perhaps still fewer books of those dark days. For the most part the books were kept in chests or locked in presses which retained the old Roman name, *armaria*. As the number of volumes increased, those to be used for reference were placed along the cloisters, while those for more serious study were lent out to the monks to read. In the Cistercian House, a small room was provided without a window for storing the books. At Christ Church, Canterbury, the number of books at the beginning of the fourth century had risen to 698, which were disposed in cases in various parts of the convent wherever space could be found. A library was built over one of the chapels at Canterbury near the middle of the fifteenth century, and about the

same time Prior Wessington placed one over the old sanctuary at Durham. The oldest structure was that at Oxford, which, though adapted to other means in later times, still retains many of its original features. On the north side of the choir of St. Mary's Church is a two-storeyed building adjoining the tower. This structure, rarely seen by visitors, is the most historical spot in the University. In the lower room the congregation of the University used to meet for some 200 years, and in the upper room were arranged the books of the University library, which has grown to be one of the greatest in the world. In 1333-45, Bishop de Bury of Durham lamented the shameful neglect of books by people of his day in the following parable, in which he makes the books say:—"In the first place we are expelled from the homes of the clergy, appropriated to us by hereditary rights, to some interior chamber, or are banished to suffer opprobrium out of doors; our places, moreover, are occupied by hounds and hawks, and sometimes by a biped beast—woman to wit—whose company was formerly shunned by the clergy, from whom we have ever taught our pupils to fly more than from the asp; wherefor this beast, ever jealous of our studies, and at all times incapable, spying us at last in a corner, protected only by the web of some long deceased spider, laughed us to scorn." The lecturer gave details of the methods adopted to chain books to prevent theft, and showed specimens of the pieces of iron-work formerly used. The lecture was illustrated by views of some of the celebrated libraries at the universities and the great public schools.

LIVERPOOL CATHEDRAL.

ON Tuesday a meeting of the general committee was held in the council chamber of the town hall. The Lord Mayor presided. Mr. F. M. Radcliffe, hon. treasurer, submitted a statement showing that the amount of contributions and promises to date on the general account was 197,901*l.* This included seven sums of 10,000*l.* each, one of 5,000*l.*, one of 4,000*l.*, six of 2,000*l.* each, forty-four of 1,000*l.* and upwards, thirty-three of 500*l.* and upwards, and 243 of 100*l.* and upwards. The contributions for special purposes:—Mrs. Barrow for an organ, 10,000*l.*; Mr. Sutton Timmis for a window, 2,020*l.*; the family of the late Mr. W. E. Gladstone for a purpose yet to be ascertained, 1,120*l.*; the Gladstone Memorial committee, 626*l.*; Mrs. Killick and the Misses Schofield for a pulpit, 2,014*l.*; Mrs. Gilmour for a window, 1,014*l.*; Miss Branker for a font, 1,017*l.*; Mrs. G. W. Moss for communion rails, 400*l.*; Miss L. E. Ashton-Rigby for a window, 300*l.*; and Miss Westgarth for a window, 80*l.*; amounting altogether to 18,594*l.* The interest on the investments and bank interest amounted to 8,787*l.* 14*s.* 7*d.*, bringing the total of contributions and promises for general purposes, special purposes and interest to 225,283*l.* 17*s.* 7*d.* Since 1903 they had had an increase in the general donations of 62,429*l.*, and special donations of 17,794*l.*, or 80,223*l.* in all. That was irrespective of one or two special gifts, including the gift of the Earle and Langton families, which, though it was not included in the present balance-sheet, had been handed to him in cash or investments by Sir Arthur Earle since the beginning of the year. If that were added to the other amounts referred to, it would bring the total increase up to 105,237*l.* That was also irrespective of such promises as the Ismay window, the Lathom chapter-house, &c. On the other side of the account, they had spent on the building site 19,294*l.*; the expenses of the promotion of the Parliamentary Bills of 1885 and 1902, 3,885*l.*; honorarium for designs and fees to architects, 5,065*l.*; excavations and foundations, 2,500*l.*; clerk of work's salary and expenses, 311*l.*; the foundation-stone ceremony cost in the erection of stands, printing, advertising, &c., 4,187*l.*, less 3,483*l.* received by the sale of tickets, leaving as the net cost of that ceremony 703*l.* 19*s.* 5*d.* The general expenses, including salaries, printing, advertising expenses, stationery, &c., were in 1901 451*l.*, 1902 725*l.*, 1903 703*l.* and 1904 1,126*l.*, making a total of 3,007*l.* The total sum they had now available for the main building was 146,918*l.*, and as the architects' estimate was 277,000*l.*, it would be seen that the committee required another 130,000*l.*

Lord Derby, in moving the adoption of the financial statement, said that when they remembered it was less than five years since they started on that work, and when they looked back on what they had been enabled to do, it inspired them not only to complete that work so far as they were able, but to hope that those who came after would do

their share in a like manner. Even the most sanguine and the youngest of them did not enter on that work with the hope that it would be completed in the lifetime of one generation. In many ways it was almost better it should not be so, because they hoped this cathedral would be an abiding record of the desire of churchmen of succeeding generations to erect within the diocese of Liverpool a cathedral worthy of its great object. The history of the successful cathedrals of the country showed that the most beautiful, where every detail was carried out with the most scrupulous reverence, were those which had been the work of many generations. There certainly was at present no room for despondency, and he hoped there never would be.

The Bishop of Liverpool heartily thanked the subscribers who in less than five years had contributed so magnificent a sum for the building of the cathedral. That sum was not drawn from one class of the community, but from every class. He was devoutly thankful that the cathedral would go down to future generations linked with some of the great and noble names for which Liverpool was famous. He would also like to thank the committee, who included some of their leading citizens, whose knowledge of the locality and its peoples, their means and needs, made the movement the success it was. One object they had in view was that the cathedral should be built not for the city of Liverpool, but for the diocese; not for one school of thought, but for the whole of the Church of England; not for one class in the community, but for the people. It had been their desire from the first that it should be a people's cathedral and built by the people themselves. Lastly, he wished to thank the diocese that, in spite of the very heavy drain upon its resources, it had not justified the prophecy that the building of the cathedral would kill churchbuilding in the diocese. So far from doing that, it had stimulated it. Last year three new churches were built. In the present year four churches were waiting to be opened, and they hoped before many months to lay the foundations of two churches more.

Sir William Forwood moved that the Earl of Lathom, the Rev. Canon Sylvester, the Rev. J. A. Kempthorne, Mr. Sutton Timmis and Mr. A. G. Lyster should be elected members of the executive committee, with Canon Sylvester as hon. secretary in the place of Canon Willink, resigned. He thought they ought to hasten on with the completion of the first portion of the cathedral, because until that was done they would not be able to hold Divine service or endow the chapter of the cathedral. The first portion of the cathedral might be finished within ten years, and would cost some 270,000*l.* As they only wanted 130,000*l.* to complete that sum, he felt the present generation might at all events hope to see that not only carried out, but Divine service held in the first portion of the building.

Mr. G. H. Ball said he made the suggestion some time ago that people who subscribed a thousand pounds or upwards should have their names inscribed in some way in the cathedral. That idea had been carried out at a new cathedral in Paris which was erected in twenty years. If the same thing were done in this district they would probably get a greater response than hitherto.

The Chairman said that suggestion would be considered.

LEEDS AND YORKSHIRE ARCHITECTURAL SOCIETY.

AT the rooms of the above Society on the 26th ult., Mr. Thos. H. Mawson read a paper on "The Principles and Practice of Garden-Making." Mr. G. B. Bulmer, president, was in the chair.

The Lecturer said:—Although I have no wish to pose as an architect, yet I am deeply interested in all subjects that appertain to the house and garden, and also in the furnishing of the home. Candidly speaking, we all know how impossible it is for an architect to master technically the vast range of ever-increasing subjects that crowd into an ordinary town practice, and I find the same in my own subdivision of the profession, if I may so call it. Most part of our small gardens seem to lack just the one touch of regularity which is in accord with the house—in most cases a compact low hedge or a breadth of grass—touches which an architect should be able from the nature of his training to impart, for when once the gardener is started upon right lines he can maintain it, but the ambitions of the modern gardener are too much centred upon and too much measured by his abilities to compete in the flower-show exhibitions. After having enunciated guiding principles, I desire to lay special stress upon one very important branch of the subject of

laying-out grounds, viz. the trees and plantations, the most important essential in imparting character and local colour to the environment of a home. At no time, if the scheme is to be successful, can we divorce the house and, in the strict force of the word, the gardens from the surroundings; all must be viewed together in unity. When there is perfect freedom of choice, the three great considerations in deciding upon the site and position of the house are—climatic conditions, that is, whether the pervading character of the air is humid or dry; the nature of the subsoil, whether sandy, gravelly or clay; and the aspect, for no matter what the prospects offer, it is unwise to build upon the north, north-west or north-east side of a hill or knoll. The nature of the subsoil is a point which needs more than ordinary caution. Beds of clay, though perhaps not so unhealthy, are cold and disagreeable and difficult to drain by the natural process of filtration. For healthy beauty, luxuriance and ultimate cheapness select a site with understratum of gravel or marl, and a good surface covering of loam. With regard to surface soil for a flower bed, it is a good plan to lay at a depth of about 2 feet a layer of broken bricks, then to overlay this with a covering of ashes, and then about 21 inches of soil of desirable lightness. For trees and shrubs a depth of 1 foot 6 inches or 2 feet, with a plentiful admixture of fibrous turf loam. Grass also requires a depth of soil not less than 8 inches, with a well-drained bottom properly prepared. With the intent of showing the successive stages of the development of a scheme, and the way it gradually assumes shape, the lecturer showed on the screen three schemes with plans and photographs. In each case the lecturer was the designer of the gardens, but as should always be the case, there was a free exchange of ideas and criticisms between the architect, client and the lecturer. The first scheme was in Ashdown Forest, the second on Beckhampstead Common and the third in Devonshire.

GENERAL.

The Death was announced, at Rome on the 30th ult., of Herr Hermann Corrodi, the landscape painter. He was born at Frascati in July, 1844. Hermann Corrodi travelled in the East, and the subjects of many of his pictures were Oriental and Italian landscapes. Some paintings of Cyprus were made for King Edward when he was Prince of Wales, and another buyer of his pictures was the German Emperor.

Mr. James Robert Mosse, C.E., Tunbridge Wells, whose will has been proved at 44,977*l.*, left his professional works to King's College, Nova Scotia, and a contingent reversionary interest in a trust fund of 25,000*l.* to the benevolent fund of the Institution of Civil Engineers.

The Edinburgh Town Council have been recommended by a special sub-committee that they should consent to their interest in the site on the Calton Hill being granted free for the proposed new National Gallery.

Mr. Louis Roullion, professor of manual training at the Teachers' College, Columbia University, has been appointed Chief Inspector of Technical Education for Ireland.

A Sub-Committee of the Edinburgh Council have considered a motion as to preparing a register of all the old buildings in Edinburgh of historical or architectural interest, and consider whether any steps should be taken for the preservation of those considered of sufficient importance to be retained or restored. It was remitted to the town clerk and Bailie Dobie to prepare a report containing a list of such houses, with details of their measurements, historical account, &c., and the cost of carrying out the register.

The Duke of Argyll in an appeal for the upkeep of Dunstaffnage Castle, near Oban, says:—"It is desired to do for this place (where the Coronation Stone was treasured for centuries) what has been done for Carisbrooke, Isle of Wight, where the walls have been repaired and a museum formed to interest visitors."

The Art and Exhibitions Sub-Committee of the Liverpool Corporation have appointed as a deputation to visit the artists' studios in London in the interests of the next autumn exhibition the Lord Mayor, Alderman Sir W. B. Forwood, Councillor R. D. Holt, Colonel William Hall Walker, M.P., and the curator.

Mr. T. E. Knightley informs us that the late Mr. T. Blashill entered his office when he first came to London. He was introduced by Mr. Penfold, and remained with Mr. Knightley three years, for which he was certified when he was a candidate for the office of superintending architect for the late Metropolitan Board of Works.

A Programme has been prepared of the International Congress of Architects which will be held in London from July 16 to July 21, 1906. The committee of patronage will be constituted as follows:—Patron.—His Majesty the King. Hon. President.—The Prince of Wales. Committee of Patronage for Great Britain.—Honorary Vice-Presidents.—The Duke of Connaught, the Maharaja of Jaipur, the Archbishop of Canterbury, the Archbishop of York, the Duke of Devonshire, the Secretary of State for Foreign Affairs, the Marquis of Ripon, the Viceroy of India, Lord Windsor, Lord Esher, Lord Balcarras, M.P., Sir Edward Poynter, P.R.A., Sir Laurence Alma-Tadema, R.A.

The Annual General Meeting of the Royal Society of Antiquaries of Ireland was held on Tuesday. The president, Mr. John Ribton Garstin, was chairman.

The Leysian Mission and Settlement in City Road, London, was opened on the 27th ult. The Queen Victoria Hall has seating accommodation for 2,000 people. There are besides numerous classrooms, club-rooms, refreshment-rooms, gymnasium, &c. The cost has been 110,000*l.* A description, with double-page illustration of the building, appeared in our issue for August 5. The architects were Messrs. Bradshaw & Gass, and the contractors Messrs. Holliday & Greenwood.

The Belfast Art Society passed two resolutions at their recent annual meeting, one expressing the opinion that it was desirable that at least a portion of the collection of pictures recently exhibited at the Royal Hibernian Academy should be obtained for exhibition in Belfast, and the other affirming the desirability of providing a municipal art gallery worthy of the city.

Mr. Walton Aston, architect, of Manchester, has died at the early age of forty-four, and is much regretted. He contributed several papers to the Lancashire and Cheshire Antiquarian Society.

The Royal Cambrian Academy of Art at their annual meeting on Saturday decided to open the next exhibition on June 12, closing on September 30. Receiving day was fixed for May 12, varnishing day June 6, Press day June 7, and the private view day June 10. Mr. H. Clarence Whaite was re-elected president, Mr. Cuthbert C. Grundy vice-president.

A Collection of fine old carved and other frames, the property of Messrs. Lawrie & Co., who have dissolved partnership, was sold by auction on Monday. Among those sold were several specimens of sixteenth and seventeenth-century workmanship. A frame carved in wood with scrollwork and panels of trellis ornament, 56 inches by 43 inches, made 86*l.* 2*s.*; one of wood, architectural in design, with swags of fruits and cherubs' heads, early seventeenth century, 44 inches by 37 inches, 66*l.* 3*s.*; another of wood, scrollwork and other ornament, 66 inches by 52 inches, 33*l.* 12*s.*; a fourth, in wood, carved with various flowers in high relief, 71 inches by 57 inches, 35*l.* 14*s.*; a fifth, carved in wood, 55 inches by 39 inches, 32*l.*; and eight other frames realised an average of fully 20*l.* each.

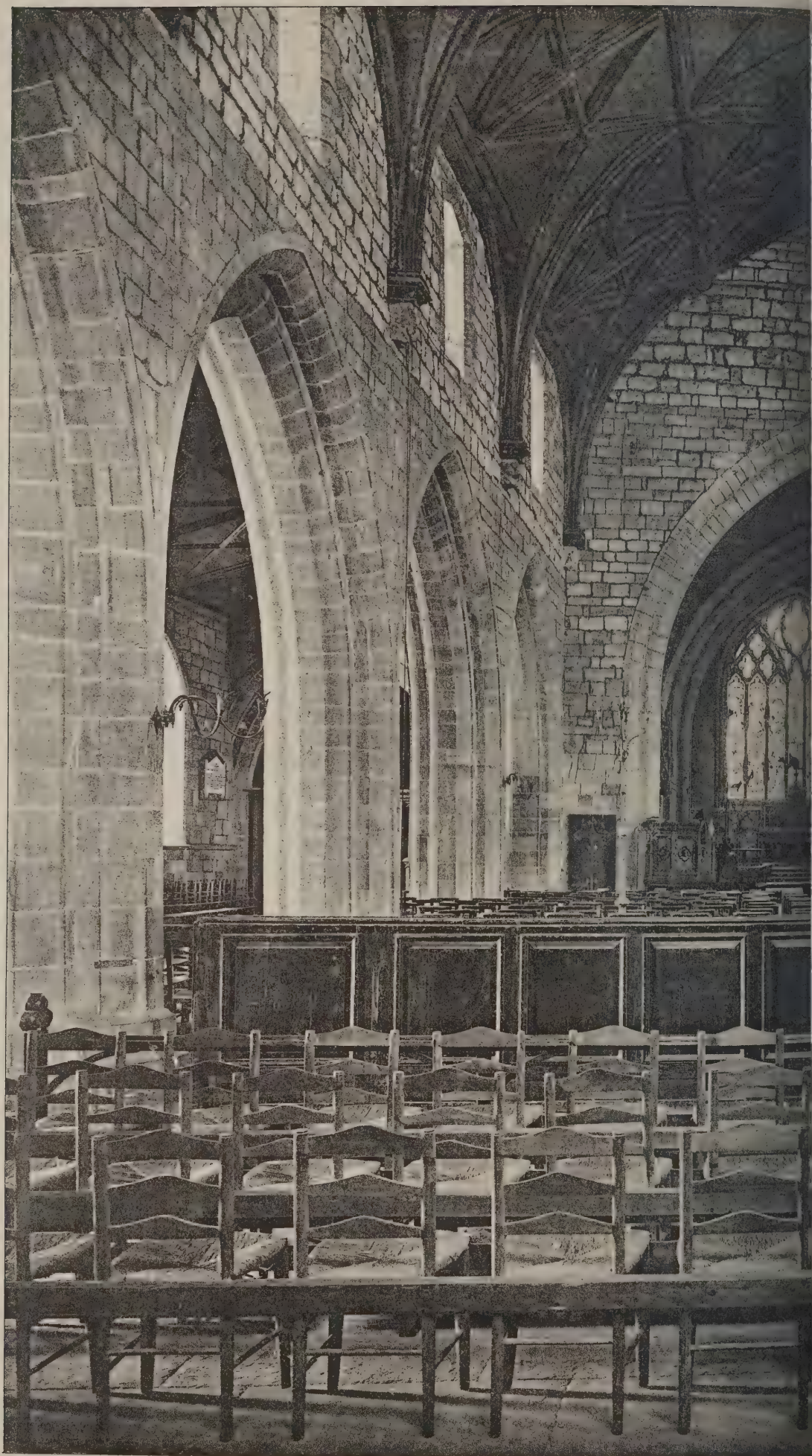
The Death is announced of Mr. W. Fulton Brown, R.S.W., who was a regular contributor to the Edinburgh and Glasgow exhibitions for several years. His works were marked by skill in the interpretation of character and a keen appreciation of the requirements of harmony and composition in the treatment of figure in relation to landscape.

The Edinburgh Architectural Association will revive on Saturday, the 18th, the annual dinner. In the course of the evening a testimonial will be presented to Mr. William H. Page in recognition of his services as hon. secretary during the past four years. The subscription is limited to 5*s.* per member.

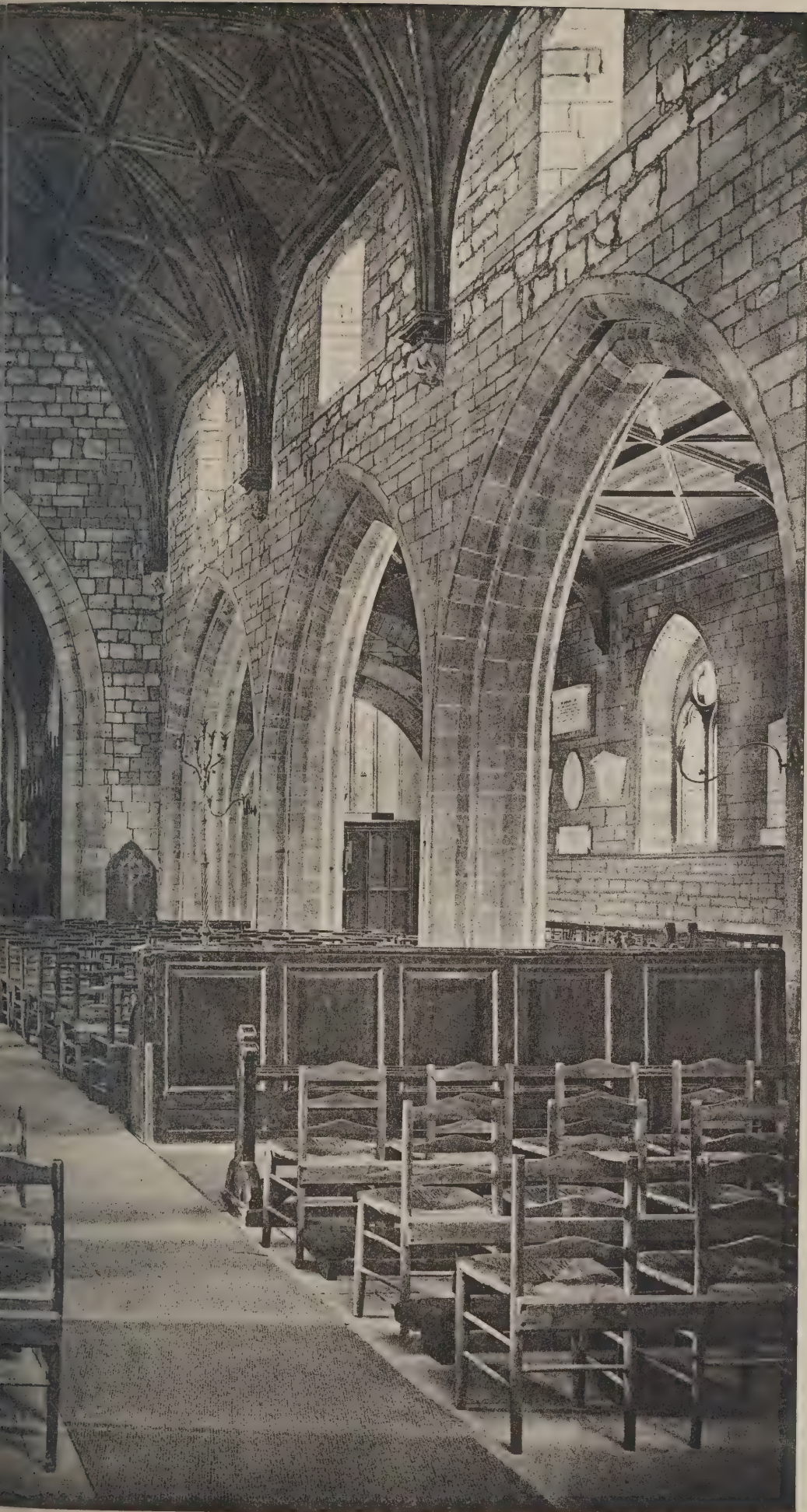
Count Plunkett gave a lecture recently in the Dublin Museum of Science and Art on the memorial to the Emperor Maximilian erected in the Hof Kirche at Innsbruck, in which he argued that Vischer's so-called "King Arthur" among the statues flanking the cenotaph really represented the Prince Arthur of Wales (elder brother of Henry VIII.) who was brother-in-law of Maximilian's son, Philip I. of Castile.

The Municipal Council of Fontainebleau intend to erect a theatre, for which designs in competition are to be sent in on or before May 1.

The Plans prepared by Mr. John A. Campbell, Glasgow, for the Queen Victoria memorial school for the sons of Scottish sailors and soldiers have been adopted. The buildings will be erected about two miles north of Stirling and are estimated to cost 45,000*l.*



PHOTOGRAPHED BY CHAS. R. H. PICKARD, 5 PARK LANE, LEEDS.



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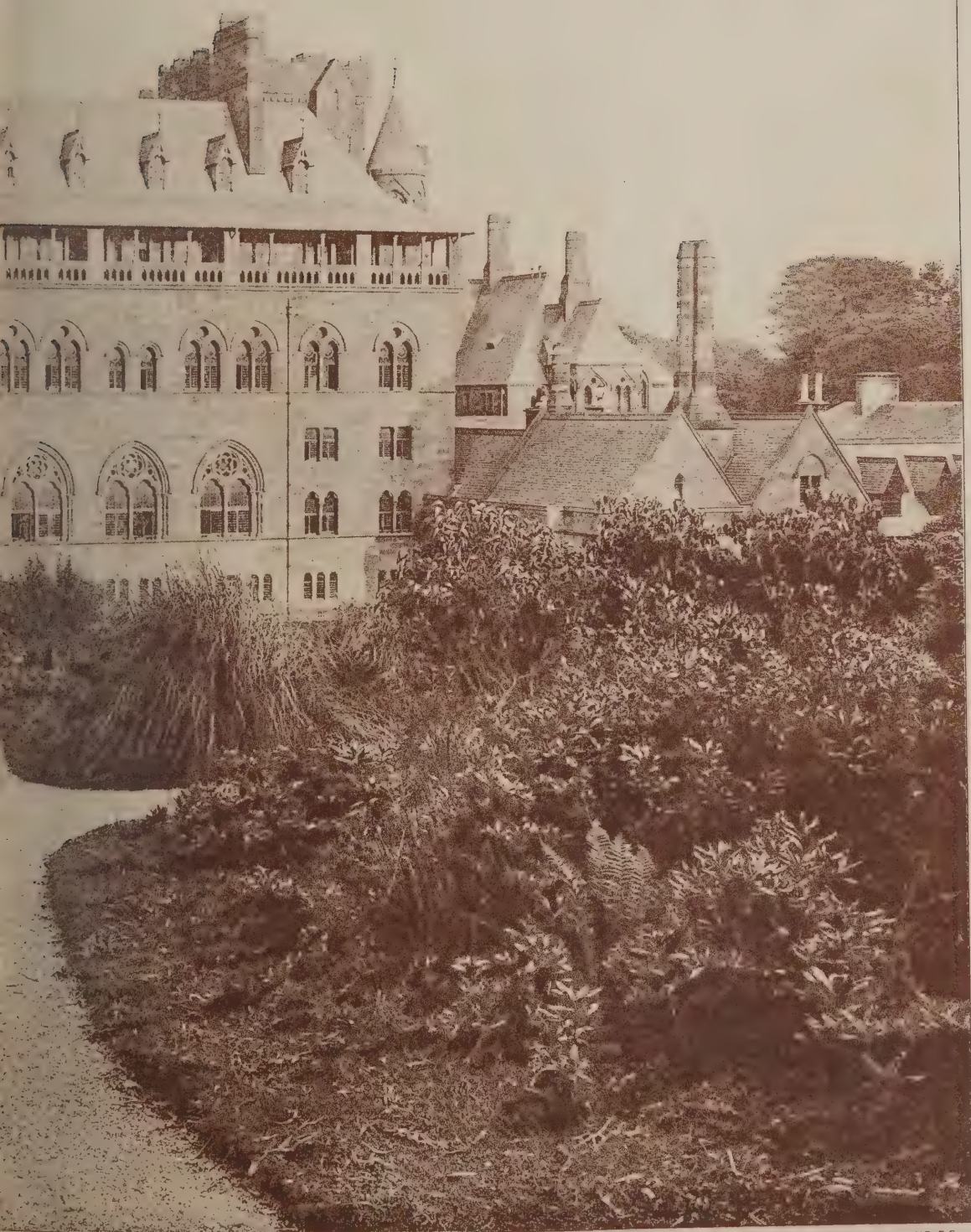
*Continental Photographs by J. W. Hardy
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"MOUNT STU

SIR R. ROWAT

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E OF BUTE, N.B.

, LL.D., Architect.

The Architect.

THE WEEK.

THE committee of the Edinburgh Town Council who have charge of the business relating to the proposed Fisher Hall, which is to be erected in Edinburgh, have at last resolved to invite Sir ASTON WEBB and Dr. COWEN, the composer, to report upon the plans, especially with a view to the acoustic properties of the structure. It will be remembered that the plans were prepared by the city architect. Afterwards it was found necessary to modify them. Some members of the Council and citizens of Edinburgh believe that still further changes are necessary. Some time ago tenders were received for the erection of the building, and an appeal was made to have the work undertaken in order to provide employment for many people. But further deliberations were declared to be requisite. Many changes have been suggested, and it is not impossible that others will be recommended. The history of the building is remarkable, and suggests that Scottish caution may sometimes be carried to an undue extent.

PUBLIC bodies have become aware of the number of architects who have to struggle for a commission, and they are endeavouring in consequence to take advantage of the situation by insisting on a reduction of fees. One of the latest cases has occurred in Wycombe. A girls' school is to be erected. It was proposed to invite architects who would accept the work at 6 per cent., including quantities. In the course of a week the commission was reduced to 5½ per cent., but the Council having been informed that important buildings have been erected for 3 per cent., a still lower percentage will be offered as a bait. The cost of the building is not expected to exceed 4,000*l.* It is remarkable that a few years ago, when the town hall was erected, the Council paid the usual 5 per cent. to the architect and 2½ per cent. for the quantities. But since then the number of architects has increased in a ratio beyond the number of commissions. The conditions of professional life are becoming altered. But because a few architects are not affected nothing is done to prevent the increase of an evil which is bound to produce injurious effects on the art and practice of architecture in general.

THE Wallasey Urban District Council have received ninety-six competitive designs for their proposed new public offices to be erected on the "North Meade" site in Brighton Street, Seacombe. Sir WILLIAM EMERSON, the assessor appointed by the Council upon the nomination of the President of the Royal Institute of British Architects, has made his award in the following order, viz. :—(1) MESSRS. BRIGGS & WOLSTENHOLME and Mr. ARNOLD THORNELY, 51 North John Street, Liverpool; (2) Mr. A. H. JEMMETT and Mr. G. T. MCCOMBIE, 11 Little College Street, Westminster, London; (3) Mr. W. H. ASHFORD, of MESSRS. ASHFORD & GLADDING, 90 New Street, Birmingham. The premium for the first selected design is 200*l.*, for the second, 75*l.*, and for the third, 50*l.*

ANOTHER case which exemplified the position of an architect as arbitrator and that the latter office was not affected by his ceasing to hold the former came before Mr. Justice WARRINGTON on Monday. A contract had been entered into between Mr. CROSSLEY, a builder, and Mr. NYE, a building owner of Brighton. The architect was Mr. G. M. G. JAY. At the end of 1903 he was dismissed and Mr. PUTTICK was substituted. The builder took orders from Mr. PUTTICK, but when a dispute arose Mr. CROSSLEY acted according to the contract deed and referred matters to Mr. JAY's arbitration. Mr. NYE sought an injunction to restrain Mr. JAY from

acting as arbitrator and Mr. CROSSLEY from submitting the case to him. Mr. Justice WARRINGTON decided that Mr. JAY was the arbitrator recognised by the contract deed, and there was no obligation on the builder's part to accept any other, although Mr. PUTTICK was in the position of architect. His Lordship considered that the supposition of bias against Mr. NYE on the part of Mr. JAY was groundless. The plaintiff, therefore, having failed will have to pay all the costs.

THE dissatisfaction which arose in Paris when ERNEST BARRIAS produced his memorial of VICTOR HUGO caused his fickle countrymen to forget the admirable works which had been already achieved by the sculptor. For a time at least VICTOR HUGO was supposed to be the greatest of all literary men, and it was imagined that the sculptor should have indicated not only the poet, but the dramatist, the writer of romances, the patriot and the exile. The work of BARRIAS was not suggestive of so many occupations, and was therefore condemned. Such pathos as is seen in *The First Funeral*, in which ADAM is carrying the body of ABEL, while EVE laments her son, is rarely attempted, and the three figures are marvels of modelling. *The Young Mozart* is one of the favourite figures in the Luxembourg Gallery, while the *Bernard Palissy*, although in a most unsuitable position, is one of the most successful of single figures in Paris. There is a repose in the works of BARRIAS which could hardly be appreciated in so nervous an age as the present. He was the son of a painter on porcelain. In 1865 he won the Prix de Rome, and his first work in the Salon gained him repute. France has many able sculptors, but the place of ERNEST BARRIAS will not be easily filled.

ALTHOUGH about a month has elapsed since HENRI LEVY died at Nancy, the French papers have ignored an event which deprived France of one of her greatest wall-painters. We published a reproduction of his noble work in the Panthéon, *The Crowning of Charlemagne*, which suggests that he possessed many of the qualities of RUBENS. It may have been supposed, as Frenchmen have become so susceptible, that in undertaking such a work he was displaying a partiality towards Germany. For it is conveniently forgotten by many that CHARLEMAGNE at one time was regarded as the greatest representative of the Gallic race. In that way the relations between French patrons and HENRI LEVY would become strained. According to *L'Art* he was one of the victims of the DREYFUS affair. His ambition was to be a wall-painter exclusively, but he found relaxation in executing small easel works. The market was closed against him because of his name. But the dealers were willing to accept his works if he would sign them with a pseudo-name. He declined, and in consequence the latter days of his life were troubled with poverty.

THE opinion expressed by Mr. JUSTICE WILLS that if a house had stood for forty years it did not matter whether the foundations were good or bad, should an action arise for injury caused in excavations, must have an effect on the carrying out of municipal works. The case arose out of the excavation for a sewer in Askam-in-Furness, in Lancashire, by the Dalton Urban District Council. A house and cottages belonging to the plaintiffs were injured. The subsoil was sand, and it was alleged that as the trench was not properly shored the sand shifted, the walls were cracked and the property was deteriorated. The defence was that the foundations of the house were inadequate, and that precautions were taken by the District Council owing to the nature of the ground and the proximity of the house. The jury of course found for the plaintiffs, leaving the amount of damages to be settled by inquiry if the parties could not agree.

FRENCHIFYING THE STRAND.

THE proposal of a French syndicate to take on lease the central portion of the crescent facing the Strand at an annual rent of 55,000*l.* must have seemed an almost miraculous interposition to the authorities in Spring Gardens, for it would extricate them from a very serious difficulty. English speculators are shy about meddling with the desert which has been created at such enormous expense, while Frenchmen have unexpectedly appeared who are far more enterprising than any body of men which official imagination could anticipate. Is it not allowable for the abused improvements committee to believe that Englishmen will come with a rush to invest in the remainder of the property through fear that Frenchmen will monopolise the whole extent of it?

The public must also have found a prospect of relief in the announcement. The improvement of the Strand is becoming more and more of a bore. There are countless objections raised against all schemes that have been proposed, whether official or non-official. It might easily be supposed that the Strand was a newly-discovered region, and all that was necessary was to arrange the ground in some ideal way by the erection of buildings which would surpass those existing elsewhere in London or continental cities. It is forgotten that every inch of the area is burdened with debt, and that every speculator is therefore handicapped, for the annual rent alone of each site would require returns such as are not easily foreseen. Then the character of the buildings which are suited to such a position is not always evident. Those who are acquainted with the Strand during a number of years are aware that the whole of the frontage from Catherine Street to Chancery Lane was not what would be considered high-class property by valuers. There were few, if any, lamentations when a large portion was taken for the Law Courts. The reason was that no particular class of business was associated with that part of London, and, moreover, people who might become customers preferred to walk on the south side of the thoroughfare. The appropriation of so many sites to theatres and other places of amusement was an indication that the buildings which were superseded were not of extraordinary value.

It is not easy to impart a new character to a street, and there are varieties of business which are considered to be as unsuitable to the Strand at the present time as they were forty years ago. Hotels about Charing Cross are supposed to be patronised mainly by Americans, and special efforts are made to attract such visitors by the shopkeepers in the western part of the street. But towards the eastern part there is no predominating influence that can be discovered, and men of business who hold that demand must exist before supply are therefore chary about erecting premises on the new sites.

The felicitous proposal of the French syndicate agrees to a large extent with tendencies of which the effects have been witnessed for some years. The Strand was often selected as a place for exhibitions before any theatres were erected in it. Several reasons justified CHARLES LAMB'S designation of it as "the motley Strand." Everybody must have felt in King WILIAM IV.'S time that there was an appropriateness in the Lowther Arcade opening out of the Strand, for what exhibition could have for children the attraction of its twenty-five shops? Of late years the theatres have multiplied in it, and there is a belief that no part of London is better adapted for buildings of the kind. The French syndicate contemplate the erection of galleries for art and industrial exhibitions, a French theatre, a French restaurant and café. The average height of the building to contain them will be about 60 feet. On each side of the main building the crescent will be outlined by shops which will have basements and ground and first floors, although the height above the ground level will be only 27 feet. The space between the central block and the shops will be laid out, we are

told, as gardens, and ornamented with fountains, statues and flower-beds. A charge will be made for admission to the grounds. The roofs of the shops will be used as a promenade, to which access will be obtained from the gardens. It is also proposed to erect an open-air theatre for summer use. The promoters anticipate that the buildings surrounding the site will be let to French jewellers, bootmakers, milliners, confectioners, stationers, &c., or will be used as clubs, offices, or for other commercial purposes. Frenchmen are shrewd and wary, and it must be presumed that the people represented by Mr. W. GILBEE SCOTT and M. E. GÉRARD have worked out the financial problem in detail. But English theatrical and restaurant speculators will feel dubious whether with such self-imposed restrictions a rent of over 1,000*l.* a week can be paid in addition to all the other expenses which will have to be provided for. Open-air entertainments in London never have had an enduring success. Those at Earl's Court, which next to the special exhibitions at South Kensington have been most largely attended, can only be held during a brief season. For many years French theatrical companies have been performing in London, but not even Mr. MITCHELL has had the courage to set up a theatre in which performances were to be given throughout the year. French shows would no doubt be alluring, but as several already exist in London they could not be considered as novelties. Besides, English ladies who are the principal customers of such places have a belief, which is not easily shaken, that the French goods sold in England are very different from those which can be obtained in Paris.

The experiment will, however, become a most interesting one if it should be fully realised. The principles on which properties are valued in London may be derived from taking a too gloomy view of affairs. Frenchmen are economical, and they may be able to establish and uphold a business on less expensive terms than the majority of Englishmen. In displaying their trust in Englishmen they may contribute to secure a far larger number of customers than would be possible with English speculators. But it must be owned an establishment is not to be seen in Paris where a long range of shops and residences is of no greater height than 27 feet with a central building of 60 feet, and the whole combination is conducted in such a way as to pay a rent of 55,000*l.* It has almost become proverbial to say that in the business of entertainments they manage things better in France than with us, but it would be interesting to discover one instance in or near Paris where such onerous responsibilities are imposed and where the returns are remunerative to the shareholder.

During many years the houses which were erected in the French capital have had to consist of a great many storeys. Under no other conditions could they be erected and upheld with profit. It is therefore most praiseworthy on the part of the syndicate to set an example of sacrificing rents in order to promote the amenity of the Strand. The proposal could never be more opportune, and those who previously professed to have ascertained by calculation that only lofty buildings can pay should feel rebuked. As the Frenchmen have no magic at command, we are tempted to believe that they consider the laws which control the letting of property in Paris are entirely different from those which can prevail in London. We must also remember, to their credit, that the speculators are superior to prejudice and do not believe all that has been said about the obduracy to gaiety which is supposed to be a characteristic of Englishmen.

The prospect which is held out by the proposal is most fascinating. In the first place, the rent, if capitalised at thirty years' purchase, represents no less than 1,650,000*l.* A sum of that kind will be a desirable element in any attempt at balancing the accounts of the London County Council in regard to the Strand Improvement. The possibility of a delightful garden adjoining the Strand, which will not have a doleful aspect in winter, with

noble specimen of architecture as a background, must possess every inhabitant of London in favour of the project. The self-denying proposals, too, about refreshments are almost enough to turn temperance advocates to shareholders in the adventure. It is promised that a year's ground rent of 55,000*l.* will be paid as a deposit on the signing of the agreement, and that is an excellent proof of the genuineness of the transaction. Financially we must expect the experiment will be successful, or lose our faith in Frenchmen. But it would have an advantage of another kind for them. They are supposed to find a fitting *quartier* in a district of London which is not overprized by Londoners. One result is that the tenants of the dingy houses are taken to be true types of the French people. That is an error, for French gentlemen and French ladies are resident in other districts of the Metropolis and are duly appreciated. Possessing such a centre as is indicated by the scheme they would be able to impart some joyousness to London life, and that service could not fail to be duly acknowledged. Many varieties of the people could be seen; and with better knowledge of their ways an increase of confidence in them would be likely to follow.

NORMAN TYMPANA.*

ALTHOUGH it is more true in our time than in any former age that "of the making of books there is no end," yet there remain certain subjects which are overlooked. Norman sculpture could until now be counted as one of them. We expect that a great many readers when they take up Mr. KEYSER's excellent work will say that they have often thought of anticipating him, and had commenced the collection of materials. The sculpture we still see in tympana cannot be considered as sporadic. It is rather one of the links by which northern, western and eastern Europe were connected, and, moreover, through it Paganism was made suggestive for Christianity. The semicircular or segmental spaces which were formed by the employment of the arches in Norman churches are in form unlike the pediments of Greek or Roman temples. But both corresponded in affording desirable fields for the introduction of sculpture. We do not find in the Norman work such skill in composition as was to be seen at the Parthenon and in the temples at Ægina and Olympia. The Normans we might regard as self-taught artists, and it required many failures before they began to realise the great advantage of a symmetrical arrangement. But enough examples exist to suggest that with their limited skill they were approaching closer to that end when the style was superseded by the conditions which accompanied the use of the Pointed arch. Indeed, one of the attractions of the numerous plates in Mr. KEYSER's book is that we can, as it were, trace the efforts for the improvement of sculpture, and we may easily imagine how difficult progress was in an age when the mason's axe was slowly giving way to the chisel.

It was no easy task to prepare a book which would make this kind of impression on the eyes of the readers. Mr. KEYSER is a gentleman who appears to have an infinite capacity for taking pains for the benefit of other students of archæology. His list of buildings with mural or other decorations runs the risk of being taken for one of the ordinary South Kensington compilations, but it could only have been produced by long devotion to the subject. In 1879 he read a paper before the Society of Antiquaries, which was reprinted in the "Archæologia," on "Norman Tympana," and this fact will suggest how many years were necessary to bring his new book to completion. The majority of the examples relate to the Norman work during one hundred and twenty years, or

from 1080 till 1200. Some may belong to a pre-Norman date, and it is possible that sculptured representations were executed in Norman tympana in the Gothic era. The sources of the sculpture are described by Mr. KEYSER as follows:—

With regard to the origin of these sculptures it has been claimed for them that they preserve the forms and the designs of the early Byzantine style. No doubt, as in the case of the mural paintings, the first examples were introduced by the earlier missionaries from foreign schools of art, and skilled workmen may have been brought from abroad, from Rome, the more cultured portions of France and elsewhere to enrich our ancient churches with sculpture and carving. Several buildings were erected in the time of Canute which would, no doubt, exhibit some of the early Scandinavian ornaments found chiefly on the crosses which are most commonly met with in Scotland and the North of England. It was not, however, till after the Norman invasion, and then not till the twelfth century, that any great advance in the sculptor's art was made, and when the rich examples of which we are justly proud were executed throughout the length and breadth of the land. The Norman ecclesiastics who were imported into this country were no doubt responsible for the introduction of a more enriched form of Romanesque than had been previously attempted, but it seems clear, from a comparison which may be made with a large number of the French tympana (see illustrations in De Caumont's "Abecedaire d'Archæologie" and elsewhere), that a new school of art was speedily formed in this country, and, except in a few instances, we do not find subjects treated in the same fashion as those in France, whether we take early examples such as those at Bourges, or later ones as at St. Trophime at Arles and elsewhere. The west doorway at Rochester Cathedral is a notable exception, as with its series of figures on the arch mouldings, the statues between the jamb shafts, and the treatment of the subject of "The Majesty" on the tympanum, it clearly follows the designs of the earlier and magnificent specimens at Bourges, Chartres, Le Mans and other doorways of the great Romanesque churches in France. Even in Normandy, where, however, we do not find so many of these sculptured tympana as in the south-east and central portions of France, there is a difference in the character and treatment of the subjects represented, and, as in other directions, the individuality of the English seems to have asserted itself in the mouldings and sculptures of the churches.

DE CAUMONT distinguishes between compositions which have unity and patterns which are repeated, like diapering. Among the bas-reliefs in French churches the patron of the parish was occasionally introduced as the principal figure; others were symbolical, but the meaning is now uncertain. However, the subject which was most often selected was, according to him, CHRIST seated amidst symbols of the Four Evangelists. In England we retain a great many plain tympana which were possibly decorated by means of painted subjects, while in others we find such ornamental elements as stars, zigzags, cables, lozenges, &c. They may have then possessed symbolic meanings, but that is a point on which there can be no assurance. At Peakirk is a kind of triple fan, which is reputed to be intended to typify the Blessed Trinity. But as one has more divisions than the other that is unlikely. The chevron is employed in one of the mouldings, and the tympanum was probably arranged to be in correspondence with it. The examples of tympana, considered as a whole, are unequally distributed throughout the country. There is not, for instance, an example from Sussex or Surrey; only two are derived from Wales and one from Scotland. Mr. KEYSER explains this apparent indifference to sculpture by saying:—

This discrepancy may be simply due to the restoration and rebuilding of the churches, which was going on at all periods of our history, and possibly, as in the most recent case at Tetsworth, the most elaborate tympana have been destroyed to make way for work of a much simpler and less impressive style. In the course of modern restoration it is constantly being found that the walls of churches of

* Norman Tympana and Lintels, with Figure or Symbolical Sculpture still or till recently existing in the Churches of Great Britain. With many Illustrations. By Charles E. Keyser, M.A., F.S.A. (London: Elliot Stock.)

fourteenth and fifteenth-century date are in great measure composed of fragments of the earlier structure, the richly-carved mouldings inspiring one with regret at the expediency which caused the demolition of the former edifice. One of the most inexcusable acts of vandalism in this direction was the destruction of the very fine dated church of Shobdon, and the erection in the form of a triumphal arch in Shobdon Park of the splendid chancel arch, the two arches leading from the aisles to the transepts, and the very interesting tympana of the north and south doorways, now gradually getting effaced by exposure to the weather. It is fortunate that these have been delineated by G. R. Lewis in his account of Shobdon Church, and the illustrations in this work may also be of special interest in the future.

As there are 155 examples in the book out of the 210 which are believed to exist, the value of the illustrations as a record must be evident. It is, however, to be hoped that one of the results of Mr. KEYSER's labours will be seen in the greater care given to the preservation of the old sculpture.

In a few instances tympana announce the date of the church. The chancel of the church at Castor is in that way found to have been dedicated in 1124. But in the earliest examples of tympana in England a cross appears as the subject which gained most favour. Sometimes it is left as if standing alone, but generally there are supporters or symbols of some kind accompanying it. At Carlton-in-Lindrick there is a small cross at the apex, and a large rose and floriated cross each within a circle with two small roses on the main portion. Wheels were employed to suggest eternity. A tree served to indicate spiritual life and knowledge. Near the tree a serpent or serpents will occasionally be seen. Various animals appear which have been interpreted as having different significations. They are often of an imaginative kind. A centaur or sagittarius and a lion seem to have been favourites, and they are supposed to mean the contest between good and evil. In the very old chapel on the Rock of Cashel in Ireland, which is reputed as being founded by King CORMAC in the tenth century, the same subject is introduced. But it is maintained by some archæologists that the sculpture is evidence of having been executed at a later period, and that the sagittarius is simply the armorial ensign of King STEPHEN. The Munster lion has a large rectangular mouth, which suggests that he was to serve for a letter-box. It is needless to say a contest between a centaur and a lion appears to have been employed from the first century of the Christian era, and the centaur as a symbol dates from a still earlier period, for it is found on Roman and Etruscan monuments. The hermits were convinced that such compound beings were to be met with in the desert around them. On the bronze door of the cathedral of Augsburg, which dates from the second half of the eleventh century, two centaurs were introduced—one endeavouring to shoot a man, the other a lion. In a church at Zurich female centaurs appear. DANTE imagined centaurs were functionaries in the Inferno. It is possible that they may have had a variety of significations, and we are not always to take the Norman centaur as a sort of western ORMUZD, or principle of goodness.

Archæologists are sometimes amazed at the mocking, irreverent spirit which is suggested by the "Misereres" and other works of the Gothic carvers. But the introduction of animals as representative beings prepared the way for all sorts of divagations. One vigorous tympanum is found in the priory church of Stanley St. Leonard, which is supposed to represent the Fall. Mr. DE KEYSER says of it:—"Two large animals are facing each other, one holding the end of the tail of the other in its left forepaw, while with the right it is offering a circular object, ostensibly the apple, which the second animal seems unwilling to receive. Although one would hardly expect to find so serious a subject treated by a caricature of this kind, yet the general treatment and pose of the figures seems to favour the interpretation which has been hazarded." At Thurleigh we see

the remains of a more satisfactory representation ADAM and EVE, who are on either side of a symbol tree with a serpent coiled round it. The relief is cayed, but the meaning is still sufficiently clear to observers.

Old Testament subjects were not admired by Norman carvers in England. There are two representations of a man overcoming a lion, which may be intended for either SAMSON or DAVID. In the representations of CHRIST He either is suggested by the Agnus Dei or as seated in majesty. An example of Fownhope of the VIRGIN and CHILD is most elaborate for on either side is an evangelistic emblem amid intricate scrollwork. After describing the numerous examples in which the Agnus Dei is introduced, Mr. KEYSER remarks:—"It is interesting to note that there is a considerable variation in the treatment of all the subjects, showing that it was never the practice to carry these sculptures from any stock design prepared for the guidance of the individual mason."

The Resurrection and the Ascension could not have been attempted, or the examples in England must have been destroyed. But of the CHRIST in Majesty over twenty examples are illustrated. To undertake such undoubtedly required much skill, and we might suppose the subjects indicate comparatively late examples. At Betteshanger, CHRIST appears as a youth, but generally He is shown as a vigorous man. To Norman warriors the prowess of St. MICHAEL would appeal. He often occupies tympana. In order that there might be no error, it is recorded on the relief at St. Nicholas, Ipswich, "Her Sce Mihael Fehtid Dane Draca" (Here St. MICHAEL fighteth the Dragon). In our time the figures of SATAN do not excite terror, but in the eleventh century they may have produced a different effect. St. GEORGE, as another warrior, is easily recognised. He is as often shown on foot as on horseback. There may be other saints in the English tympana, but they cannot be identified owing to the absence of symbols. A suggestion of reverence to relics appears to have been expressed by the tympanum at Little Bytham. On the lintel is a series of square patterns filled with leaves. The semicircular outline of the tympanum is marked by similar ornament and two rows of billets. "In the centre," says Mr. KEYSER, "is a deeply-recessed circular medallion, and on either side is a dove within a circle, and a small animal in attitude of adoration, some interlacing circular rings filling up the space below. It is a tradition in the place that here within the medallion was preserved the skull of St. MEDARD, the patron saint (this being the only church in England dedicated in his honour), and that within the memory of some of the older inhabitants an imitation of the skull in white marble had been there enclosed."

One of the uses of Christian iconography is that it enables us to realise the belief of people at the time the images, whether painted or sculptured, were executed. Mr. KEYSER's plates will serve that purpose; they also have value as revealing the state of sculpture during the Norman period. The ornament of capitals, mouldings and architectural details is tolerably familiar. But the tympana called for a higher class of work, unless in those cases where a mechanical representation of one or a few ornamental forms was all that could be obtained. The sculptors, although they might have travelled and fought in Italy, were Northmen, and subjects where they could introduce serpents, dragons and monsters were likely to afford unusual delight to them. In others their hands must have been guided by men who knew something of the simple symbolism of the early Christians. The sculpture conveys a lesson to people of modern times, for the belligerents of the eleventh century believed in the necessity of the union of the arts, and were prepared to pay to have their buildings ornamented by painting and sculpture. Mr. KEYSER has brought into light partialities of the Normans which hitherto were only vaguely understood.

ACADEMY LECTURES ON SCULPTURE.

IN his second address on sculpture on Thursday, February 2, at Burlington House, Mr. Gilbert said that they had separated on Monday with the word idealism ringing in their ears, and on that note he intended to sound to the end, for it should be the student's starting-point and his goal. Since Monday he had made certain journeys in this wonderful city of ours; he had revisited the Elgin marbles, had seen Renaissance sculpture at South Kensington, and had visited also an exhibition that appealed only to the shilling public, where everything was shown realistically, from crowned heads to the lowest criminality. There was taste personal and there was taste public, and the last had nothing to do with them in art—nothing. Realism was good business, romanticism was a struggle, but idealism was only given to those who were prepared to sacrifice their lives in its pursuit. The artist's aim should not be a mere representation of nature, but a translation through his mind of nature's most beautiful qualities. His mind should be so elevated by idealism that it should pass over all the ugly things naturally, and let all that was hideous and sordid, all that could not belong to an artist, pass by. The students sitting before him no doubt chafed sometimes at the nature of certain of their studies, and were disposed to think that of the antique futile. There were some, of course, who held that the study of the living model should come first, and he could not say they were wrong, but in any case it was good that the student, while he was learning, should be brought up to admire such models of form as the antique. They would find greater beauties in the living model from which they were working if they compared nature with the antique and tried to learn how the Greeks attained to such perfection as the Theseus and the Ilyssus. Each was more beautiful than any living person because Phidias imbued his work with his own personality and brought it forth, like another Athene, from his brain. So when we compared the realism of Velasquez with the realism of to-day we saw that the Spaniard never painted an ugly thing—he made it beautiful, whatever it was—and in a portrait he painted the inner person, not the mere face.

Mr. Gilbert said he had just seen in the porter's lodge at the Academy, over the fireplace, a work by Alfred Stevens that he had known for years. It was a portrait study, probably of some old model. When he looked at it he could not help saying to himself, "Now, that is more than a mere representation of the outward—the work of a mind far above the average calibre." The study showed what manner of man Stevens was in other walks of art than those he professed, and it was a valuable possession of the Royal Academy. Mr. Gilbert then turned to the influence of art on great towns as shown in sculpture, and pointed out the efforts in this direction that were made in France and Holland—efforts that sometimes failed, but were generally right in intention. But here, said the lecturer, what did we get? Some one dies, we will say—some benefactor who has introduced the penny post—and instead of symbolising him as they should they set up a statue of him in a costume that in two or three years becomes an eyesore. They don't even call in a first-class tailor. Why should it be thought necessary to drag down a benefactor into ridicule on account of his clothes? Nothing could be more horrible than to provide funds to make a town hideous because the subscribers want to be able to recall the costume and features of those they knew. Symbolism was the greatest thing in art, and all the best things in art were built up round it. Why, then, should we want to make a sort of permanent New Road exhibition of extinct costume? Rather should we try to symbolise the man who had been a benefactor, and to suggest that if he wasn't like that he ought to have been. We artists were blamed for the present state of things—blamed because we don't insist, as we ought, that nature is never art and that art is never nature. Mr. Gilbert referred to Ford Madox Brown's wall-pictures in Manchester town hall as some of the finest combinations of idealism and realism with which he was acquainted, and concluded his address, says the *Morning Post*, with a few pointed remarks on the subject of what he called "side shows." He used the term, as he explained, to express "the little indiscriminate collections of one man's work" that were now the fashion. They did a man no good, and could not show his power because there was nothing to contrast it with. The artist in such exhibitions could not compare himself with others, and comparison and competition were absolutely necessary. Competition was a grand thing—so long as it was not for a pecuniary reward.

Mr. Gilbert in the opening passage of his third address, delivered on Monday, impressed once more upon the students before him that they were not specialists, but artists, and that the sculptor and the painter must regard equally the work of the other. We heard a great deal to-day of the modern revivalism in British art, although there was no such thing as British art or German art or French art. It was all one thing—one great calling. The work of our artists, rich and over-rich as it is in examples, had been by a bad fashion relegated to a second place; but if the matter were inquired into it would be seen that the art of our little island had had a distinct influence upon that of other countries. For our leading in plastic art we looked to France, but there was a *quid pro quo* in the influence that Constable, Turner and others had had upon the work of French painters. Plastic art in England had never been dead but only hibernating, and its revival had come about chiefly through the great educational advance in the country and the possibilities of study that had come with it. Mr. Gilbert said that many statements had been put forward as to the date of this revival in England, but he would like before going into this to speak to them of the influence of a great man whose work—though it might be dead to the students—he had never ceased to admire for its prowess and for its fixed and steadfast purpose. The man was Foley, who towards the end of his days launched out and created something that is still alive through his pupils. The names of a host of men might be mentioned who carried on the work of Foley, and its influence would some day place Foley in a position that has hitherto been denied to him.

Among foreign influences that of France had affected us most in plastic art. The influence came to us through the war of 1870, which sent us Carpeaux, Dalou and many others who handed on to us the impulse that French sculpture had received from the work of Rude. Chiefly the men through whom the French influence came were Carpeaux, Dalou and another who was alive, and therefore might not be named, but who had done more than anyone else to help the British aspirant in sculpture. Dalou's influence came second, but that of Carpeaux was not so strong, because he was more Latin, less classic, than the others. Carpeaux's great group of "The Dancers" in Paris was a masterpiece before which one should take off one's hat. Mr. Gilbert said he would not give "The Dancers" as an example to the student, but no one could see the work without regretting the indignity to which it had been exposed, an indignity of which the marks still remained. There was another foreign influence to be reckoned with in British sculpture, that of Boehm. We discounted his teaching nowadays, but if the students were to study Boehm's work they would see in it the instigation of a new train of thought and purpose.

Passing to less direct influences in the revivalism of art, Mr. Gilbert mentioned music as affecting most things in sculpture and painting. Turning to literature, he paid a tribute to Ruskin, whom he described as the exponent in words of the teaching that Watts had given us in another mode of expression. It was curious, too, how many of our artists in words had been wielders of the brush. Rossetti, for instance, and Burne-Jones too, whose letters and conversation showed him to be a born poet. Madox Brown was a considerable writer, as well as a combination of all the qualities of art. Of William Morris there was no need to speak—they all knew of him—but of another man, who was perhaps more of a poet than a dabbler with sticks and clay, they had perhaps never heard. He spoke of Woolner, whose work he saw at a time when he was full of revolutionary ideas. Although he could not sympathise with it, he could not help admiring it. Mr. Gilbert, who said that his address, to which he had given no title, might well have been called "In Memoriam," then spoke in eulogistic terms of many other artists who have died in recent years, including Leighton, Costa, Millais, Pettie, George Lawson, Onslow Ford and Prinsep. Leighton he described as one of the most remarkable all-round men that England had seen—a painter, a sculptor, a man of the world and a great trustee and guardian of British artists and of all artists who came here. The Colossus, Millais, a man unequally understood but always great, was a master whose work was one of the jewels in the crown of the Royal Academy.

In conclusion Mr. Gilbert referred to his remarks on Thursday concerning the influence of art on great cities. He had not said anything then about the influence of great cities upon art, which was a different matter altogether.

Modern developments and modern education had made corporate bodies realise that their cities should be beautiful. When he was young all the monumental work and the designing of monuments for cities was given to two or three men. Everyone knew to whom a commission would fall. One of the healthiest signs of the sculpture of to-day was that this kind of work was no longer a close business. There was a chance for the young man now, for the great cities employed the talents and brains of the artist—whatever his age or standing—whom they believed to be the most capable.

WOLVERHAMPTON AND DISTRICT ARCHITECTURAL ASSOCIATION.

THE annual meeting of the Association was held at the Law Library, Lych Gates, Wolverhampton, on January 26, when Mr. Fred. T. Beck, president, delivered the following address:—

The study and practice of architecture incites a mysterious interest in mythology, antiquity and romance, such as can only be obtained by serious application, deep reading and vigorous attention to detail. It also requires, at any rate so far as the practice is concerned, a knowledge of every trade connected with the erection, construction and completion of buildings, and a ready and resourceful mind to grasp the general outline of the conduct of almost every other trade and profession with which one may be brought in contact when acting in a professional capacity.

The consideration of these facts causes a doubt in my mind as to whether they are ever properly explained to young aspirants for the profession on their first introduction, and I fear that in many cases the awakening has gradually developed into a feeling of despair and hopeless regrets. On the other hand, the result is that many outside the profession, especially such as are of a sentimental turn of mind, study those portions of the subject to which they are most susceptible, and which are generally the most attractive and interesting, and believe themselves to be equal in all respects to fully-fledged practitioners, but quite superior to them in respect to the particular lines they have interested themselves in. I have known men who even boasted that they could make their own plan, only wanting the construction and design arranged for them, and were quite hurt if any improvements in the planning were hinted at; others who habitually criticise design, but only acknowledge their part in the work if it turns out a success, in which case it is difficult to decide what part the architect took in it at all.

Bearing in mind these facts, some light is brought to bear on the reason why so many works of importance are entrusted to be carried out under the supervision of those who have had no proper architectural training whatever, to the detriment of those who have not only had to work hard, but also to pay heavily for their professional education. I suppose that in other professions the amateur who persuades himself that he has become more or less acquainted with their principles also turns up at times—for we have the amateur lawyer as well as the amateur doctor, or quack—but there is certainly this difference to be observed, that however much they ingratiate themselves with, and become recognised and encouraged by the general public, they do not appear to gain credence with governing bodies and municipalities. In our profession the case is different, and I regret to notice that in the encouragement of such improper and injudicious proceedings the labour representatives—who, should a strike occur in the building trade, always appeal to the architects to support their views—are the worst sinners. Evidence of this fact we need not go far to seek and find.

I do not, gentlemen, for one moment refer to any municipal body in particular—only to public bodies and municipal governing authorities in general; but there appears to be lamentable ignorance abroad as to the difference between a civil engineer, a borough surveyor and the profession we represent. When considering this subject it has always appeared to me paradoxical that those who are so careful to guard the interests of each particular trade by protest and active opposition to any encroachment of one on the other should be first in supporting the violation of that principle in the carrying out of works under their control. To suppose that economical reasons guided them would be, I feel sure, a slander on their intelligence, and even if one could go so far, recent events prove the negative character of their views.

This action tells particularly heavily on us at the present juncture, and notwithstanding these depredations on our

justly claimed means of livelihood, the exactions in the way of rates and taxes are on the increase, and we are bound to pay and help to support a system which, while depriving us of our means of existence, affords to officials already endowed with good salaries commission for carrying out works which should fairly be placed in our hands. Possibly it may be worthy of our consideration to invite some of such representatives to meet us to discuss the situation and to explain our case.

I feel justified in addressing you to-day on these matters not only in consequence of recent events, but also because another menace to our profession appears to be growing on the part of educational authorities, who are engaging the services of officials (who in some cases are trained members of the profession) to carry out the works they may have in hand at a comparatively small fixed salary, instead of employing independent members of the profession on the usual terms. This, gentlemen, cannot tend to efficiency or economy, especially as we know that in course of time the amount of work accumulating in such offices must inevitably result in juniors being entrusted with important undertakings, or else the staff is unduly increased. Can we under the circumstances longer refrain from making a bold and united attack on this injustice, is a question for all of us to give very earnest consideration.

To publish abroad an evil, however, without the suggestion of some definite means of rectifying it is, you will say, of very little utility, and I venture to suggest that we should take every opportunity of putting strongly before those who are responsible not only our views, but also our claims and the objects we desire to attain. And here I would briefly suggest the principles we may agitate for, subject of course to such modifications as further consideration and wisest counsels may approve, viz.:—

1st.—That all works of a monumental character or national importance should be open for competition to all architects in the kingdom on fair and reasonable terms and conditions.

2nd.—All works under the jurisdiction of the county authority be either competed for by those practising within the county or generally divided as occasion arises among them.

3rd.—That works under municipalities be given out in a similar manner among architects practising in such municipality.

4th.—All salaried officials shall confine their attention to works for which they are specially trained, and in no case to the carrying out of new buildings or extensions to existing buildings, but only to such alterations as may not involve enlargement; and in the case of borough engineers to street and drainage works pure and simple, including of course advising the Council on plans submitted for their approval. Also that a limit shall be placed on the number of their staff according to the size and importance of the municipality where engaged.

5th.—In all cases where professional men are engaged the usual terms of payment shall be observable in all respects, whether it be necessary for them to work in conjunction with the salaried official or not.

6th.—Salaried officials to be allowed the privilege of taking pupils under certain restrictions and limitation.

Other suggestions and principles must, of course, arise in working out a scheme for our acceptance, and I merely put these before you to-night as a preliminary introduction to the system we might aim at. As heretofore implied, I have gone somewhat fully into this portion of the subject because it is one of such immediate interest and importance, and one point I wish most particularly to emphasise is that we are not reflecting on or criticising the actions of any officials; in fact, we most earnestly feel that our scheme would tend to their betterment, enhance their position, and relieve them of many unfair and troublesome responsibilities. There are numerous other troubles which handicap us in practising our profession, which I do not propose to enter on to-night, but rather to postpone until some other suitable occasion—the consideration of the position and relationship of architect and client, principal and assistant, pupils, and the extent to which specialty should prevail in an architect's practice.

Before finishing my remarks I desire most sincerely to express to all members of the Association my gratitude for the kindness and forbearance shown towards me during the year I have had the honour of presiding over it, how deeply I appreciate the honour, and my earnest wishes for the continued prosperity of the Society and each and all of its members, as well as my sincere appreciation and thanks

for the honour conferred by re-electing me to the position. I must also once again refer to the passing away of our dear friend, George Hurst Stanger. The day for regrets and mourning is now past, and I would rather we should rejoice as we contemplate the pleasure with which he always rendered his fullest share of duty and responsibility in the formation and progress of this Association. May we hope that to him this life is even now but a happy incident in his progress to higher attainments in the service of his Maker.

EXPLORATION IN CRETE.

THE annual report of the "Cretan Exploration Fund," which was issued to subscribers about six weeks ago, summed up the results of the season of 1904, both at Knossos, where Dr. Evans was continuing his successful labours, and at Palaikastro, where Mr. R. C. Bosanquet, the director of the British School at Athens, was, with his colleagues, carrying on the important excavations begun on that site two years before.

At Knossos not only did Dr. Evans discover considerable extensions of the palace, says Mr. G. A. Macmillan, but also came on a paved roadway leading to important Minoan buildings, outside the palace area, which from various indications seem not unlikely, to have been the royal arsenal. Moreover, he found on a hill about a mile north of the palace a series of tombs, containing both jewellery and vases of great interest and beauty, while still further away in the same direction he discovered a yet more important sepulchral monument, for which he was tempted, from its size, design and contents, to suggest a royal attribution.

Mr. Bosanquet's work at Palaikastro laid bare a further area of the Minoan town; cemeteries were opened and yielded interesting contents, and the discovery of a marble slab with a Doric hymn in honour of the youthful Zeus seemed to establish the site of, at any rate, one of the temples of Zeus Diktaios.

The managers of the Cretan Exploration Fund and the managing committee of the British School at Athens hope to carry on the work both at Knossos and at Palaikastro during the coming season if sufficient funds are available, and the main purpose of the committee is once more to appeal to the public to provide the necessary sum.

The accounts recently published show that the 1,800*l.* raised last season was not quite sufficient to cover the expenses. The fund therefore starts the new season not merely with an empty exchequer, but with an actual deficit of more than 200*l.* It is estimated that to do all that Dr. Evans contemplates at Knossos during the coming season a sum of about 2,000*l.* will be required. At Palaikastro they can, no doubt, make good use of at least 500*l.*, though some part of the cost can be met by the school from its own resources. Towards the sum of 2,500*l.* new subscriptions amounting only to about 200*l.* have been received, while a further grant of 100*l.* has been voted by the Hellenic Society. These facts speak for themselves as to the urgency of the need if this valuable work is to be carried to a successful conclusion.

THE CAMPANILE, VENICE.

THE committee entrusted with the superintendence of the work in connection with the re-erection of St. Mark's Campanile, says the correspondent of the *Glasgow Herald*, has published particulars of the progress made during the past year. The report states that during 1904 3,076 trunks of larch trees, having an average diameter of 8 inches and length of from 12 to 13 feet, have been driven into the ground around the old foundations, which have been thus strengthened sufficiently to bear a load of 16,000 tons and support a pressure of 4.82 tons to the square foot. Larch trees have been used in preference to oak, as their trunks are straighter. The spaces between these piles have been filled up with cement and stones, the whole forming a solid and reliable base on which to raise the superstructure. This foundation has been further strengthened by placing above it a further row of piles laid lengthwise and covered with cement. Up to the present the total expenses connected with the work amount to 115,588 lire (or about 4,623*l.*), 79,914 lire having been spent during 1904 and 36,674 lire in the preceding year. Still greater precautions are to be taken to insure the stability of the new structure, and it is estimated that before the base is considered thoroughly reliable a sum approximating 8,000*l.* will have been expended.

NEW MAGISTRATES' OFFICES, SOUTHAMPTON.

THE following notes on a perspective published in *The Architect* of January 27, entitled "New Magistrates' Offices, Bargate, Southampton, Mr. E. F. Harmer, architect," have been sent to us by Mr. R. M. Lucas:

1. The perspective illustration professes to represent an actual building, and the actual building that will stand on the site. 2. Mr. E. F. Harmer announces himself as the architect of that building, and has made no correction. 3. The illustration shows features apparently taken from my revision of the official elevation. 4. Where it does not show these features, it makes no departure, except in one or two easily understood cases, from representing the official elevation.

The features referred to are:—1. The thickening of the timber generally. 2. The omission of all the timber cusping. 3. The actual number of timbers in certain defined spaces. 4. The stopping of the stone string at a certain point. 5. Substitution of splay-sunk triangles for carving. (In the window heads carving *outside* the line of reveal was shown.) 6. A roadway is shown right through the Bargate.

THE LATE THOMAS BLASHILL.

AT the conclusion of the formal business at the meeting of the Surveyors' Institute on the 30th ult. the President said:—"Since we last met the Institution has lost an esteemed member and the Council a valued colleague by the death of Mr. Thomas Blashill. I will not dwell on our lost friend's many high qualities. They are known to you all. But I cannot allow the occasion to pass without a tribute to the gifts, mental and moral, which enabled him, without influential connections or social advantages beyond the common, to attain to the important and responsible position of superintending architect to the London County Council and to a seat on the governing body of this and a kindred professional Institution. Though some of us did not, on every occasion, see eye to eye with him on questions of public policy, none of us ever failed to recognise and appreciate his absolute honesty of purpose, and the spirit of sturdy independence which characterised all he said and did in every relation of life."

AMERICAN SCHOOLS.

A PAPER was read at the meeting of the Illinois Society of Engineers and Surveyors by Mr. F. Oswald on "Schoolhouse Construction." Buildings with a capacity of more than 800, he said, should be built entirely of fireproof material. The very small ones might be constructed of wood. The floors should be constructed for a live load of 80 lbs. per square foot. In the plans great importance should be given to the lighting and ventilation and to the comfort and safety of the scholars. Stairways should be not more than 4 feet wide, so that only two files could pass down them. The height of steps in primary schools should be 7 inches. The windows should be double-glazed, as this saved 30 per cent. of the heat lost through single-glazed windows. The amount of glass surface should be one-sixth the area of the floor.

The Ceremony of unveiling the memorial of the late Archbishop Temple in Canterbury Cathedral, which is in form of a bronze kneeling figure of the Primate in his robes, holding a book in one hand, is postponed until after Easter. The statue is of heroic proportions—about 7 feet high—under a canopy, supported at the four corners by angels. The monument has been erected at a cost of about 2,000*l.* by direction of the London committee of the Temple Memorial Fund, and was designed by Mr. W. D. Caröe, architect to the Dean and Chapter, the sculptor being Mr. N. Hinch.

The Lord Provost's committee of Edinburgh Town Council approved of a sub-committee's recommendation that a site on the Calton Hill be suggested for the erection of a new Scottish National Gallery by the Government, and that, if the Government approved, the Corporation should give facilities for its acquisition, but if the suggestion did not meet with approval, the Corporation would be glad to give consideration to any proposal which might be submitted to them by the Government.

NOTES AND COMMENTS.

THE competition for the model dwellings which are to be erected by the ROTHSCHILD family near Paris has certain novel points, or at least some which do not correspond with English procedure. The carrying out of the buildings will be entrusted to a bureau of architects who will have a fixed stipend. M. NENOT is to act as consulting architect. Designs are, however, to be sought, and possibly some of the competitors may be given the opportunity of being selected for the bureau. From the drawings sent in for the first or general competition the jury can select as many designs as they consider necessary, and the authors will be invited to take part in a second competition. The second competitors may alter their designs to any extent they think desirable, and each of them will receive an indemnity of 60*l.* The jury will award premiums which will vary from 160*l.* to 400*l.* But apparently the whole sum to be distributed in indemnities and premiums will not exceed 2,000*l.* The designs will, of course, be employed to afford inspiration to the bureau.

"THRIFT, thrift, HORATIO," in regard to artist's work is often observed by Government departments, and is no doubt supposed to compensate for extravagance in other forms. The latest instance affects the reputation of ALFRED STEVENS. Mr. GILBERT, R.A., did not exaggerate when he said he could not understand how anyone could stand before one of STEVENS's works without taking off his hat. That would appear an absurdity to the notorious AYRTON, who worried the great artist almost to death. He at least demonstrated to his own satisfaction that if tested by the scale and traditions of the Office of Works, sculptors and market gardeners stood on the same level. Dean MILMAN, although a playwright and a poet, agreed with the First Commissioner. To him, STEVENS's design for the WELLINGTON monument was an absurdity. At a later time an effort was made to complete the work which STEVENS left unfinished, just as in the old days weaklings endeavoured to use the bow of ULYSSES. But the climax we hope has been reached more recently. STEVENS's lions, which he designed for a railing in front of the British Museum, are no longer required. If one were sent to each museum or art gallery in the country it would be a lesson in applied art. But authority has decreed that several of them are to be used for a railing around the WELLINGTON monument in St. Paul's. Poor STEVENS did not consider a barrier was necessary, but officials who controlled and hampered his work during his life have come to the conclusion they can improve it after his death. The treatment of the lions, it is needless to say, does not correspond with any part of the memorial, for they are more archaic in style, but that, of course, is an incident which, to the official understanding, counts for nothing. How many more degradations is the monument destined to endure?

ILLUSTRATIONS.

MOUNT STUART, ISLE OF BUTE, N.B.

WESTMINSTER CATHEDRAL: TOWER FROM SOUTH-EAST.

THE CROFT, BURY ST. EDMUNDS.

LYMPHAM RECTORY, SOMERSET.

LYMPHAM new rectory cost 2,300*l.* It is built of Bridgwater brick, with Doulling stone windows, the roof being covered with Roman tiles. The builders are Messrs. DENNIS, Westbury, Somerset. As the foundations are a difficult matter in north-east Somerset, owing to the depth of peat which underlies a strata of clay, it was necessary to make the footings of cement concrete. The architect is Mr. E. SEDDING, of Plymouth.

THE CASTLE OF NUREMBERG.

MR. HAIG could not take in more than about a third of the castle, as it is a very extensive place and of exceedingly irregular form, consisting of a variety of buildings, some of which were constructed purely for defence, and others for the residence of the Emperors, together with chapels, gates and towers. At the left corner of the sketch we see just an angle of the great so-called Funkeckigen Thurm, or five-cornered tower, and to the right is the round tower, called the Westner-Thor Thurm, the top of which is the highest point of the whole town. Then beyond the buildings is seen just the top of another tower, called the Heiden Thurm, or the heathen tower, which is supposed to be the oldest part of the castle; but it is uncertain whether this tower, with its adjoining building, or the Funkeckigen Thurm, was the work of CONRAD I., who is said to have built himself a castle here. What is known is that the earliest date that can be affixed to the castle is some time in the tenth century, and it is doubtful whether any part of the town itself is older. FREDERICK BARBAROSSA added to it after CONRAD, and the great Kaisers had a preference for this castle as a residence, living here at intervals from the time of the Emperor HEINRICH III., circa 1050, to that of the Emperor JOSEPH I., 1704. Even as late as the nineteenth century royalty occupied the castle, for LUDWIG I. of Bavaria and his Queen resided here in 1833 and 1840. The bastions, of which a portion is shown to the right in the sketch, were built under the direction of the Italian architect, ANTONIO VASIANI, in 1538, and as some hundreds of the inhabitants were compelled daily to labour at these works, a serious rupture at one time nearly took place between the town and the Markgraf VON ANSBACH, the commandant. The rock forming the foundation of the castle has in many parts been strengthened, and its crevices filled up with masonry and brickwork, resulting in a charming variety of colour. The trench is still called Schnepferleinsgraben, a name remaining from the times when it was the resort of the townsmen to engage in practice with the crossbow.

COURTYARD OF AN ANCIENT PALACE, MALINES.

THE building here represented by Mr. HAIG possesses some interest to the student of the history of the Low Countries, as having been at one time the residence of the celebrated Princess MARGARET OF AUSTRIA, daughter of the Emperor MAXIMILIAN I. and MARY OF BURGUNDY. Here also no doubt were spent some of the early years of the afterwards powerful Emperor, CHARLES V., her nephew, whose education had been entrusted to her, and here she exercised for many years a powerful political influence over the fortunes of the Netherlands. The neighbourhood possesses many interesting historical associations, and it is much to be regretted that of the reputed magnificent palace of CHARLES V., which was situated scarcely a hundred yards to the south from here, there is not now a vestige left, except a few fragments built into various rude walls. Now so exceedingly quiet, the town of Malines has seen stirring times, and the wonder is that there is anything old left at all. First the wars and then local vandals have from time to time removed many landmarks of history, but still the town possesses enough in its fragments of ancient architecture to make it rank with the most interesting of the cities of Flanders in antiquarian wealth. The present subject has been much dismantled. An arcade of late Gothic character adorns a portion of the quadrangle; the windows, partly blocked up, are of varied design, showing the same mixture of early and late Gothic forms of arches, as well as the later square-headed and transomed windows, which may be observed in so many houses in Bruges, Ghent and other towns of Flanders, suggesting a Spanish influence. The courtyard is sufficiently bare and bleak now, but with the exception of a blocked-up arch and window having been opened up in the drawing, the building itself will be found as it is here represented.

ROYAL INSTITUTE OF BRITISH ARCHITECTS.

A MEETING of the Institute of Architects was held on Monday evening last at Conduit Street, W., Mr. John Belcher, A.R.A., president, in the chair.

Mr. ALEXANDER GRAHAM, hon. secretary, announced the decease of Mr. George Hurst Stanger, of Wolverhampton, Fellow, elected 1892, and also of Mr. Walter Aston, of Manchester, Fellow, elected 1901. Mr. Graham further announced that the late Mr. J. T. Wimperis had bequeathed to the Institute the sum of 1,000*l.*, "to be applicable at the entire discretion of the governing body for the time being of the said Institute, for the encouragement and promotion of the study and knowledge of architecture or other purposes of the said Institute." Continuing his remarks, Mr. Graham said he had also the satisfaction of announcing that Mr. Macvicar Anderson had given twenty-four Architectural Union 10*l.* shares, and Sir Aston Webb nineteen Architectural Union 10*l.* shares for the purpose of promoting architectural education.

Royal Gold Medallist.

The PRESIDENT said Sir Aston Webb, R.A., had been nominated by the Council as the recipient for the Royal Gold Medal, and his name would be submitted to the King for approval.

The PRESIDENT then read the following:—

Address to Students.

Fellow-students of the art of architecture,—I address you all as fellow-students, for with us, as I dare say you know, it is "once a student, always a student."

Our service is not for a term of years; the brief period of formal apprenticeship is followed by another very similar in its abiding purpose to what the Germans of the old-time guilds used to call a youth's *Wanderjahre*—with this difference, that our period of *Wanderjahre*, our earnest search after the best, only terminates with life itself. We must always take a watchful interest in all that pertains to our art, and be ready, all of us, old and young alike, to assimilate every real advance, every true development. To you who are now serving your term of formal apprenticeship I say, Make the most of your opportunities, for they will pass all too quickly. The time thus dedicated to the acquisition of knowledge and the attainment of proficiency, to the training of your powers of observation and imagination, will prove all too short for the end you have in view. The mistress we serve is a jealous one; and if we would woo her successfully, we must be prepared to make sacrifices and to forego many indulgences. The ordinary amusements and pleasures of youth will often have to give way to the claims of your art, to the duty of sketching or measuring, or to the duty of constructive art; in short, you must be ready to avail yourselves of any and every opportunity that may present itself for enlarging your experience and knowledge. Above all, take your art seriously, for it is only to the earnest student, we may almost say to the devotee, that the veil is lifted that shrouds the mysteries of our art. It is with the greatest interest that year by year we examine the results of your efforts, and with the best of good wishes that we assign reward and prizes. There are many who have not won prizes who yet have accomplished very good work—work which will stand them in good stead in after-life. To all I would say, "Do not rest upon your laurels; preen your wings for higher flights." The knowledge and discernment you have already acquired are as nothing to the more subtle secrets, the more hidden beauties, that await your earnest search.

I do not propose, nor is this the occasion to discuss, the course of study necessary for the initial equipment of the architect: that is a matter which is being carefully threshed out by the Board of Education. Nor will I venture to criticise in detail the admirable drawings submitted; this will be done leniently and sympathetically, I have no doubt, by Mr. A. N. Prentice. But I do want to take this opportunity to emphasise the importance of a more systematic study of those buildings which are universally recognised as good. "*Quod semper, quod ubique, quod ab omnibus*" is a dictum which we may very well borrow from the theological schools and, having borrowed, stick to. Moreover, I should like to suggest certain methods to be adopted in the study of such examples. The student's first impulse perhaps is simply to annex the whole subject as "stock" or "copy." Now, certainly it is a very right and proper thing to sketch the building as a whole, but while doing so we must not let our thoughts lie idle; we should endeavour to discover why the subject is beautiful or admirable, what are the elements in it which

have contributed to that result. At first, it may be, such an effort seems to go unrewarded, but if the habit be persisted in intelligent perception will awaken, little by little the light will grow, and soon it will be quite easy to disentangle from the mass, as it were, those characteristics, those laws, those conditions, which have made the building what it is. While traversing some particular line, for instance, note its relative proportions to the other parts. Follow out, if you can, the methods of construction, and mark how the effects are produced. Examine the general masses from various points of view and study the composition of your subject, not only in respect of its component parts, but also in relation to its environment. The latter is of great importance, for one of the chief elements of success in a building is its adaptation to its surroundings. Here it is especially that "scale" comes in, for the scale of a building must be either in keeping with or in contrast to adjoining buildings or objects, just as colours must either match exactly or be complementary to one another. Scale is relative and determines the proportion of one part to another and of the several parts to the whole. It is like the dominant note or key in a musical composition. You are probably all of you aware that sounds which harmonise and please the ear have fixed relations to one another. For instance, if you strike an object of a metallic or otherwise resonant nature, a trained ear can distinguish three notes in conjunction—viz., the fundamental or keynote, and the third and fifth in the division of the octave. These "harmonics," as they are called, will be most clearly recognised in listening to the sound of a large bell. Colour also has its divisions and harmonies, and you will not get far in architecture without discovering that here also similar laws hold good, and that there is such a principle as a true proportion of parts in the scale of building. It is only by a diligent study of and a careful regard for these laws that we can effect a harmonious composition, which all the same can never be merely mechanical in architecture, any more than it can in music. There is as wide a range of possible combinations and developments in the one case as in the other. The great architects of every age and every country have exhibited as wonderful a variety of progressions and characteristics as can be found in the works of Mozart, Beethoven, Mendelssohn or Wagner. You should also have regard to the aspect of the building you are studying—whether it is situated in the narrow street, the broad thoroughfare, or in open ground. Note how the projections and lights and shadows are determined on each frontage. Where the sun penetrates reflected light may be taken advantage of. Projections and shadows on a south front are by no means the same as they would be with a north aspect. How well Vanbrugh, amongst others, understood this! I mention Vanbrugh because his insistence on this point is so obvious.

It is only thus by analysing and searching out the guiding principles which have actuated men in the past that we shall really profit by a study of their work. If we can discover the sequence of thought which has guided them in the achievement of fine results, we in our turn may, by taking thought, successfully work out the problems which come before us. Depend upon it, that which we admire in their work is not the result of careless, accidental, or haphazard arrangement of materials. No, there is thought behind it all—sometimes naïf and immature, and sometimes even "smelling of the oil;" but there it is, and the best results are just those upon which the best thought has been expended. If genius is not, as it has been defined, "an infinite capacity for taking pains," at any rate in architecture, it is very nearly akin to an infinite capacity for taking thought. The best thought, however, does not advertise itself, and the best work is not necessarily that which first arrests our attention. How often has it been our experience in the past, when going to a place a second or a third time, to come across some excellent building which altogether escaped our notice on a previous visit. Rely upon it, such a building will repay careful examination. Do not be misled by the apparent simplicity of much of the best work, for this very simplicity, if not the outcome of profound thought, is the triumph of a practised genius. "Through the complex to the simple" is almost a law of mental evolution. Do not therefore fall into the error of a certain member of a building committee who remarked to the assessor in a competition, "I cannot understand why you have put So-and-So's design first. It is so simple—anybody could make a plan like that." When it was pointed out to him how difficult the other competitors had found their task, and how complex and incoherent some of their designs were, it began to dawn upon him that perhaps

there was more in Mr. So-and-So's design than met the eye of a casual member of a building committee. When you are making a study of a subject it is upon the work as a whole that you should concentrate your critical acumen. Do not allow your attention to be diverted by attractive or suggestive bits, and do not wander off into the by-paths of archæology. When you study mouldings, for instance, or similar features of a building, do not regard it as an opportunity for speculating what date, style or period it belongs to, but regard it from the point of view of its true purpose and meaning. In the case of the mouldings, consider not merely their beauty of form, but their effectiveness in affording shadow and protection. Archæology has its place, but it should be kept there. It often usurps the interest and attention which ought to be given to the example as architecture. The glamour of historical romance has served to invest many a building with a purely factitious value. The accidental effects of age and decay appealing to the sentiment of the man pervert the judgment of the artist, to his own detriment and that of his art. This same sentimental halo, hanging around all that is ancient, is responsible for the many imitations, forgeries and affectations which have so long dogged the footsteps and hindered the progress of genuine architecture, and which in some cases have proceeded to such an extreme of absurdity as to tempt men to forswear the past altogether and to rely upon their own creative faculty to invent something altogether new. This is the other extreme of folly—for folly it is to think that our inherited traditions can be safely ignored, or that buildings which have stood the test of time and criticism have nothing to teach us. They are, on the contrary, as mines of wealth in which, digging deep, we shall unearth many a hidden treasure.

They put before us problems—and their successful solution. They portray many various methods and effective combinations, suitable forms adapted to different materials, varied textures serving a definite purpose, and other elements of beauty and strength which, if not always entirely realised, are yet present as an ideal which we may all study with advantage and strive to express in our own work. So I say to you, my youthful fellow-students, Steer an even keel, if you can, between the Scylla of a superstitious and sentimental regard for the past and the Charybdis of a contemptuous indifference to all its works. If an example is merely old, leave it alone; if it is artistically good, approach it with all reverence, and examining its structure within and without endeavour to discover the secret of its charm, even as a bee extracts the honey from the flower. Do not make the mistake of supposing that you will necessarily be able to define the exact nature of the secret.

There are principles of architecture as absolutely reliable and yet as vague and ill-defined, as much "in the air," if you will allow the expression, as the laws which govern musical progressions or the methods which underlie true literary form. In no one of these cases can the subtle secrets of the art be distilled in the form of express and mechanical rules. If we desire that our own powers may be moulded and guided on true lines we must, as it were, live in the storehouses, continually absorbing the spirit of the masters as embodied and expressed in their works. Centuries of experiment and criticism, generation after generation of trained perceptions and cultured intelligence, have gone to determine what is good, what is beautiful, what is true. Shall we throw away the results of all this? Rather let us recognise and admit that our knowledge should be based upon the experience of those who have gone before, and our taste trained and refined in the study of the cultured monuments of the past.

As Professor Clausen has said in reference to paintings, "The work of our own times may lose its freshness and interest in a few years, while the older works still hold us with an increasing charm." There are many ancient buildings in our own and every land which hold us with an ever-increasing charm, a charm attributable to their simplicity and self-restraint, their sincerity and directness of purpose, the straightforward and appropriate way in which they declare their object and intention. Every such building will be found to possess a vitality of its own which, so far from ignoring traditional methods, has taken them up and carried them on a stage further. So now the proportions and values which have determined good effects in the past must hold good to-day. The needs of the time, it is true, call for special and characteristic expression; we may have to readjust, to combine afresh; but every new departure, if it is to be true and lasting, must take the old

as its starting-point, the past as its basis, that which has been already accomplished as its foundation.

In all good work we shall discover a perfect blending of science and art, so combined that it is impossible to say where the one ends and the other begins. Where these are divorced there can be no true architecture. A steel-constructed building, for instance, cased with terra-cotta—or any other material for the matter of that—is not architecture at all. In studying a building this is the first test to be applied; this is the standard to which we must first submit it for judgment. Do not begin by sketching or noting merely surface decorations or artistic embellishments; rather take the details of construction as your starting-point. Note the size and bedding of the stones and the position of the joints—elements of beauty which are too often overlooked. Examine the methods of support and resistance, not thinking only what is necessary, but also how it satisfies the eye. Discover the scientific and mathematical problems which have been successfully worked out. Yet do not even in thought separate the science and the art of the building—the two are conjoined and must be studied together and simultaneously. The building must be solid and strong as well as graceful and pleasing. Stability is demanded no less than beauty. In fact, good construction, including the right use of materials, is a prime essential and the foundation of all excellence in architecture. Nowhere, I think, is this more forcibly demonstrated than in the career and work of Sir Christopher Wren; who, both by education and the bent of his youthful genius, seems rather to have been of the scientific and mathematical than of the artistic order of mind. Though, like all educated men of his day, he took an intelligent and cultured interest in architecture, he received no special training for such work. Wren took his degree at Oxford at the age of eighteen, became a Fellow of All Souls at twenty-five, and three years later was made a D.C.L. of Oxford and an LL.D. of Cambridge. Obviously it was not upon the ladder of architecture that he rose to these distinctions. As a matter of fact he was professor of astronomy at Gresham College, and in mathematics and astronomy he acquired for himself a European reputation. He was also President of the Royal Society in 1680.

I have adduced these facts to show that though he undoubtedly possessed a very wide range of general knowledge, and was endowed with natural gifts of a wonderfully high order, all these were in the early part of his career directed to the practical side of life rather than to the artistic. His art was dormant; it was there, however, and he sometimes gave the rein to it a bit, for he is said to have invented mezzotint, or at least some improved method. It is interesting to speculate what it was that finally drew all his wonderful gifts and powers into the service of architecture. Whether the determining impulse came from within or without—probably a bit of each—I cannot doubt that it was the scientific or constructive side of architecture that attracted him in the first instance, and that led him to accept an appointment as Assistant Surveyor-General of His Majesty's Works. In our own experience we find cases where we are much more impressed by the constructive beauty of a building than by any other feature in it. So there is an order of mind to which power and fitness of purpose appeal with unusual force, just as, again, a mathematical mind finds a fascination in the treatment of solids and voids and of superincumbent masses. The first important work entrusted to Wren in his new office will serve to indicate not only the natural bent of his mind, but also the official appreciation of it on the part of the authorities. He was set to examine and report upon St. Paul's Cathedral, which it was feared was in a dangerous condition. It is evident from the report that he did his work thoroughly—the very first thing he did was to measure the whole building carefully—and the insight and experience that he thus gained in constructive work stood him in good stead afterwards. With respect to the roof he says:—"It is evident by the ruin of the roof that the work was both ill-designed and ill-built from the beginning—ill-designed because the architect gave not abutment enough to counterpoise and resist the weight of the roof from spreading the walls. . . . This also may be safely affirmed not only by an architect taking his measure from the precepts and examples of the ancients [you see he advocated this], but by a geometrician (this part being liable to demonstration), that the roof is and ever was too heavy for its abutment; for the eye alone will discover to any man that those pillars, as wide as they are, even 11 feet diameter, are bent outward at least 6 inches from their first position. . . . The bending of the pillars was facilitated by their ill-building, for they

only cased without, and that with small stones—but within nothing but a case of small rubbish stones and much mortar, which easily crushes and yields to the weight." Good old times those. Jerry-building is obviously not a very modern institution. Then, too, Wren's first problem in building was a constructive one, for in the wonderful roof of the Sheldonian Theatre at Oxford, which has a span of 68 feet, the scientific construction is masterly, and brought him great reputation. Two years later, viz. in 1665, occurred the Great Plague, and Wren took the opportunity to pay a visit to France to study architecture as an art. In Paris he studied all the principal buildings, and became intimate with the most celebrated artists there. He was introduced to Bernini, who showed him his designs for the Louvre, for which he says in his Notes he would have given his skin. The old Italian would not let him study it long, and he says he only had time to "copy them in his fancy and memory, and shall be able by discourse and a crayon to give a tolerable account of it." He also studied Fontainebleau, St. Germain and Versailles. Of the last-named he says:—"The mixtures of brick and stone, blue tile and gold make it like a rich livery—not an inch within but is crowded with ornament." Wren's own work was subsequently distinguished by its colour effects and contrasts of texture. He adds, in the letter from which I have already quoted:—"The women as they make here the language and the fashions, and meddle with politics and philosophy, so they sway also in architecture. Works of filigree and little trinkets are in great vogue; but building ought certainly to have the attributes of eternal, and is therefore the only thing incapable of new fashions." These words coming from the man who advanced the architecture of the Renaissance to such a pitch of excellence and succeeded in establishing an English tradition fine in type and grand in scale—the importance of these words, I say, as a guiding principle for the student cannot be over-estimated. I hope I may be pardoned for quoting so freely from Wren, and for enforcing my points by the history of his career; but his methods of study and the line of his development are so clearly before us that I am sure we may draw many useful lessons and suggestive hints from them. In conclusion I will briefly recapitulate some of these hints. That which I have especially endeavoured to impress upon my brother students this evening is, that in addition to the ordinary architectural curriculum there must be a systematic and continuous study of buildings that are worthy, both ancient and modern. We must live in an atmosphere of art, breathe it in at the very pores of our skin, as the phrase goes, that it may act upon our own mental soil and render it productive. This fertilisation will be immensely stimulated if, to continue the figure, we plough up the ground with hard thought. "Hard thought," this is one of the great secrets of good architecture—hard thought not only in the problems submitted to us for solution, but in our study of examples. Without such thought we shall sink into mere copyists or adapters of a few stock-in-trade types, having no affinity to the thought of the time or the purpose of the building; in other words, our art will cease to live and grow. I have also urged upon you the importance of laying a good foundation in a practical knowledge of the art of construction and the right use of materials.

This is the only solid, reliable basis for our art. Without such knowledge the keenest appreciation of the beautiful may be only thrown away. At the very best it is for ever fretting against the limitations and restrictions with which it finds itself encompassed. But if the practical, scientific foundation is well and truly laid, how great, how delightful, the field that opens up before the artist. His very fetters become his servants. The goad of the task-master becomes in his hand a tool for the accomplishment of all, and more than all, that his eye had conceived or his fancy dreamed of.

Let our ultimate ideal be the realisation of those moral principles which are the dignity and power of architecture as they are of life—viz. simplicity and self-restraint, sincerity and directness of purpose. Without these we cannot but fail; with these we may accomplish something worthy of our art, and leave behind us work that shall be honourably characteristic of our time.

Mr. A. N. PRENTICE read the following:—

Criticism of the Works Submitted for the Prizes and Studentships, 1904-5.

This year the duty has fallen to me to review the designs and drawings submitted for the prizes and studentships offered by the Institute. I approach the subject

deeply sensible of the honour of being invited to perform this responsible task, and I trust that the students will accept in good part the criticism of one who in former years entered the lists and wrestled like themselves for the various prizes, and who is not forgetful of the patient hours of labour and of the sacrifices necessary to produce a drawing or design such as it is now my privilege to review. In common with many of our members, I have always looked forward with the greatest of pleasure to viewing these annual exhibitions, and the Institute is to be congratulated on the successful manner in which the drawings are displayed in the Alpine Club. The room is well lit and every drawing can be seen to advantage—so different from the old days when the drawings were huddled together in a back room in Conduit Street.

Generally speaking the standard of excellence is well maintained, and I am glad to note that the prizes are competed for in increasing numbers; although it is somewhat surprising, considering the large number of architectural students in this country, that such a very small proportion come forward. Take the Owen Jones Prize, for instance, only three gentlemen have responded. I hardly think students appreciate the vast amount of good these studentships do for them; to many it has been one of the stepping-stones of their lives. In my criticism I propose to deal first with the drawings and studies of old work, and, secondly, with the designs—the ultimate end and aim of all these studies. I have always considered that a facility to draw well is the first makings of a great architect. Did not Michel Angelo impress on his pupils the importance of continually drawing? I know good drawing is not deemed of any great importance amongst some architects, but a visit to the gallery of the Alpine Club is sufficient testimony that our students think otherwise.

The Pugin Studentship.

On looking at the Pugin drawings I am glad to see that this time-honoured prize is again keenly competed for. The medal is awarded to Mr. E. Garratt for a remarkable set of measured drawings, all executed in pencil to a large scale. The subjects are particularly well chosen, an important factor in influencing the award. Such examples as the Beauchamp chantry, Tewkesbury Abbey; the old town hall, Cirencester; the Wakeham tomb, Tewkesbury; and the south porch of Gloucester Cathedral afford ample scope for the draughtsman's skill. The drawings, however, suggest a slight want of sympathy for the ancient works they are intended to represent. One might almost imagine that they were renderings of recent buildings, or otherwise the subjects must be exceedingly well preserved. Such subjects should be treated lovingly, with some indications of the hand of time. Mr. Garratt's display of full sizes is meagre. He also gives very few sketches, but his drawing of St. Chad's pulpit is an admirable piece of freehand work.

Mr. H. A. Dalrymple receives an honourable mention for his five strainers: his best and most effective exhibit represents the details and mouldings on the west doorway, Ely Cathedral, drawn to large scale, curiously mixed with carvings of the Grinling Gibbons order from Cambridge Colleges, and a spirited wash drawing of carving from the Percy shrine. On the other hand, his measured work is rather scrappy: a more effective subject than the Bishop Longland's chantry might have been found.

Mr. Barker's set is in many ways the most interesting submitted for this competition, and more of the type that has carried off the prize in former years. Mr. Barker has a high artistic sense, and his sketches in pencil, wash and colour are delightfully rendered. The drawing of Gloucester Tower recalls some of the late G. E. Street's handiwork. The pen-and-ink drawings of Pershore Abbey and the interior of the lady chapel, Gloucester, might have been omitted; the vaulting in the latter appears out of drawing—a fault which might alone affect his chance. His measured work is confined to a plan, section and elevation of the north porch, Wells Cathedral, all splendidly drawn; but I would not commend the practice of displaying full-size drawings over a small-scale elevation.

Mr. Walter H. Godfrey has three sheets of measured drawings, showing a screen from St. Albans' Abbey Church, bronze gates to Henry VII's chapel, a tomb and a number of sketch-book studies of picturesque bits. The best and most effective are two views of Haddon Hall, one of the courtyard, and the other an unusual view from underneath the terrace.

Mr. Leslie Wilkinson might perhaps have chosen a better subject for measuring than the rather squat vestibule

of a chapter-house. He also contributes some very interesting drawings from Stamford, notably the decoration from the roof of St. John's Church. His best sketch shows the spire of St. Mary's, Stamford.

Mr. Frank Dyer is to be commended for his splendid drawing of the arcading in the lady chapel, Ely Cathedral, executed on the spot in pencil to a scale of 3 inches to the foot. He also exhibits a large number of pencil and pen-and-ink sketches marred by hatching—for instance, the front of St. Mary's, Beverley.

Silver Medal and Ten Guineas.

It is extremely gratifying that the silver medal with its modest award should be so keenly sought after by our students; as many as seventeen sets have been submitted. What an enormous amount of labour these drawings represent.

We have almost complete records of Haddon Hall, Greenwich Hospital and Somerset House. It would be hard to find anything finer in this country than those three buildings.

After a careful examination of the drawings and portfolios there can be little doubt that the committee have given a just award. I should like to impress on the students that while I am glad to see so many recognise the importance of measuring old work, the artistic rendering of an important subject will by no means assure them the prize. I would also impress on students the essential importance of a methodical method of measuring up the buildings they have selected. Year after year the committee (who give very careful consideration to the original surveys) are horrified, I am told, to see the scrappy, haphazard and unconvincing methods adopted by many of the competitors; and in awarding the prize the committee are largely guided by the surveys which indicate the most careful and thorough investigation and study of the buildings.

The Council have awarded the silver medal and ten guineas to Mr. Edward G. Wylie, of Glasgow, for his drawings of Haddon Hall, Derbyshire, excellently rendered and worthy of the subject. The plan is carefully figured and diagonal dimensions recorded. It would have been interesting if the author had given us the first-floor plan as well. The sheet of brass fire-dogs and hinges make a very effective drawing, and other sheets of full sizes represent internal screens and panelling; but details of the external stonework would have been more valuable to compare with the one-eighth-inch scale drawings.

An honourable mention is awarded to Mr. W. Harold Hillier for a huge diagram of the Embankment front of Somerset House, boldly drawn, in a rather hard manner. Some distinction should have been shown between the terrace elevation and that of the main façade. The plan shows no internal figure dimensions. "Ell" can draw full-size details in a strong and effective manner, but there is no attempt to analyse the construction of the wood cornices and the method of finishing the lead gutters. The elevations are well drawn, but marred by the heavy colouring.

Not so well drawn, perhaps, is the set "1903" of Greenwich Hospital, showing elevations of the river front, quadrangle, details of doors to $\frac{1}{4}$ -inch scale, a sheet of tiny block plans, and a few scattered full sizes of unimportant details. Why not have given a large section of the main cornice, frieze, and architrave? The construction of a cornice 3 feet $2\frac{1}{2}$ inches deep is worth analysing.

Mr. Jackson's set of the Pazzi Chapel, Florence, is also awarded an honourable mention, and is charmingly rendered in brown ink, contrasting well with the sectional parts, which are tinted in a grey body colour. The splendid large drawing of the capitals in brush outline is quite a new departure, but the same capitals drawn to a small scale are rather weak.

"Culdee" shows a fine set of drawings of Dunblane Cathedral, and "Clyde" gives us another ecclesiastical building from Scotland; his sheet of full sizes would puzzle any builder's foreman. Time will not allow to mention all the sets.

The Owen Jones Studentship.

Three men compete this year for the Owen Jones studentship, founded for the study of ornament and coloured decoration. Mr. H. Morley, who receives the award, has profited by Mr. Gibson's advice to students last year. He has evidently been back to Italy, and has concentrated his energies on a charming rendering of the vestibule ceilings of the Palazzo Imperiale, Genoa, dating about the year 1560. His figurework displays great delicacy of drawing combined with a charming sense of

colour—a rare gift. Without doubt Italy is the fountain-head of colour decoration; most of the few good examples in this country have been done by Italians. In the seventeenth century Verrio painted ceilings and frescoes in a number of our country houses, but we have little to compare with the finest work in Italy. Had Henry VIII. been able to induce the Pope to permit Raphael to come to England things might have been otherwise, and the influence of Holbein on our subsequent architecture and decoration would not have been so noticeable.

Mr. Beattie Brown and Mr. McLachlan have also been far afield, and both show studies from Spain and Italy. The latter has practically sent in the same set as last year, but his rendering of the colour of the mosaics in the Capella Palatina, Palermo, is rather thin and not convincing. On the other hand, nothing could be more beautiful than the exquisite study of the Mirhab of the Mosque at Cordova, with its glass mosaics and inlay of precious stones.

Mr. Beattie Brown is not so happy in his example of a Spanishreja or screen; better examples are to be found in the Peninsula. This competitor is very ambitious, and has made a bold attempt to depict the elaborate façade of Santa Maria Novella, Florence. Mr. Brown will no doubt do better another year. Emerald green seems to be a favourite colour with students at present; and why use ultramarine to represent the blue in Italian mosaics? A mixture of Prussian blue and light red would, I think, be found to give better results.

Mr. McLachlan's design for a lady chapel suggests painted decoration rather more than mosaic; his blue is much too thin, but his decorative arrangement of figure-work is excellent.

The Arthur Cates Prize.

Two competitors have come forward for this prize, and Mr. Winton Newman is an easy first. The measured set of the south-east angle of the Cloisters, Westminster Abbey, deserves the highest praise. Indeed, as a draughtsman and designer, Mr. Newman ranks with the best men in the room. His design for a picture gallery is well conceived and the projecting arched window is an original idea.

Mr. Vincent Hooper also shows some capable measured work, and his tinted perspectives are quite as good as Mr. Newman's. He also submits a quaint design for a seaside residence, but I think his clients would benefit by the introduction of a hollow wall and an extra door to the dining-room for service purposes. A house of this class should have a morning-room wider than 10 feet.

Soane Medallion.

Having finished with the drawings, we will now turn to the second part of our subject, viz. the designs. What can be more delightful than to be untrammelled by cost in working out one's idea on paper? The pleasure of indulging in one's extravagances and fancies must be very pleasing. Do not restrain yourselves if you want to win the prize; put in all you know. An unsuccessful competitor sending in for the first time for the Soane Medallion will probably be impressed at the display of the prizewinner, but it will be an incentive to him to higher ideals next time. Therefore, design in the grand manner, but, as a word of warning and as a matter of the greatest importance, try to make your building represent what it is intended for. A Roman bath can never be mistaken for an hotel lounge, nor a warehouse for a royal palace. Symmetry of design should be aimed at to get a dignified effect; avoid equal divisions of floors and string-courses; and, finally, start with the plan before beginning your elevations. The designs this year for the Soane Medallion are of an exceptionally high order. A design for a royal palace is a very good subject.

Mr. S. Herbert Maw is placed first with a well-studied plan laid out in a sumptuous manner. One can hardly conceive the details of a plan being carried to a higher perfection, and the author has obviously made a special study of the requirements of a royal palace. He has a big grasp of his subject, and the twin staircases are laid out in a large style, with central groups of sculpture. The geometrical elevations are more pleasing than the perspective view, and the corner pavilions terminate abruptly in heavy square masonry, suggestive of a want of funds. Altogether this admirably drawn set deserves the prize.

Mr. Pickering, who receives an hon. mention, is not so happy in his plan with a rather cramped inner court. His elevation is better than the prizewinner's, in that it is more dignified and in better proportion, the two upper storeys

being treated as one. Why does "Concrete" not turn his principal façade to the river? His plan is left to the imagination of the spectator; the rooms are not named, after the manner of the Ecole des Beaux-Arts. "Nil Desperandum" should study more the use of the brush in tinting his elevations. "Roy" has evidently put off starting the competition till too late. His scheme is unfinished, but his design has a certain grandeur of treatment. The finish of the first-floor window heads is ugly. "Vive le Roi" is wanting in the qualities of style and distinction. "Omar's" design has certainly the air of a royal palace, picturesquely grouped though symmetrical. He shows a central court of ornament, flanked by two courts of utility. The perspective is wildly drawn and the sculpture work highly grotesque. The $\frac{1}{2}$ -inch drawing shows a mixture of Greek and Roman detail of his own invention. Mr. Gordon's elevations are the best submitted. His east elevation section and west elevation have a certain quality of style and elegance that is very pleasing. Mr. Gordon should have a great future before him. The indication of a plain terrace as a contrast to the façade shows he has studied architectural effect, but his staircases are rather pushed away in a corner. "Q.E.D." and "H.M. in Circle" have also good elevations and plans.

Tite Prize.

Mr. Robert Atkinson, who receives the award, gives us an architectural fancy of great merit inspired from a study of an ancient thermæ, Roman sculpture, Michel Angelo decorations and marble pillars of emerald-green. Nature cannot produce columns like these. The whole is, however, a splendid example of modern draughtsmanship. Mr. Horsnell receives a certificate of honour and 5*l.*; the happy effect of the red-tinted columns arrests attention, otherwise his set might be easily passed over. Mr. C. L. Wright has gained an honourable mention for his academic treatment and sensible plan, in which the staircase is made subservient to the whole. His elevations suggest a study of the waiting-hall at Euston station, one of the finest proportioned rooms in London. "Dombey," before starting the competition, has evidently made a tour of some of the recent London productions furnished by some well-known furnishing firms. "Atrium's" perspective is of the shaky order; he has a charming suggestion for a fountain in the centre of his lounge. "Bathon" has taken much trouble and infinite pains over his sections and plans, charmingly shown in a delicate pencil perspective. The plan does not read distinctly enough, owing to the black tinting of the floor pattern. The author of the device "Anchor" should study sciography for the proper rendering of interior sections in colour. "Oracle" is a frank attempt at a modern rendering of the subject; his lounge is top-lit by a series of circles and oblongs. The design is boldly treated, but the colour effect is too heavy, and the inky tone of the sections tends to spoil the decorations. "Roma's" design suggests a grand corridor to a large modern hotel, but the plan is like a Roman basilica.

The Grissell Gold Medal.

Mr. James A. M. Hunter gains the Grissell gold medal with a design somewhat wanting in elegance and lightness. The angle pavilions shown in the perspective would look equally well in rough-cast; at least they suggest more that treatment than the boiler-plate construction indicated on the scale drawings. Mr. Hunter, however, deserves the award; his details are carefully worked out. It must be extremely difficult when approaching a subject of this sort to banish stone architectural forms from the mind. The beauty of iron construction lies in the lightness of its treatment; some successful attempts have been attained in this way in Paris, notably, the hall of the Grand Palais, erected for the picture exhibition in 1900. The design under motto "Irony of Fate" suggests the ironclad type of winter garden, and looks as if it were designed with a view to withstand a siege.

Essay.

I will conclude with a short reference to the Essay. In many ways this should be a memorable year in the history of this award, but principally because the prize has been carried off by Miss Ethel Charles, one of the two lady Associates of the R.I.B.A. The subject set was the "Development of Architectural Art from Structural Requirements and Nature of Materials," a most comprehensive title.

As many as fourteen competitors responded to the occasion. Last year only eight competed, when no work was considered of sufficient merit to obtain the award. I

have not had time to read the essays, but they must have been of unusual excellence this year, as eight competitors have received honourable mentions and awards.

I have now finished my review, and hope that those students whose drawings I have omitted to criticise will not imagine that their works have been passed over or their efforts depreciated. It is my desire to give a word of encouragement to all. May the spirit of enthusiasm not depart from our young men, but may they press on to further achievements. Rome was not built in a day; success will follow disappointment; and seldom an architect comes to fame without experiencing somewhat of the bitter cup of misfortune.

On the motion of Professor Beresford Pite seconded by Professor W. R. Lethaby, a vote of thanks was unanimously accorded to the President for his address and to Mr. Prentice for his review of the work in the competitions.

The President distributed the medals and prizes to the successful competitors, the list having already appeared in *The Architect*.

BYZANTINE PLAN-FORMS.*

(Concluded from last week.)

Radial.

THE Pantheon of Rome may be taken as a convenient starting-point. The structure consists of a great spherical dome set on a circular drum, and the arrangements for supporting the weight of the dome and abutting its thrust contained the germs of many principles which were afterwards developed by the Byzantines. The wall of the drum is of great thickness, in order to oppose its depth against the spreading of the dome; but the weight and thrust are concentrated at regular intervals, so that the structure of the drum is not continuous, but grouped into piers and connecting walls, giving a series of recesses between the piers. The wall of the drum is carried up considerably above the springing-level, so that it gives abutment to the upper part of the dome and secures stability at the springing by its vertical weight. The church of St. George at Salonica offers a Byzantine instance which in many respects is remarkably similar in treatment.

The compound wall of the Pantheon represents an intermediate phase between the simple wall of the circular cella and the later development of aisles, and a further link is furnished in the so-called Temple of Minerva Medica. Here the articulation of the drum-wall into voids and solids is more perfectly attained, the sides of the decagonal plan being deeply recessed into apsidal chambers or exedrae. Above this lower stage a decagonal drum is raised, pierced with clerestory windows and strengthened with buttresses, which are built up from the piers between the exedrae. The dome springs above the arches of the clerestory, and the drum-wall is carried up externally.

In this instance the semicircular chambers are separate from one another, and the next step was to connect them together by openings through the bases of the buttresses, thus forming abutment-aisles similar to those which had already been developed in the basilican plan. This is virtually effected in S. Vitale at Ravenna, where the plan-form of Minerva Medica is repeated octagonally and surrounded by an aisle, the exedrae being converted into arcades, so as to open aisles and octagon into one area. The aisles are of two storeys in height, the upper storey forming the women's gallery, and they rise to the base of the central dome. Buttressing arches spring radially from the angles of the inner octagon across aisles and galleries at the levels of their vaulting.

But it is necessary to differentiate between the thrust of the dome (which requires continuous abutment) and the thrust of the arcaded octagon (which requires abutment only at its angles). The function of the aisles in S. Vitale is to sustain the outward pressure of the eight arches which support the weight of the dome, and to give rigidity to its base. But the actual thrust of the dome is met by the same method as was used in the Pantheon, *i.e.* by the carrying up of the drum-wall above the springing, thus absorbing the thrust by vertical weight instead of by horizontal abutment. This is especially clearly shown in S. Vitale, for the springing of the dome is stilted up to the

* A paper by Mr. E. F. Reynolds read at the meeting of the Architectural Association on Friday, January 27.

arch-heads of the windows in its base, and the lower vertical portion rises clear from the surrounding aisles, and receives no assistance from them in the way of abutment.

The internal transition from the central octagon to the circular plan of the dome is managed by the introduction of slight squinch-arches over the angles, thus producing a sixteen-sided figure, which easily emerges into the required circle. The eastern side of the octagon differs from the other sides, for the gallery is omitted and the main arch opens to a square bema, beyond which is placed the ritual apse.

A somewhat similar design is the church of S.S. Sergius and Bacchus at Constantinople, which was built at about the same time as S. Vitale, and only a few years before the erection of S. Sophia. It is of an interest far greater than would be justified by its scale, for it is now almost the only representative of all the churches which were built in Constantinople before S. Sophia. It is still well preserved, and it is not difficult to trace the influence which it exercised on the apsidal design of the greater church.

The central dome is again represented on the ground plan by an octagon, but the eight sides are not treated alike. The diagonal sides are still curved into arcaded exedrae, but the others are straight and set back to the outer faces of the piers. This inner figure is surrounded by an abutment aisle of two heights, and its arcades open to the central area, as in S. Vitale. The alternating treatment of the sides of the octagon is full of interest and beauty, and it allows of the introduction of the open arch to the bema in a way that is more satisfactory than at S. Vitale. The dome rises immediately above the main arches, and its external wall is carried up in the usual way to give abutment weight to the thrust of the dome; but, as an additional precaution, buttresses are built up from the piers of the octagon, recalling the arrangement of Medica Minerva.

The method of fitting the dome on its octagonal base is unusual, for the necessary modification occurs in the dome itself, and not in the octagon beneath it. The plan of the dome at the springing is not circular, but is formed by a sixteen-sided figure. Eight of the sides are continued up from the faces of the octagon below, and the eight intermediate sides are hollowed back to the angles of the octagon, so as to avoid overhanging. The plan thus produced at the springing gradually merges into a spherical form as the dome rises. The surfaces are so freely treated that it is difficult to describe them clearly, and they can be better studied in the measured drawings. It may be noticed that the arches which pass over the aisles and sustain the central octagon are not set radially, but are grouped in pairs on the four principal sides. The irregular shapes of the aisles are covered with continuous barrel-vaults, which are most ingeniously adapted to the variations of span.

Returning again to the plan of S. Sophia, it is at once evident that the elaboration of the apses is directly derived from such a design as the church of St. Sergius. There is the same alternation of curved and rectangular forms, the arrangement of arcading in two heights, a similar construction of abutment aisles, and S. Sophia has more than once been described as the two halves of St. Sergius separated by a central square.

But, in adapting the forms of St. Sergius to the apses of S. Sophia, several alterations were made. Firstly, the three bays are disposed around a semicircle, so that no modification of plan is necessary to pass upwards to the semi-dome. Secondly, the arches of the gallery-arcades do not intersect the semi-domes of the exedrae but are placed below them. Thirdly, the semi-domes of the apses are not placed above the arch-heads of the three bays, but spring from the same level, and are interpenetrated by them. The reason of this last modification lies in the very different scale of the two churches. St. Sergius is a comparatively small building, and the abutment of its dome was sufficiently secured by the weight of wall carried above the springing and by the buttresses applied to that wall; but the apses of S. Sophia are tremendous constructions of 103-feet diameter, and the same methods would have been a clumsy expedient on so great a scale. The interpenetration with the lesser semi-domes and barrel-vault of the three bays gives efficient abutment to the great semi-domes at the critical point of their curvature, and, furthermore, reduces their actual weight. This ingenious distribution of thrust is typical of the whole design of the domes and vaults, and the thrust of the main dome itself is expended through the great semi-domes, the lesser semi-domes, and through the vaults of the aisles to the outer walls. The constructive genius of Byzantine design may

well be said to have attained its highest expression in the engineering of this series.

The two essential parts which make up the main scheme of S. Sophia have thus been briefly traced—the central square domed compartment derived from the basilican plan and the two compound apses derived from the radial type of plan—and it remains to speak of the adjustments necessary to their combination.

The central square is covered with a symmetrical design of dome and pendentives, and it has been shown that the natural plan-form resulting from such an arrangement is the Greek cross, the arms representing the abutment of the four arches which support the superstructure. In S. Sophia the arms of the cross are developed to the north and south by the great buttresses which pass over the aisles and sustain the east and west arches of the central square; but the completion of the figure by similar extensions to the east and west is rendered impossible, owing to the application of the apses with their deeply-curved exedrae. Neither was it possible to depend on these compound apses for the abutment of the north and south arches, for their derivation from radial structures rendered them unsuitable to withstand such great linear pressure. Hence arose the necessity of mainly absorbing the thrust of the north and south arches within the central square itself, and this was effected by the insertion of an inner arch on each of these two sides. These inserted arches carry the main weight of the dome above, while the original square is still recognised by breaks of 3 feet which, to some degree, are decorative rather than constructional. The side of the square measures 103 English feet, the span of the inserted arch is 74 feet, and the simultaneous reduction of opening and increase of pier secured the north and south substructure of the dome without any extension of abutment beyond the area of the central square. It is probable that a certain amount of thrust from the north and south arches is taken by the apses, for the arch-heads of the exedrae are at the proper height for such service, and their inclination on plan is not excessive, but it would be difficult to estimate the actual proportion of such thrust, and especially after the centuries of earthquake which the building has endured.

Thus S. Sophia gathers into a single design those basilican and radial principles whose development I have attempted to follow, not perhaps with much archæological accuracy, but rather by watching the evolution of progressive forms. But there is far more in the design of S. Sophia than can be accounted for by such a sequence. It may be possible to point to the source of all its various parts and yet remain impossible to conceive how they were combined with such masterly perfection. It may be that closer links might have been furnished by churches which are now destroyed and unknown, but the wonder and delight of the Byzantines themselves seem to mark its conception as perhaps the greatest of those rare miracles which from time to time have crowned the finest periods of art. Such miracles can only arise from the gradual preparation of antecedent ages, the full devotion of a national enthusiasm and the happy chance of a genius such as Isidorus, who could crystallise the saturated aspirations around him in a single creative effort. It may seem that I have dealt with the anatomical forms of the brick construction rather than its fair garment of marble and mosaic, but the one is inseparable from the other. There is no intrinsic beauty in the golden splendour of the mosaics, but they derive a higher quality from the curving domes and vaults which they adorn. The marble incrustation has a delicacy of its own, yet adds only a grace to the power and grandeur of the walls. Byzantine building forms themselves are full of inherent beauty, and whether they bear a wealth of gleaming colour or whether left in white purity, they are but the fulfilment of the same Byzantine art.

A vote of thanks, proposed by Mr. R. PHENÉ SPIERS and seconded by Professor LETHABY, was unanimously accorded to the authors of the two papers. Numerous drawings and photographs of Byzantine work were shown on the walls of the room, the collection being closely studied before the company dispersed.

Messrs. Archer & Walter Reid, architects, Johannesburg, have admitted Mr. Hubert S. East as a partner. Mr. East, who has built up a successful practice in Cape Town during the past two years, was associated in partnership with the late J. T. Wimperis.

OUR CHAPTER-HOUSES.

UNDER the above title Mr. E. W. Harvey Piper, Hon. Mem. S.A., of London, delivered a lecture, illustrated by nearly 120 lantern views, before the Camera Club of Southampton last week. The president, Mr. William Burrough Hill, F.S.I., occupied the chair, and there was a large attendance of members and visitors.

The lecturer said he proposed to bring before his audience some flowers of Mediæval masonry, which would be traced in development from bud to blossom with a consideration as to whether or no substantial fruit remained to the present day. To change the figure, he should treat upon some frozen music out of which the enthusiastic student might, as the varied scenes passed before his eyes, draw some of the harmonies of other days—symphonies of proportion, of symmetry and of form, grace notes of fenestration and carving, the melodies whereof when awakened by the echoes of historic association would, he hoped, arouse latent chords in the listener's mind and captivate his heart and imagination. Before proceeding to the illustrated portion of his address, which was delivered entirely without notes or memoranda, Mr. Harvey Piper explained the origin and development of the chapter-houses which as architectural relics form so precious a legacy from the past, pointing out that these assembly rooms were equally essential features in the Middle Ages of every large monastic, collegiate and secular establishment. They were the meeting-places for assemblies of religious orders and for the diocesan synods held in May and December, and also for election of officers and the periodical reading of the rules. The chapter-house was, in fact, a glorified vestry-room, but its uses as a library, as a place for the flagellation of disciplined monks, for washing the feet of twelve beggars each Maundy Thursday, and for reading the first portion of the burial service over deceased brethren were pictured in detail. Where cloisters existed the chapter-house, with but few exceptions, invariably opened off the east walk, a vestibule intervening in many cases. The houses were of two forms—rectangular (regular bricks in shape), or polygonal (like a bee's cell in a honeycomb). All the earlier chapter-houses built in England (and, with six exceptions, every one of those attached to monastic institutions) were rectangular, book-shaped on plan, and were usually divided into two or three bays. Except in Cistercian houses there were no internal columns, and of course no galleries, and the roofs were generally vaulted in stone, oak panelling being substituted in such late examples as Exeter and Canterbury. Frequently the east end was canted off into an apse. As the chapter-house in conventual establishments was extended from the east side of the cloister, parallel with the south wall of the south transept of the abbey church, the rectangular plan was so convenient that only in half a dozen monasteries was a polygonal outline adopted for these houses. The exceptions were the Benedictine houses of Belvoir, Evesham, Westminster and Worcester, and the Cistercian establishments of Abbey Dore and Margam. The rectangular houses, secular and monastic, were in the vast majority, and included those at Bayham, Beaulieu, Bolton, Bristol, Buildwas, Bury St. Edmunds, Canterbury, Castle Acre, Chester, Crowland, Exeter, Fountains, Furness, Gloucester, Hayles, Hexham, Kirkstall, Laycock, Lewes, Lindsfarne, Llandaff, Netley, Norwich, Old Cleeve, Reading, Rochester, St. Albans, St. Davids, Tewkesbury, Tintern and Wenlock. After 1100 the secular clergy began experiments in building many-sided houses—a form which evolved far more beautiful edifices, and one which was never adopted either in France, Germany, Spain, Italy, or the Low Countries. Even in Great Britain only six-and-twenty houses were planned polygonally, all but two (Elgin and Inchcolm) being in England. Of these four-and-twenty had a central pillar to carry the stone vault, the two latest and finest pair of houses, those of Southwell and York, being planned, like modern theatres, without any internal obstruction to the view. Putting a lantern slide of a typical rectangular plan of a monastic church, with its cloister and chapter-house in orthodox relative position, on the screen, Mr. Harvey Piper proceeded to illustrate and describe in chronological order, and using as far as possible colloquial terms, about a dozen houses of this type, beginning with the Benedictine example at Gloucester, a sturdy Mid-Norman room, with groined vault, built in 1085 by Abbot Serlo, and to which an eastern bay was added in the Perpendicular style by Hanley, the last but one of the abbots before the Dissolution. Its use as the seat of the early councils and of the

Parliament of Richard II. were alluded to, and the lecturer passed on to the rather later house at the Benedictine establishment at Durham, built by Bishop Galfrid Rufus about 1090. In scathing terms the lecturer referred to that ignorant vandal and self-styled architect, James Wyatt, who destroyed by explosives the beautiful eastern apse, which he opined was too dangerous to be allowed to remain, and recorded how the stately work had recently been restored, under Mr. Hodgson Fowler, as nearly as possible, as a memorial to the late Dr. Lightfoot, the scholarly commentator. Winchester was next visited, the features of the roofless Transitional Norman remains (this was built by Bishop William Gifford, of St. Mary Overie, c. 1100, and desecrated by Bishop Richard Horne, an ill-informed and grasping prelate of the days of Elizabeth) so well known to the club members, being pointed out; and then came Bristol, with its wonderful house, the work of Robert Fitzhardinge, and the finest conception of Late Norman work, according to the lecturer, in this class of edifice. On this followed Ripon, stern and stately, with its story of the men who broke sanctuary in 1458, and again a local instance in old Beaulieu, the first of a trio of Cistercian houses put upon the screen. The lecturer told again the story of King John and the abbots, and then came still closer home to poverty-stricken Netley, whose establishment at the period of the Dissolution was twelve brethren only, and whose only literary treasure consisted of one small volume, the "Orations" of Cicero. Here it was pointed out how the prohibition of the introduction of the human and animal figure into the sculpture of the Cistercians had resulted in the use of exquisite geometrical designs, and how the very repression had resulted in the extension and refinement of the art. A plan and conjectural restoration of this chapter-house, reproduced from drawings given in the sumptuous monograph by the late George Guillaume, a well-known and highly-respected Southampton architect of the last generation, were followed by several recent slides of the actual ruins, taken by Mr. S. Guy Kimber, the hon. secretary of the Southampton Camera Club, and it was pointed out that the windows of this house were never glazed, but protected by latticework bolted to the jambs, a channel being cut in the sills of the eastern lancet lights for the escape of the rain water which found its way through. The far more ornate house at the sister Cistercian Furness Abbey and the Oxford and Chester houses—the two latter so alike in treatment, although erected the one for Augustinian and the other for Benedictine monks—were all visited in turn, the connection of Kingsley with the interesting library of the latter being noted. Then came Exeter, with its splendid library and specimens of Jacobean carving, the author letting fall a hint that during his visit last summer this beautiful house by Bishop Bruere, the Crusader, looked badly in need of renovation and even actual cleansing. At Rochester an admirable photograph by E. R. Bull, of the half-closed door from the south transept to the chapter-house was greeted with hearty applause, the lecturer remarking that the portal, by Bishop Hamo de Hythe, c. 1330, was the only feature of the house worthy of study. The graceful figures on either side of the door personifying the Jewish Dispensation and the Christian Church were shown as separate slides, the latter being illustrated first with the bearded face and with the head ignorantly added seventy years ago to the decapitated and obviously female figure by Lewis Cottingham, and then with the beautiful lady's head by which that absurd finish has just been replaced under the direction of Mr. Hodgson Fowler. This section of the lecture was concluded with a series of views of the late fourteenth century Benedictine house of Canterbury, the largest and latest of the rectangularly-planned houses, with its deeply-arcaded side walls, and its rich east-end canopies wrought in Caen stone, the spacious interior being shown in its unrestored state and as recently redecored by Mr. A. O. Hemming. It was, however, in his description of the polygonal houses that the lecturer found his chief theme. First came, in 1100, Worcester, circular within and decagonal without, with its memories of Charles II. and his fortunes; lordly Lincoln, the very largest of these many-sided buildings, restored by the late J. L. Pearson, and in which by an unexpected turn the author drew attention to the evolution of architecture in the nineteenth century, as exemplified by a relic of the Iron Age—a hideous gill stove, placed in the most prominent angle of vestibule and house. Lincoln preceded Beverley Minster, with its lost house, but its elegant stairway on the north side of choir; then came Lichfield, with its perfect double octagon and rich carving of the

days of Dean and Bishop Roger de Wesenham; and so on to Westminster. Mr. Harvey Piper peopled the historic house with its old inhabitants, the pious monks and the turbulent Parliaments, and then showed slides picturing its neglect and abuse after the Reformation as a dusty receptacle of rolls and Exchequer tallies, and since to Gilbert Scott's restoration. All too soon came the next move to Salisbury, where the carved frieze showing quaintly-told stories from Genesis and Exodus was pictured and described. Wells, with its wealth of beauty, followed; then came queenly Southwell, with its marvellous exuberance and variety of naturalistic and grotesque carving, as illustrated from a series of superb photographs by Francis H. Evans; and, lastly, the "king of the chapter-houses"—great York, built as recently as the reign of Edward II. during the episcopate of Archbishop William de Melton. Here the bold canopies with their diverse carvings, the stately double portal, the magnificent arcading, and the unrivalled fourteenth-century grisaille glass in six of the immense windows which fill the room with a cataract of light, were shown to justify the well-known boast written on the wall, "Ut Rosa Flos Florum sic est Domus ista Domorum," and a little-known sonnet by the late Canon Wilton founded on this couplet was quoted. In conclusion, the lecturer asked if these stony flowers which they had traced in two parallel series of development—a scanty bouquet garnered from the rich and lovely parterre of Mediæval architecture and carving—could be said to have blossomed in vain. The assemblies in our chapter-houses had, he argued, been training schools in liberty of speech conjoined with mutual deference and self-respect, which had laid the foundations of our vestries, parish, town and county councils, and in two of them, Gloucester and Westminster, had been cradled the sturdy child which had become the mother of all the Parliaments of the world.

At the close a hearty vote of thanks was accorded to Mr. Harvey Piper, on the motion of the President, and a cordial invitation was given him to come and lecture again before the club.

GENERAL.

Mr. E. C. H. Maidman, architect, Edinburgh, has been successful in a competition for the proposed Moffat Cottage Hospital, which is to cost about 1,000*l.* Forty designs were sent in.

The Aberdeen Artists' Society have started a movement for the institution of a permanent memorial to the late Mr. Brough, A.R.S.A.

The Finance Committee of the York Corporation have had under consideration the question of the taking down of the Castle walls, which was referred to them at a special meeting of the Council on December 12, as one of the proposals for providing employment for those out of work in the city. In their report they express their opinion that, in view of the many interests to be considered, the subject cannot be regarded as a scheme for providing present work for the unemployed.

The Eccles Town Council have accepted the offer of Mr. Councillor Potts (Messrs. Potts, Son & Hennings) to act as honorary architect of the building for the public library of Eccles, towards the provision of which Mr. Andrew Carnegie has promised 7,500*l.*

The Bishop Ridding Memorial Committee have resolved "that Mr. Pomeroy be requested to submit a design of a kneeling figure, in conjunction with Mr. Caröe, as architect, and to state the approximate cost and time of carrying out the work." It is intended to erect the memorial in Southwell Cathedral.

The Archbishop of Westminster has given his cordial approval to a proposal to erect in Westminster Cathedral a chapel dedicated to St. Patrick and the Saints of Ireland. The cost is estimated at about 15,000*l.* It is intended, as far as possible, to use Irish materials and employ Irish artists. The chapel will be the second on the Epistle side of the main door, and will adjoin the chapels of SS. Augustine and Gregory and the Saints of England.

Mr. S. Maurice Jones, a Welsh artist, of Carnarvon, is engaged on views of several of "The Homes of Wales," comprising residences of celebrated Welshmen of the past, and has signified his intention to present a number of these to the University College of North Wales, to be put up in the new permanent buildings.

The Trustees of the Public Picture Gallery Fund have purchased a drawing by Samuel Prout of street architecture in the Altstadt of Prague; five water-colour drawings by John Ruskin, as follows:—(1) "Laufenburg on the Rhine"; (2) "La Cascade de la Folie"; (3) "Folkestone Hillside and Church"; (4) "Old Houses at Geneva, on the Rhone Island"; (5) "The Church Tower at Courmayeur"—five lithographs by J. McNeil Whistler, and a portfolio of ten dry-point etchings by Muirhead Bone, and have offered them to the Birmingham Corporation to be placed in the Art Gallery.

The Royal Scottish Academy in Edinburgh on Wednesday elected the following Associates as Academicians:—Mr. E. A. Walton, painter, Edinburgh; Mr. W. Birnie Rhind, sculptor, Edinburgh; Mr. J. Kinross, architect, Edinburgh.

The Whitechapel Art Gallery spring exhibition will illustrate British art between 1840 and 1870, and will remain open for six weeks, from about March 22. The upper gallery will be devoted to the pre-Raphaelites; the ground floor gallery to their contemporaries. A special effort is being made adequately to represent some of the lesser known pre-Raphaelites.

The Improvement Committee of the Sheffield Town Council had under consideration on Monday the proposal that the Corporation shall take over the maintenance of the Queen Victoria Memorial statue after it had been unveiled. It was decided that it would be desirable to have the statue railed round.

Eight Windows for the lady chapel of Liverpool Cathedral have been presented by representatives of some of the leading families of Liverpool. A finished design of the lady chapel has been approved of by the committee, and the concreting of the foundations to the towers is being proceeded with as rapidly as possible.

Mr. Carnegie has informed the ex-mayor of St. Pancras, where the Free Libraries Act has been adopted, that he will do for St. Pancras what he has promised to do for Islington—that is to say, provide the amount needed to erect a central and four branch library buildings, 40,000*l.* sterling, on condition that the penny rate is levied and free sites given for the libraries.

The Provost of Oriel has been appointed the representative of Oxford University at the International Congress of Archæologists to be held at Athens in April. Mr. Charles J. Holmes, Brasenose College, Slade Professor of Fine Art, has been elected a member of the Board of Architectural Education.

The "City Press" has published a pamphlet entitled "The Building Act Amendment Bill: why it should be opposed by Citizens and the Ratepayers." It is a reprint of a series of articles which have appeared in that journal.

A Statue of Puvis de Chavannes, the painter, is to be placed in the small square of the Place Pigalle, Paris, opposite the house in which he occupied a studio. The sculptor is M. Rodin.

The Cardiff Corporation have resolved on the erection of the first section of the art gallery. The estimated cost is 25,000*l.*

The Chester-le-Street Rural District Council have received applications from the undermentioned for the post of architect for the proposed small-pox hospital:—J. G. & R. G. Cowe, Chester-le-Street; Messrs. Boyd & Groves, Newcastle; S. Wilkinson, Pelton; H. Miller, Felling; and J. H. Mole, Chester-le-Street. Messrs. Boyd & Groves, of Newcastle, were appointed.

A New School is to be erected at Chippenham for the education authority to accommodate 360 children. The total cost must not exceed 4,000*l.*, exclusive of boundary walls. For the plan considered as entitled to first place a premium of 30*l.* will be offered and 20*l.* for the second plan. Plans and specifications must be sent in by March 31.

An Exhibition of Works executed by the students of the School of Industrial Arts, Geneva, will be opened on March 4 or 6 at the City Art Gallery, Leeds.

The Finance Committee of the Lancashire County Council have recommended that the county architect should perform all the work required by the education committee at an increased salary of 300*l.*, and that the salaries of the office staff be increased to a total not exceeding 1,500*l.*

A Paper on "The Lighting of Buildings by Electricity and Incandescent Gas" will be read by Mr. B. R. Tucker at the meeting of the Society of Architects on the 16th inst.

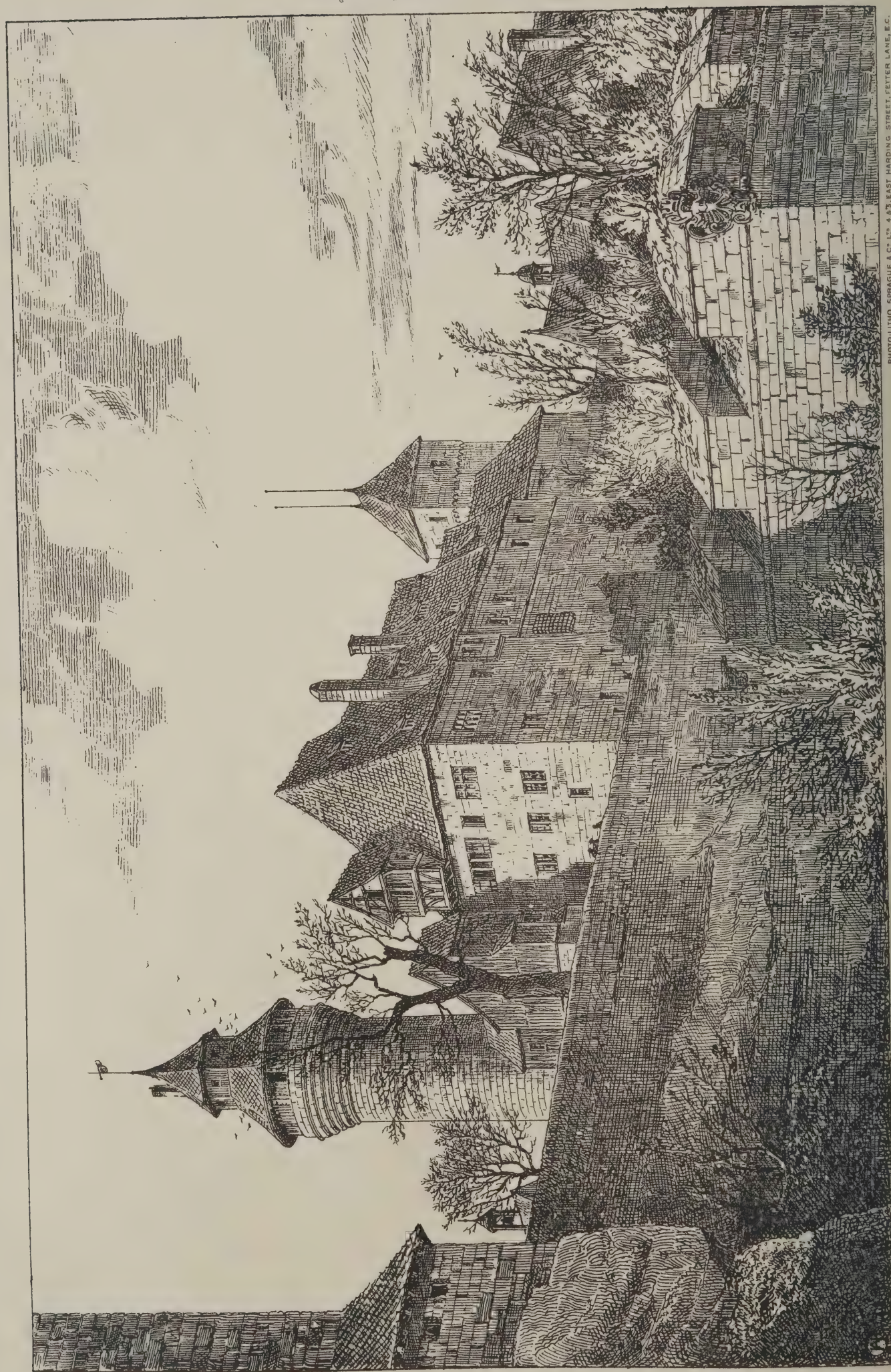
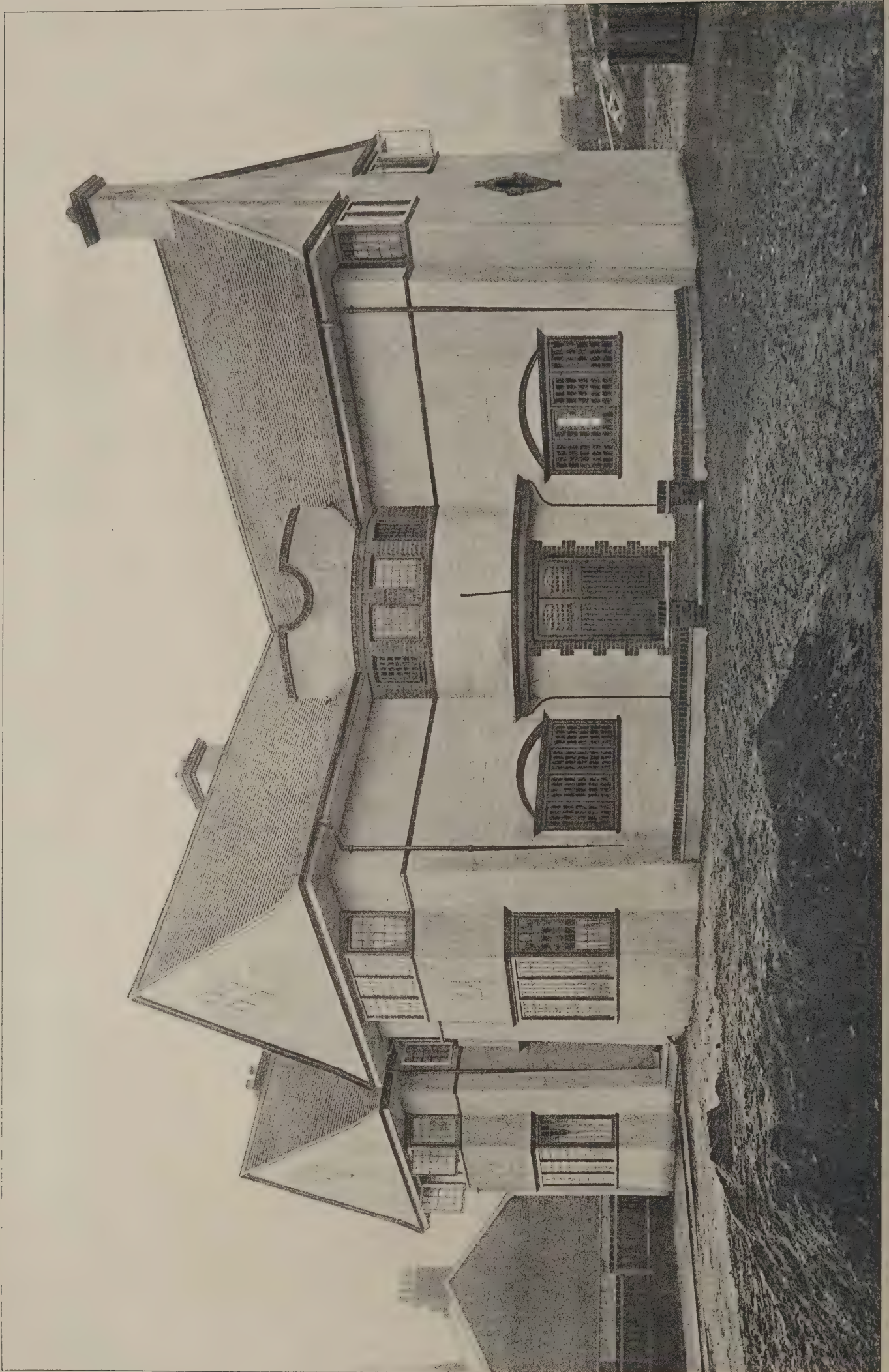




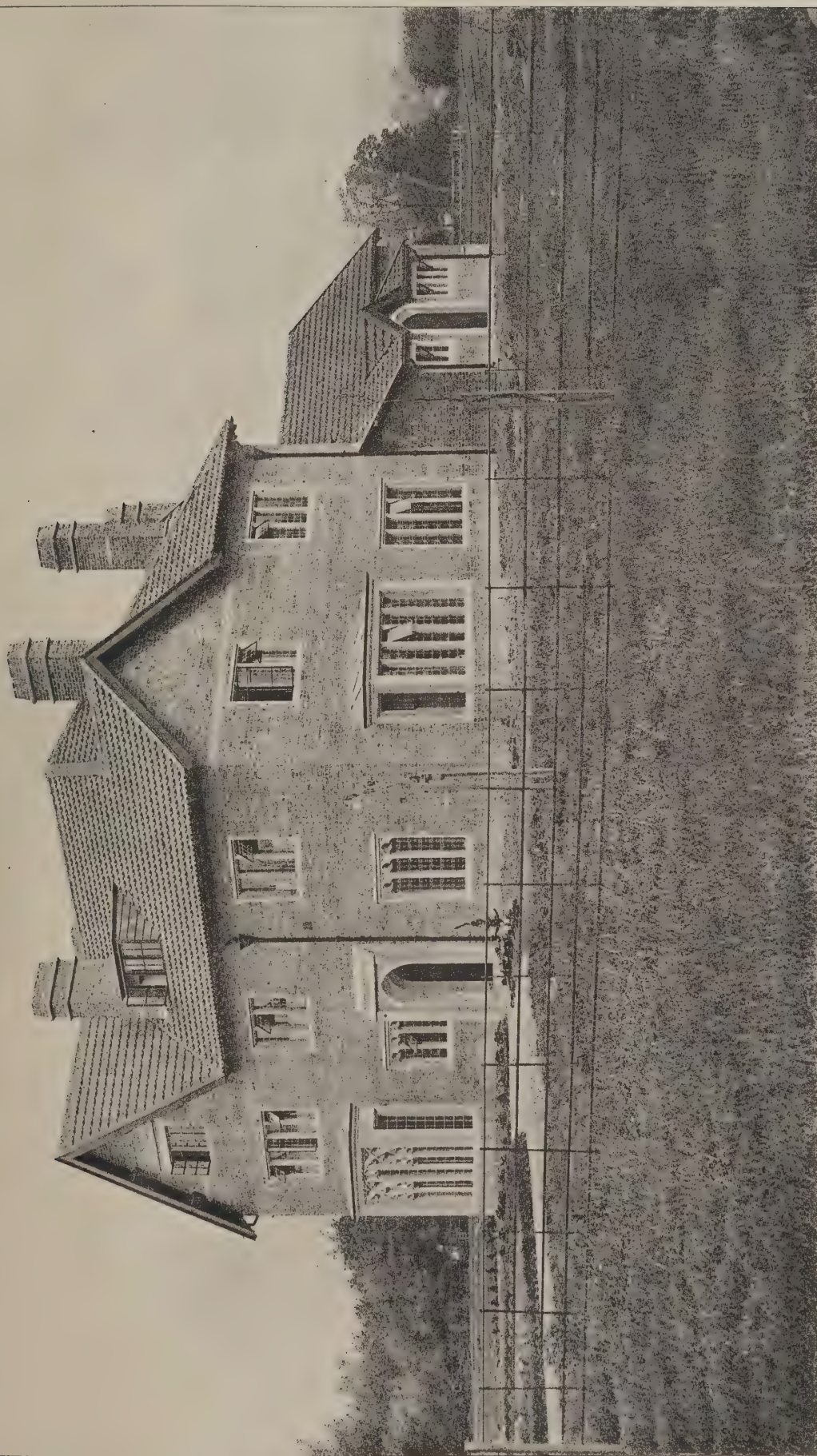
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*Continental Sketches by A. H. Haig
Courtyard of an Ancient Palace, Malines.*

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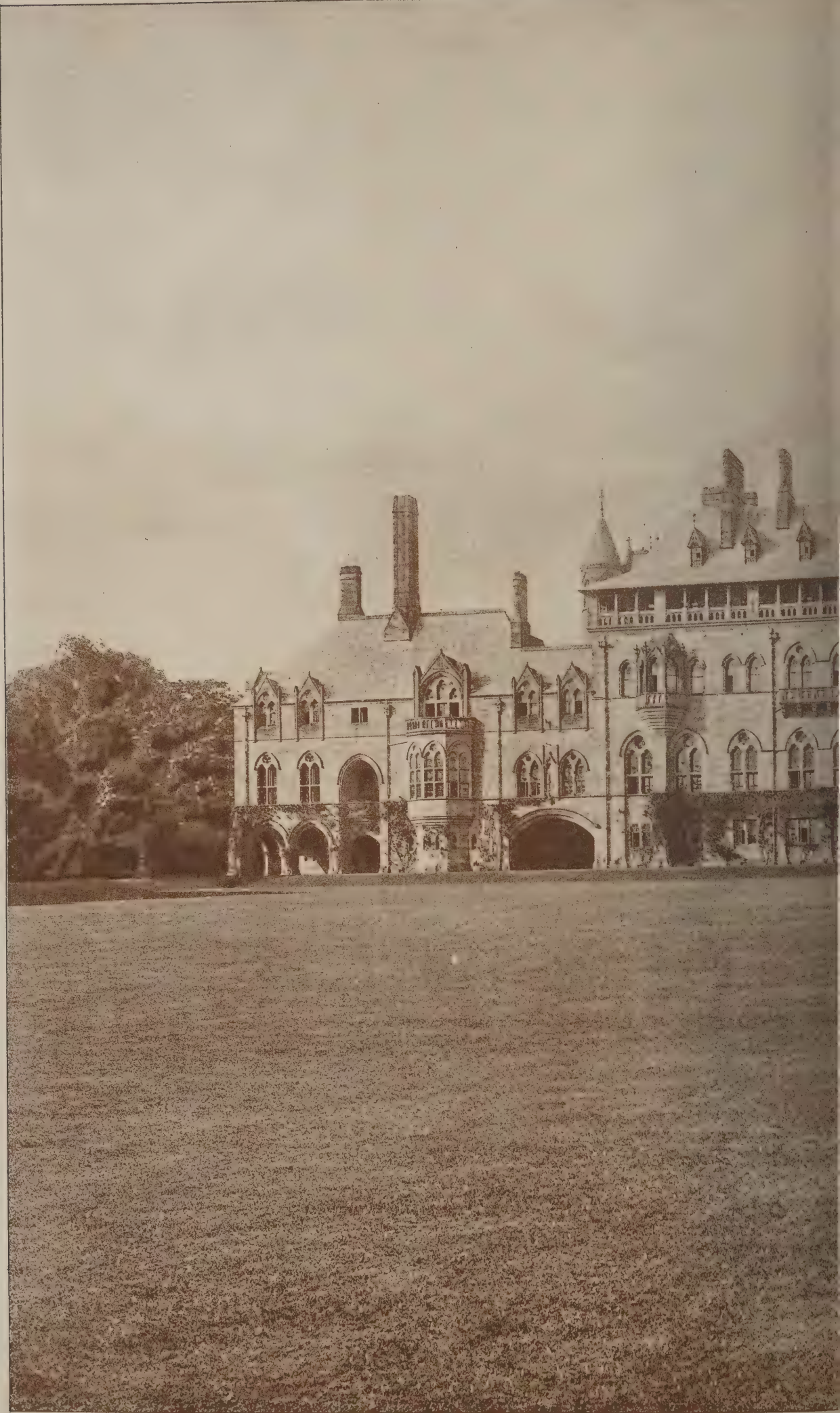
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LYMPSHAM RECTORY, SOMERSET.

EDMUND SEDDING, F.R.I.B.A. Architect.



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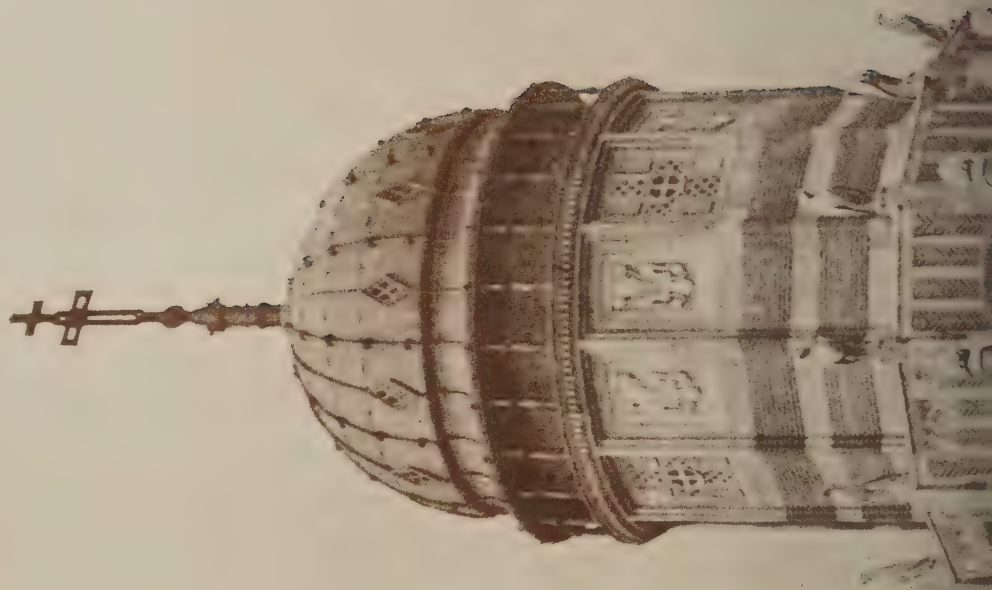


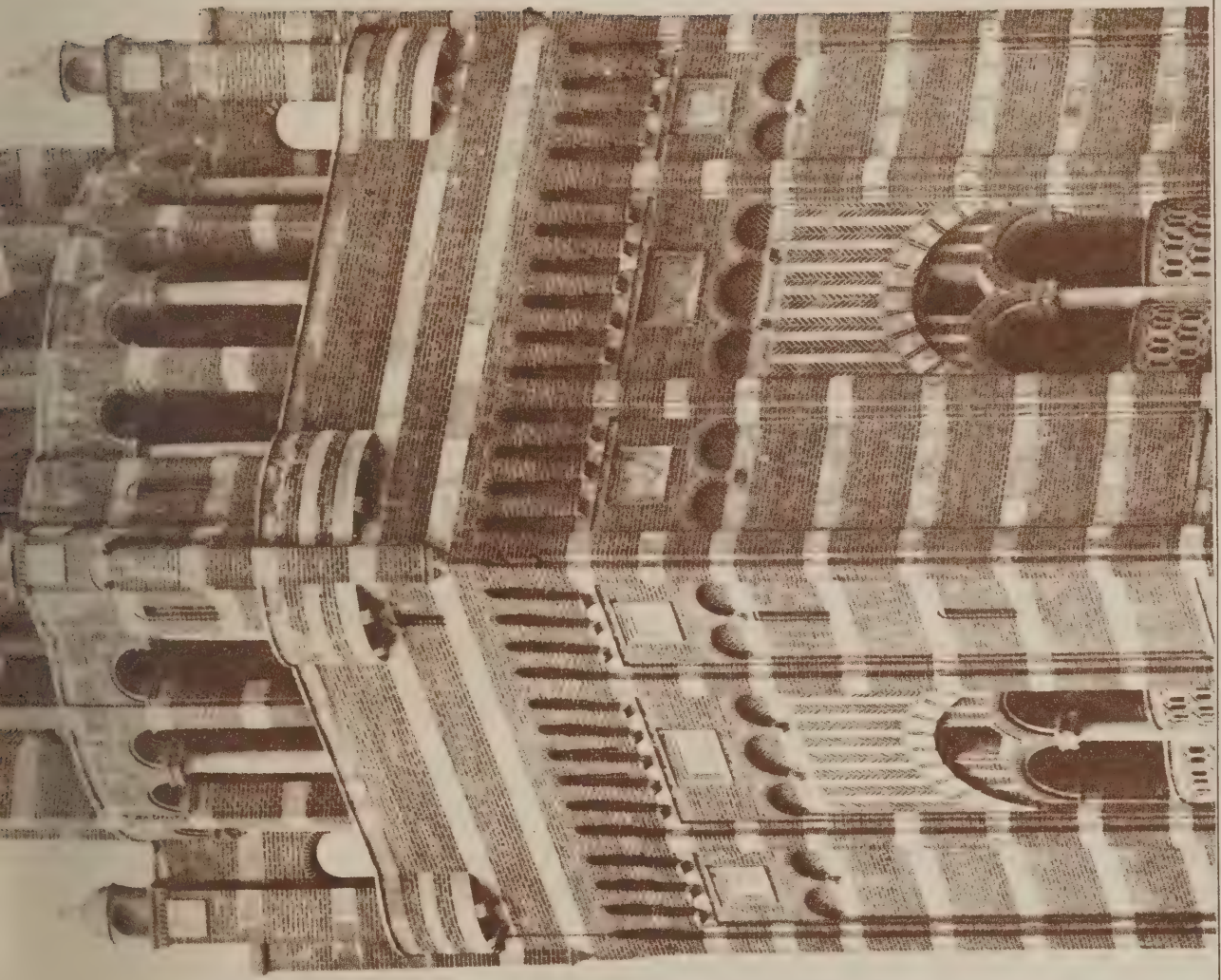
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WESTMINSTER CATHEDRAL: TOWER FROM SOUTH-EAST.

The late J. F. BENTLEY, Architect.

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The Architect.

THE WEEK.

MACAULAY once wrote:—"We know no spectacle so ridiculous as the British public in one of her periodicals of morality, when her virtue becomes outrageous." His words are applicable to the discussion by the County Council on Tuesday of the project for the erection of a French exhibition, theatre and other buildings in the Strand. Last week we explained the doubtfulness of such a scheme becoming sufficiently profitable to enable the proprietors to pay 55,000*l.* a year, besides other inevitable expenses. We regarded the matter simply from a surveyor's point of view. But because the title "Paris in London" was somehow conferred on the project the virtue of the County Council became alarmed and the proposal was referred back to the improvements committee for consideration, or, in other words, was rejected for the present, if not forever. The chairman of the improvements committee testified to the honourable intentions of the syndicate, and he pointed out that it would be very difficult to let the land at all if imputations were made against the character of the applicants for it before the object in view in using the land was understood. The French have the knack of adapting themselves and their entertainments to circumstances, and with such controlling power as the law allows to the County Council as well as to local authorities it is as likely a Puritanic decorum would be observed in the venture as independence and indifference to criticism. Many kinds of entertainment are to be found in Paris, each being suited to the peculiarities of the district. In the Strand there would be many reasons to prevent an imitation of the peculiar gaiety which is occasionally to be found at Montmartre. A majority of forty-nine have, however, determined the question, and have testified that according to British tastes colossal buildings with virtue are preferable to those of a limited height, which can be suspected of becoming dangerous to public morals.

Two subjects have been investigated in connection with the plans for the Usher Hall in Edinburgh, viz. lighting and seating. It was ascertained that originally there was 1 square foot of window area to each 861 cubic feet of space; but in the modified plans the proportion was as 1 to 525. The Synod Hall, Edinburgh, has 1 square foot of window to 245 cubic feet of space. The Music Hall has 1 to 304, the McEwan Hall has 1 to 451; both are in Edinburgh. In St. Andrew's Hall, Glasgow, there are 835 cubic feet of space to 1 square foot of window. The special committee of the Town Council, who have considered the subject, say:—"It is not, however, to be too readily conceded that a large measure of window surface is desirable. On the contrary, a well-established principle is that much glass is inimical to good acoustical results. In the Music Hall, with its large windows, at all important afternoon concerts the caterers demand artificial in preference to daylight; and the same desire is expressed elsewhere. In the lower halls of the Carnegie Music Hall building in New York, according to the drawings, there is no trace of windows, which shows that instead of the proposed lower hall being only fit for use as a storage cellar, there is no good reason against its use as intended." As regards seating in the central hall, which is arranged to seat 2,000 auditors, the allowance in the area is 18 inches of width and 2 feet 4 inches depth, and in the gallery the width is the same and the depth 2 feet 8 inches. In the Lyceum Theatre, Edinburgh, the orchestra stalls are 20½ inches in width; pit stalls, 18 inches; dress circle, 20½ inches; amphitheatre stalls, 19 inches; amphitheatre, 17 inches. The depth ranges from 1 foot 9 inches and 2 feet 3 inches

in the pit stalls to 2 feet 10 inches in the dress circle. In the Music Hall the width allowance is 19½ inches centre seats, 19 inches sides and 20 inches gallery. In St. Andrew's Hall, Glasgow, the width is 18 inches in the area and balcony, with the exception of the back row of the balcony, which is 16 inches; and in the City Hall, Glasgow, the width all over is 16½ to 18 inches. In St. George's Hall, Liverpool, and the Town Hall, Birmingham, the width of each seat is 18 inches. In St. James's Hall, London, now about to be demolished, the width is 18 and 19 inches.

FOR nearly half a century the firm of BAIRD & THOMSON has been familiar to the citizens of Glasgow who gave attention to architecture. There were many prominent buildings which were evidence of their skill. Among those of a commercial class were the Clydesdale Bank of Scotland, the British Linen Company's Bank, the offices of the Standard Assurance Company, the Lancashire Insurance Company, the Liverpool, London and Globe Insurance Company, the Scottish Union and National Insurance Company. It is with much regret we have to record the sudden death of Mr. JAMES THOMSON, the principal representative of the firm. Owing to an affection of the heart he passed away rather suddenly on Sunday night. He was a native of Glasgow and was born in 1835. He received his training under the late Mr. JOHN BAIRD and became his partner in 1858. His practice was varied. Among the residences he designed Belmont Castle, Perthshire, the seat of Sir HENRY CAMPBELL-BANNERMAN; Birkwood House, Lesmahagow; Kinnaird House, Stirlingshire; and Gartshore House. He was also architect for the Dumbarton municipal buildings. Mr. JAMES THOMSON was twice elected as president of the Glasgow Institute of Architects. He also served as president of the architectural section of the Philosophical Society.

THE newspapers for some weeks past have been amusing their readers with the "eccentricities" of the late ALFRED PATRICK THOMS, a Scottish judge, whose will was disputed by his nephews. The strongest proof given that he was not in a sound mental condition was his bequeathing property which was estimated to cost 60,000*l.* for the restoration and repair of the cathedral of St. Magnus in Kirkwall. At the present time all that would be available for that purpose would be about 33,000*l.* But eventually a larger sum may be at the disposal of the trustees. Our readers do not need to be informed of the importance of the Orkney cathedral of St. Magnus, of which a part dates from 1137, and in which the original Romanesque treatment was respected by later builders to a degree that was uncommon in Mediæval times. Mr. W. W. ROBINSON, who was long connected with His Majesty's Board of Works, estimated that 69,000*l.* would be required to carry out such a restoration as is desirable. Mr. BLANC, R.S.A., estimated the amount at 67,000*l.* Mr. THOMS's supposition that about 50,000*l.* would be required was enough to suggest that he was able to take a sane view of affairs. The jury thought so, for they were less than half an hour in making up their minds to give a verdict in support of the will. The case is as remarkable as any which are referred to in MILL'S "Liberty." Here was a judge who was able to discharge his duties with satisfaction, but who in private life wished to puzzle people for his own amusement by putting on an antic disposition, and yet because he had the good sense to make provision for upholding one of the noblest buildings of his country he was supposed to have been of unsound mind. Fortunately in England many wealthy men have been allowed to expend still larger sums on restoration without incurring such a risk.

FOREIGN LAWS RESPECTING SMOKE.

IT is a long time since Englishmen who travelled on the Continent began to realise that their country was peculiar on account of its smoky pall. JOHN EVELYN in 1661 wrote his "Fumifugium," and received the special command of CHARLES II. that he should publish it. When the Great Fire of London occurred EVELYN could not help feeling some satisfaction that he had predicted the evil consequences of an excessive use of fuel. After gazing on the flames he recorded in his diary how "the coale and wood and magazines of oyle, rosin, &c., did infinite mischeife, so as the invective which a little before I had dedicated to His Majesty and published, giving warning what might probably be the issue of suffering those shops to be in the City, was look'd on as a prophecy." EVELYN denounced "the hellish and dismal cloud of sea-coal," for as he was a lover of planting he believed that wood was preferable to a mineral substance, but he had the sagacity to perceive that the domestic fireplace was not alone responsible for the evil, for the chimneys of brewers and manufacturers, although they were not numerous in those days, with their "belching sooty jaws do manifestly infect the air more than all the chimneys of London put together." He endeavoured to have a Smoke Abatement Act passed, but without success. It is needless to say that foreigners since EVELYN's time have been also amazed at the difference of the atmosphere east and west of the Channel, and it may have often seemed to them that it would be easy to make English towns as free from soot as those abroad.

If continental cities are unlike London or towns in the manufacturing districts, it has not been owing to the influence of legislation. In that respect, at least, foreigners have been free to act as they pleased. The fantastic forms of the chimneys in several of the Italian towns are evidence that the smoke problem was always a perplexing one to solve, and that architects and builders endeavoured to meet the difficulty. The great fires in Venetian palaces were at one time a surprise to travellers; and it was supposed by some old-world physicians that the inhabitants owing to the heat and smoke lived longer than those of other cities, for many of them attained the age of 120 years. It should be remembered that at one time the drainage of land was neglected and swamps abounded in all parts of Europe. Fires were therefore a necessity.

The general use of wood also caused less smoke to be emitted and of a lighter kind than was possible with coal in England. The invention of the close stove, which was adopted in all parts of the Continent, moreover enabled a more complete combustion of fuel than with the English grate. Prejudices count for much in assessing the value of things, and an Englishman enjoying a pleasing view of his own fireside, and it may be creating pictures in the flames, would never be able to realise the delight which all Germans of a philosophic turn were supposed to find beside their falence stoves. As the old wandering students' song has it—

Beatus ille homo
Qui sedet in sua domo,
Et sedet post fornacem,
Et habet bonam pacem.

The close stove not only may be considered as almost smokeless, but it is economical, for all kinds of rubbish can be consumed in it to increase the heat. We have heard hotel managers assert that the outlay for fuel to warm a single room does not amount with such an appliance to more than a halfpenny or a penny a day. That may be an exaggeration in order to demonstrate the superiority of stoves and to overcome the dislike of English visitors, but the cost of firing with a foreign stove is undoubtedly very low, and contrasts with the sum which has to be paid in a London lodging-house for the daily scuttle of coal. As for factories, the arrangements are fairly alike all over the world, for if

any new system of heating is introduced in one place is sure to be imitated elsewhere.

There could be, therefore, no great advantage in demanding reports from His MAJESTY'S representative in Paris, Berlin, Vienna, Buda-Pesth, Rome, Brussels, The Hague, Berne, Washington, Munich and Coburg respecting the laws enforced in those cities for the regulation, restriction or prevention of the emission of smoke from factories and other business premises, and from private dwellings. None of the cities mentioned is outside the circuit followed by English travellers, and if anything was peculiar, in one of them it would long ago have been discovered by sanitarians.

The reports, it must be allowed, are not of much use in guiding those who are eager to introduce legislative enactments. In Austria, it is said, there is no immediate prospect of a satisfactory solution of the problem. There are general provisions in the sanitary laws respecting the emission of poisonous gases from factories. But apparently they must be harmful to forests and vegetation. In other cases the enactments relate to the injurious quality of smoke, and the factories must not damage in any way churches, schools, hospitals or other public buildings. Smoke as a general nuisance is philosophically disregarded. Bavaria is also without laws for regulating, restricting or preventing the emission of smoke. By the civil code smoke and soot are nuisances which may be made the subject of legal action if material injury is done to a complainant's property. A law was passed in 1903 by which the chimney-sweep must personally satisfy himself of the proper condition of the flue before, and again after, sweeping. According to his report the police can take such action as might be necessary. This is no more than an extension of the system of surveillance to which people on the Continent readily submit. In England sweeps appear to consider all flues are imperfectly constructed.

The Belgians contrive to rival many countries in manufactures; they have a low death-rate and encourage art without any direct law against smoke. But factories must have licenses, which will not be granted unless under certain conditions. Chimneys in boiler factories are to be 45 feet high, in glass factories from 90 feet to 120 feet, in other cases the chimney is to be from 30 to 15 feet higher than any chimney within a hundred yards. Occasionally it is ordered that the fuel must be such as to give as little smoke as possible, which is more than a prevention against poisonous fumes. Although smoke offers such a tempting opportunity for enactments, the French have to content themselves with mere police ordinances, and even these have less power than would be supposed. For instance, in 1854 a law was issued requiring owners of steam-engines to use their smoke or to use fuel which would not produce more smoke than coke or wood. Nobody paid any heed to it, and another issued in 1865 was not more respected. In 1898 the prolonged emission of thick black smoke from industrial establishments was prohibited. Owing to the bad example set by many of the public buildings, there was opposition. It is said there is an increase in the number of manufacturers who comply with the regulations, which, it may be remarked, do not concern private dwelling-houses. The clear air of France cannot therefore be ascribed to the infliction of penalties whenever smoke is observed to come out of a volume from a factory chimney.

If there is any country in the world where legislative enactments might be supposed to attain a desired result it is in Germany, and more especially in Prussia. We can therefore conclude that some other manner of dealing with the subject is practised, when we learn that there are no actual laws enforced in the Empire for the regulation of the emission of smoke. There is a regulation which the permission to erect premises that might cause prejudice, danger or annoyance can be withheld, and smoke might be interpreted as coming under one of the three heads. Indeed, it was announced

more direct law dealing with the emission of smoke has been postponed in the hope that manufacturers would give greater attention to the subject. Care is taken to set an example in State premises to avoid the emission of black, thick and continuous smoke by expert management of the furnaces, carefulness by the firemen and supervision of fuel. There is constant watchfulness, but up to the present the official reports are all opposed to the introduction of any special police regulations. When it is found that experts cannot agree as to what constitutes black, thick or continuous smoke, the difficulty is recognised of furnishing data which would guide police or other inspectors. It is characteristic of Germany that more hope is placed in education than in detectives. In 1902 a course of instruction for firemen was established, and 2,000*l.* is allowed in the year for expenses. The boiler insurance societies have also a staff of instructors who give lessons to firemen and engineers in country districts. Private dwelling-houses do not fall under regulations, and, indeed, little smoke comes from them owing to the use of coal-dust bricks and the system of central heating, for which coke is generally employed. In Hungary smoke-consuming appliances have to be used in large factories. But it is stated that the results are not commensurate with the expense incurred, and it is believed that careful stoking would be as effective as any apparatus yet discovered.

Although Italy can be considered for administrative purposes as a new country, much wisdom has been exercised in the making of enactments. Industry, which means factories, has to be promoted, while it would certainly be killed if such fussiness as prevails in England was allowed to exert any influence. Any industry which is likely to diffuse unhealthy exhalations must be established in the country and at a distance from inhabited houses. With industries which can be carried on in towns all danger to the public health must be avoided. It also happens that electric energy produced by water-power is in favour, and the question of smoke is therefore of little importance.

Holland also has avoided passing special laws about smoke. Projectors of factories and other buildings employing gas or steam have to give notice to the owners and tenants of property, the authorities of hospitals, churches and schools which exist within 220 yards of the proposed buildings. If those people have objections on account of danger, damage to property, trade or health, or nuisance of some serious nature, such as the emission of foul or obnoxious smoke, they can petition the municipality, and if the objections are valid the permission can be refused. As so much attention is given to Dutch houses, it may be well to reprint some of the regulations which are in operation in The Hague relating to the height of chimneys:—

It is enacted that chimney-pipes built from the top of the roof must be raised at least 3 feet 3 inches above the roof; if built on any other part of the roof, they must be raised to a height to be specified by the police; chimneys which are lower than the top of the neighbouring roofs must, at the instance of the Burgomaster or Wethouders (County Council), be heightened or altered, as these authorities shall prescribe; chimney-pipes next to any building which is altered or heightened must, by the owner of such building, be altered or raised 3 feet 3 inches above the gutter of such heightened building, and no chimney may be built or altered without giving previous notice and receiving permission from the police.

In Amsterdam the chimneys are to be 3 feet 3 inches above the top of the building to which they belong, and if required must be raised above the top of the neighbouring buildings.

A Building Act was passed for Saxe-Coburg and Gotha in 1884. If in a building already existing the emission of smoke becomes a nuisance, the police can interfere and have alterations made. But the owner may claim compensation from the complainant for any expense which was incurred. The old grandmotherly

interference is suggested by the edict that "the lighting of fires must be so managed and conducted through chimneys of such height and construction that smoke, soot or sparks may not escape in a manner calculated to cause a nuisance or a danger to the neighbourhood." The Saxon regulations rely mainly on careful stoking and the employment of coal of medium quality. The authorities can enforce the heightening of a factory chimney if deemed necessary. Switzerland is an example of what can be done by wise government. The question of the abatement of smoke has never yet been raised in any of the cantons. Smoke might, it is believed, come under the law for regulating labour in factories. It would be possible in case of nuisance to bring an action in the law courts, when the question would be tried by the judge on its merits. But no record exists of such a proceeding. In Würtemberg there are regulations respecting buildings which state that "business premises may be required to use smoke-consuming appliances should circumstances justify such a request being made."

The United States allows the different States to frame regulations. In Pennsylvania, New York and Illinois there is no general legislation on the subject. In Massachusetts a law was passed in 1902 during a coal strike when a large quantity of English coal was imported which increased the smoke nuisance. But already it is practically a dead letter. In the different towns there are regulations which apply to locomotives and steamships as well as to factories. In Philadelphia an attempt was made to establish a colour scale for the measurement of the degree and darkness of smoke:—

One thickness of grey glass of sufficient capacity to cut off 60 per cent. of the light from a flame having a lighting power of sixteen candles shall be taken as the basis of this scale: two thicknesses of said glass shall be known and designated as No. 1 scale; four thicknesses of the said glass shall be known and designated as No. 2 scale.

It is forbidden, and hereby declared to be unlawful, to suffer or permit the emission or escape of smoke from any or all fires not in motion, or fires banked or in a state of rest, or through any burning or active fire through a stack, flue or chimney less than 50 feet high of a colour greater than No. 1 scale.

It is hereby further ordained that smoke may be suffered or permitted to escape from any puddling, open hearth or forge furnace now erected to a degree of darkness not exceeding No. 2 colour scale through a chimney 50 feet high, and from any puddling, open hearth, forge or other furnace hereafter erected of a degree of darkness not exceeding No. 1 colour scale, with a chimney not less than 150 feet high; but that the emission or escape of smoke of a colour degree of darkness greater than that provided respectively in this section is hereby prohibited and made unlawful.

From what we have said it must be concluded that foreign countries which are supposed to possess always the clearest of skies do not secure that enviable position in towns by means of rigorous laws. English coal differs from anthracite. But nature has provided us with it, and we must accept its defects for the sake of its advantages. There are no doubt many appliances by which the density of smoke can be diminished, and it is right they should be employed wherever it is possible. But a man who will select for a residence a house near a big factory cannot expect to be able to put the factory owners into the dock whenever a few blacks fall in his yard or are blown through one of his windows. Life in towns is only possible by compromises, and so long as we have to employ steam we must put up with smoke. We may therefore expect that one effect of the reports from the Embassies will be to impress the Government with a conviction that vengeance against factory chimneys is not to be encouraged at the present time.

An Exhibition of Fine Art is to be held in Liège. The French jury for architecture will consist of MM. de Baudot, Lalou and Vaudremer, with M. Begard-Fabre, one of the officials of the Ministry of Art.

COTSWOLD COTTAGES.*

EVERYONE knows it is an advantage in the auction room when a painting, an etching, a statuette, or other object can be described as forming the subject of an illustration or a description in a book. The same principle is likely to be exemplified, or at least we hope so, in respect of buildings. The volumes relating to old cottages which Mr. BATSFORD has published, and which, we trust, will develop into a series representative of various parts of the country, will probably act as an inducement to owners for the preservation of the buildings. Those which have appeared are characteristic examples of the English manner of building before education and other influences appeared to compel pretensions in the designing of cottages. The subject is one which has applicability at the present day, for what is the cottage question which gives rise to so much discontent? Is it not either an effort to make the agricultural labourer feel his inferiority, or a striving to run up showy structures which will be attractive on the outside, whatever may be the sacrifice of convenience within, at a cost which will bring little or no loss to the landlord?

Among the hundred plates which appear in the volume on the old cottages in the Cotswold district, we can find no example which seems to have been inspired by either motive. Many of them could not have cost much to erect, but the least among them might be used as a holiday residence by a young artist or amateur without any loss of caste. There is no extravagance on ornamental accessories. But yet all of them have characteristics which are sufficient to make a picture of every plate.

The builders had the advantage of finding excellent building stone within their reach, and the masons were so accustomed to manipulating it that even in dry walling it is difficult to remove a stone from one of the courses. They must often have had to build at a cheap rate and were obliged to use quarry rubbish. The putting in of foundations was sometimes not preceded by any deep foundation. The Cotswold builders were not a race apart and willing to undergo losses in order to produce enduring work. But with all the defects the cottages have stood for two centuries or more, and it is doubtful whether a large percentage of showy buildings erected in our time will be visible at the end of a century. A still greater number of the Cotswold cottages might have existed, but they were demolished through fear that the occupants of them would become a burden on the landowners. The peculiarities of the buildings which give them a claim to be recognised as a distinct class of habitation for humble folk are manifest from the plates and are described in detail by Mr. GUY DAWBER. These qualities are summed up by him as follows:—

Broadly speaking, the recognised Cotswold type belongs to the period between 1580 and 1690. It was a thoroughly common-sense style of building, based on tradition handed down through generations of village craftsmen, and it remained without change for nearly a century. The main bulk of the buildings were without doubt erected by local men, and without any external aid, for we find the same methods adopted, with but slight variations, many miles apart. It was a style that was gradually evolved; at first retaining a few links with the so-called Perpendicular work of the preceding century, but slowly shaking these off, until in the course of some few years it settled down to be the traditional work of the day, the vernacular of building in which the craftsman expressed his idea. . . . It may be thought that these villages and country towns are all of a stereotyped pattern and somewhat monotonous, but nothing could be further from this in reality, as a glance through the illustrations will show, for though there is a repetition of certain forms and features, and we recognise at once that

every detail is familiar, yet it is this very similarity of idea permeating the whole of the district during this period that gives such a broad and dignified character to the work.

The walling is an indication of the sizes and quality of the stones to be found in the local quarry. The courses are thick or thin, regular or irregular, as the quarryman provided. In Northamptonshire alternate layers of red ironstone are sometimes employed, and the cottages are humble examples of the streaky-bacon style. Stones without mortar were frequently used in the barns and farm-buildings. Smoothness was avoided. One weak point in the construction is the indifference to the staircase, which was seldom made a decorative feature. In seventeenth-century examples the lintel was preferred to the arch for openings, and "externally the openings were never made wider than the stone would carry, and stout oak beams were used across the door and window openings inside." In describing windows, Mr. GUY DAWBER says:—

No description of the windows would be complete without speaking of the dormers, the most characteristic feature of these Cotswold houses. Their origin, which is very simple, arose in the following manner. The buildings were roofed in a single span, generally commencing about 12 or 15 feet above the ground, or some 4 feet above the bedroom floor. This did not give height enough for windows to be placed under the eaves at the sides, and as the bedroom was always constructed partly in the roof, it was necessary to carry up the side walls and form a series of smaller gables, with windows in them. These were treated in all respects similarly to the ordinary ones, finished either with a coping and finial or else with a stone-slate verge.

When the cottages were built the organ of "inhabitiveness" must have been developed among the occupants; now it is so little exercised it has obtained a different significance from phrenologists. One effect of it was that people generally had their names or their initials and the date of erection recorded over the doorways. The author remarks, "It is a pity that so simple a means of adding some small amount of interest and individuality to the entrance of a house should be but seldom seen nowadays, but, like most other local customs, this is rapidly dying out." The modern rustic's ambition is to become a citizen and to obtain a station from which the home of his early years will appear contemptible. In regard to finials, the mason was allowed to exercise individuality, if he possessed any, and the examples are often picturesque. Mr. GUY DAWBER dwells upon detail with a pleasure which is not common in books on architecture, but it is easily explained by his possession of a knowledge of the district derived from many years of personal study. His enthusiasm is likely to be imparted to his readers, and they will desire that the descriptive notes be longer.

In his photography Mr. GALSORTHY DAVIE has carefully limited his field of vision to the houses, and avoids the introduction of surroundings which, if picturesque, would fail to serve the purpose of the book. It will therefore be found that detail is more plainly shown than in large plates by ordinary photographers, who appear to be eager to compete with the landscape painter. The character of every stone in a wall or slate on a roof is manifested, for the collotype reproductions are perfect. Many lessons are to be derived from the plates, and they demonstrate at least that England has models which are as worthy of imitation as any in Holland.

The Société des Amis du Louvre have held their annual meeting under the presidency of M. Georges Berger. Its membership now exceeds 2,000, and its income is about 40,000 fr. The whole of this is devoted to the purchase of works of art for the Louvre, the acquisition for this year having been two sculptured columns of the twelfth century from the demolished abbey of Coulombs (Eure-et-Loire). They are exhibited in the Mediæval Sculpture section.

* *Old Cottages, Farmhouses and other Stone Buildings in the Cotswold District.* Illustrated from photographs by W. Galsworthy Davie. With an introductory account by E. Guy Dawber. (London: B. T. Batsford.)

NEOLITHIC DEW-PONDS.*

DURING many centuries the earthworks of primitive man remained unrecognised because they were supposed to be not more artificial than the land around them. Nature had covered them with vegetation, and the lines they formed were so massive and simple, it was easy to assume the projections were due to forces which caused upheavals in the ground. When it was at length realised that they were constructed by human beings it became difficult to give the credit to the men who were possessed of the simple instruments which can be seen in museums. Tools and men are inseparable, and must always be taken into account, whether we are considering earthen banks, Greek temples or Gothic cathedrals. How were the early inhabitants of Britain able to protect themselves against wild beasts and wilder men by cuttings and embankments which were made by implements of flint or wood? As no answer was forthcoming from science, ignorant people in some places believed they were amongst the tasks performed by the fairies in order to provide enclosures for their revels at night. Others ascribed them to the Druids, while men who professed to possess some knowledge declared them to be Roman works. More rational conclusions are now drawn, and as a contribution towards a theory which has been based on close investigations, we must accord much value to the three essays by Messrs. ARTHUR JOHN and GEORGE HUBBARD. They relate to Cissbury Ring and Chanctonbury Ring in Sussex; Maumbury Rings and Maiden Castle near Dorchester, and cattle-tracks. They are grouped under the general title of "Neolithic Dew-ponds and Cattle-Ways."

Most people who have taken a holiday at Worthing, and have either walked or rode to the Downs, must be acquainted with Cissbury Ring. Local cicerones believe it to be the burgh of Cissa, one of the sons of ELLA. As some Roman remains were found at the place, it was allowable to conclude that it was an outlying Roman station. But there can be no question that long before the Romans utilised it, it was the site of a settlement. As the camp stands at a level of about 600 feet above the sea, the approach of enemies could easily have been seen. For a settlement Cissbury was an invaluable position. Chanctonbury is a couple of miles further north, and from it a wider expanse of country can be observed, for the height of the ring is over 800 feet. A question which must be asked is, How were men able to live and keep cattle at such sites in days when well-boring was unknown, and they did not possess the knowledge which would have enabled them to construct reservoirs? It is in connection with this inquiry that the authors have formulated the theory of dew-ponds:—

We are not aware that the thermodynamics of a dew-pond have ever been elucidated, and it is evident that this cannot be done until the construction of such a pond is understood. There is still in this country, at least one wandering gang of men (analogous to the Mediæval bands of bellfounders, masons, &c.), who will construct for the modern farmer a pond which, in any situation in a sufficiently dry soil, will always contain water, more in the heat of summer than during the winter rains. This water is not derived from springs or rainfall, and is speedily lost if even the smallest rivulet is allowed to flow into the pond. The gang of dew-pond makers commence operations by hollowing out the earth for a space far in excess of the apparent requirements of the proposed pond. They then thickly cover the whole of the hollow with a coating of dry straw. The straw in its turn is covered by a layer of well-chosen, finely puddled clay, and the upper surface of the clay is then closely strewn with stones. Care has to be taken that the margin of the straw is effectively protected by clay. The pond will gradually become filled with water, the more rapidly the larger it is, even though no rain may fall. If such a structure is situated on the summit of a down, during

the warmth of a summer day the earth will have stored a considerable amount of heat, while the pond, protected from this heat by the non-conductivity of the straw, is at the same time chilled by the process of evaporation from the puddled clay. The consequence is that during the night the moisture of the comparatively warm air is condensed on the surface of the cold clay. As the condensation during the night is in excess of the evaporation during the day, the pond becomes, night by night, gradually filled. Theoretically, we may observe that during the day, the air being comparatively charged with moisture, evaporation is necessarily less than the precipitation during the night. In practice it is found that the pond will constantly yield a supply of the purest water. The dew-pond will cease to attract the dew if the layer of straw should get wet, as it then becomes of the same temperature as the surrounding earth and ceases to act as a non-conductor of heat. This practically always occurs if a spring is allowed to flow into the pond, or if the layer of clay (technically called the "crust") is pierced.

Both at Cissbury and Chanctonbury depressions of the earth are seen which with good reason are assumed to have been formerly dew-ponds. There are, moreover, tracks which are taken to be the cattle-ways leading to the ponds, and the authors arrive at the conclusion that dew-ponds, owing to their importance, were protected by earthworks, that care was taken to facilitate communication with them, and that the dew-pond had a special guard, for whom a habitation was provided. Evidence of the same kind is to be found at Chanctonbury. The subject is well worth the investigation of archaeologists, especially as Worthing is easily accessible from London.

The earthwork known as Maumbury Rings, which is commonly believed to be the remains of a Roman amphitheatre, is described by Messrs. HUBBARD as a neolithic hill settlement, and probably was an early sun temple. They determined the orientation, and found it coincided accurately with that of Stonehenge. In such a place a helstone or sunstone would be necessary. But there is a reference to one which existed in 1719. It is also stated that a large stone was seen at the entrance, but as a farmer considered it was in his way, a hole was dug and the stone placed in it. Maiden Castle shows how the desire of self-preservation can endow man with a foresight which would be worthy of a VAUBAN, for we are told that "the complexity of the maze of stupendous earthworks by which the entrance is guarded baffles description. It suffices to say that an approaching enemy, furnished only with such weapons as were known to primæval man, must have found the place impregnable. To this day it produces a sensation of bewilderment, for every inch of its lengthy and tortuous course is dominated by a succession of spurs and embankments on either side, so arranged that tier above tier of the defending forces would be continuously encountered. An attempt to attack the settlement from any other point is not less obviously doomed to failure." Both inside and outside the rings of Maiden Castle there is evidence of dew-ponds, for without them it would not be possible to feed cattle at all times. The indications of their existence are likely to be soon obliterated, for farming operations are inimical to archaeological remains.

According to EMERSON, the cows are credited with laying out the city of Boston, and he maintains that travellers and Indians know the value of a buffalo trail, which is sure to be the easiest possible path. Neolithic man was also indebted to them, for he followed the lines taken by cattle in going from the upper lands to the rivers in laying out his banks and trenches. The dew-pond was in some cases intended to avoid the necessity and risks incurred by troops of cattle having to pass a long distance. It is curious to find it noted that the position of Stonehenge may have been determined by considerations for cattle. The authors remark that "the absence of any form of defence shows that the land adjacent to Stonehenge was considered safe from attack." The essays, it will be seen, treat of a most

* *Neolithic Dew-Ponds and Cattle-Ways.* By Arthur John Hubbard, M.D., and George Hubbard, F.S.A., F.R.I.B.A. (London: Longmans, Green & Co.)

interesting subject under a novel aspect, and as a valuable contribution to prehistoric archaeology we commend them to the attention of our readers.

GEORGE ROMNEY.

ON Monday the Right Hon. Sir Herbert Maxwell, M.P., lectured on this subject to the members of the Midland Institute. Sir Herbert remarked at the outset, says the *Birmingham Daily Post*, that he supposed no one had ever given much attention to the art of painting without being struck by the singular fact that in almost every instance in which a man or woman had attained distinction in that art he or she had been either of humble birth or, at all events, of very narrow means. It was not quite apparent why that should be so. At first sight one would say that those who were born to leisure and to means, exempting them from the necessity of working for their daily bread, and, above all, those who had the advantage of a liberal education, would be the persons who should devote themselves to what, after all, economically speaking, was a superfluity of life. But it was not so. And he thought the reason was pretty plain. It was because the preliminary drudgery before a pupil could acquire the technique of the art was so severe that it shut out all but the most earnest spirits and those who had little to sacrifice. The fullest and highest development of the natural powers could not be achieved by him who shrank from making the sacrifice complete, and he was the most likely to shrink who had the most to sacrifice. Romney was one who rose himself from very humble rank in life, and in the face of almost prohibitive difficulties, to the first rank of British artists. Referring to the name Romney, Sir Herbert said he had been informed that it was an alternative form of Romany, the old word for gipsy. The pretty district in which George Romney was born—Beckside, near Dalton-in-Furness—was one in which the gipsies most frequently settled. If that were the origin of the name of Romney they would be inclined to trace some of the wandering habits of the great painter to his gipsy ancestry. Having mentioned that Romney was born in 1734, the lecturer showed that he was sent to school when he was very young, that he was not a promising scholar, and that at ten years old he was taken from school and employed by his father in his carpenter's shop. Romney's father, "Honest John," was also a bit of an architect. Drawing materials were always lying about in the shop, and George soon showed that he had a natural turn for using them. It became apparent that he would be a bad carpenter, and at eighteen years of age his employer in Lancaster sent him back to his father with the information that he could make nothing of him, that he did nothing but sketch portraits of his fellow-workmen, and recommending that he should be apprenticed to an artist. Sir Herbert then described how George was apprenticed to an itinerant painter of eccentric character, named Christophen Stephen, who happened then to be working at Kendal; how, during that apprenticeship, he married his landlady's daughter; how he left his bride to work at York, when he was so poor that his wife sent him half a guinea from time to time to help him, and how in 1757 the apprenticeship was broken by Stephen suddenly decamping. Romney returned to Kendal, kindly families in the neighbourhood gave him helpful encouragement, and some of his early works were still to be seen in their houses and in the town hall at Kendal. Five years he worked at Kendal, when the insight which he had gained into the requirements of his art showed him that his natural powers could not be brought to perfection without a wider acquaintance with the work of the great painters. Then came the parting of the ways. To take his wife and children to London before he had gained a foothold there would be to fly into the arms of misfortune. They remained at Kendal, and he went forth alone to put his powers to the test. The lecturer sketched the career of the artist until 1773, by which time his independence was practically secured. He was still, however, painfully conscious of his deficiency in technique, and in March 1773 left London for Rome, where he worked with feverish energy for two years, and again returned to London. He had mastered the technical part of art, he had gauged his powers and trained his perception by humble contemplation of the works of the greatest painters. It only remained for him to test his strength. But he was penniless, and at last almost gave up his noble ambition and thought of commanding a competence

by painting "pot-boilers" in the provinces. The years abroad had interrupted the professional connection by which the painter must live, and the name of Reynolds was on everybody's lips. But it was well for British art that Romney did not lose his ardent confidence in his own powers. Had that failed him, and had not a few faithful friends stood by him in his need, how many charming canvases would now be missed from the walls of our public galleries and private houses? Then came his introduction to the Duke of Richmond, who sat for his portrait. It was greatly admired, and copies were soon in great request. The corner was turned, and sitters came to the artist in quick succession. The lecturer dealt with the remarkable rapidity with which Romney worked, and remarked that while he must be regarded as inferior to Reynolds, both as a draughtsman and colourist, he had much sounder method than his rival in the application of his pigments. After referring to the artist's rivalry with Reynolds, the lecturer next devoted a few moments to showing how Emma Lyon, afterwards Lady Hamilton, came into the artist's life and exercised the most powerful and lasting influence upon his art. In conclusion, Sir Herbert told the sad story of Romney's decline and his return to Kendal to his wife, the Mary of his youth, who had waited for him unmurmuring though not unmindful, and who tended him with true and tender care until his death at Kendal in 1802. His last resting-place was in striking contrast to that of Reynolds, who ten years before had been laid to rest amid great pomp in the greatest English cathedral. Romney was laid to rest in the little green God's acre at Dalton-in-Furness.

ACADEMY LECTURES ON SCULPTURE.

IN his fourth lecture, Mr. Gilbert, R.A., considered the influence of architecture upon sculpture in the nineteenth century, and the corresponding influence of sculpture upon architecture. His experience had led him to the conclusion that sculpture had had a greater influence upon architecture than the reverse. In the so-called revival of last century we had an extraordinary renaissance of architecture, but it came at a time when plastic art was in a state of hibernation. At that period some great architectural works were created in the Gothic style, and these were followed by others created under the influence of the Classic Revival. The Classic buildings were made by men whose desire was to emulate the Parthenon, and, with the idea of ultimately making their work compatible with their desires, they left spaces for sculptural decoration that are still unoccupied. But these men had not at their command the collaboration of fellow-workers who came up to their ideals, for the prominent sculptor of the time was above adorning or taking a second place. He wanted to make statues. The French meanwhile were working under a different influence, for their architects had helpers to their hands—workers in plastic art whom they could trust. They strove, too, less to revive a school than a tradition, and their architecture was a mixture of their own ideas with the Classic and the Renaissance. In France, therefore, we see nineteenth-century work showing the richest combinations of sculpture and architecture, while in England the fine architecture of that period was devoid of that co-operation.

According to the *Morning Post*, the lecturer said that he was brought up to look upon the Law Courts in the Strand as not fulfilling their purpose, but now, wherever he went, he saw little that was worthy of comparison with the efforts of the great architect by whom they were built. But he had not the chance to do what he wanted. There were no end of spaces and niches designed for ornament, but his palace was clipped of these through parsimony. Mr. Gilbert contrasted the Law Courts and St. George's Hall, Liverpool, with that wonderful building, the Paris Opera House, where the architect had provided for a remarkable series of works by contemporary artists. There was no building in England that could be compared with the Paris Opera House, except the Albert Hall—to which Mr. Gilbert gave more than a word of praise—and nothing at all that we could compare with the Paris Hôtel de Ville. With our Law Courts, again, he could not help comparing the Palais de Justice at Brussels, a stupendous work that looked as if it might have been the design of an Aladdin who had conjured up the building by a mere effort of thought. Yet this architect, who never lived to see his work completed, was nearly locked up as a lunatic. In England we had had among many others Pugin, Barry, Chambers, Pearson, Sedding and Bryden, men who had all gone, but whose

works still lived. The Gothic Revival brought about the building of the greatest palace in the world, the Houses of Parliament, the greatest, though Barry's designs were never completed. Mr. Gilbert noted the great influence of Pugin, and after a reference to Cockerell, spoke of Sedding, Pearson and Bryden as men who always had in their minds the necessity of making firmer the knot that should bind together plastic and sculptural art. Those three men, with others who, because they were living, he might not mention, were responsible for a new departure in the combination of architecture and sculpture.

Mr. Gilbert cited Sedding's church, Holy Trinity, Sloane Street, as a beautiful work made entirely with the grand idea of the combination of the arts, and from this passed to an appeal against the vandalism that would destroy old churches and "restore" ancient works of art. He pointed out how nearly the Strand churches had escaped demolition, and condemned in emphatic terms the destruction of buildings in Regent Street that had just been replaced by an erection that apparently was supported by upright panes of glass, an arrangement that was in the lecturer's eyes quite antagonistic to art. Mr. Gilbert begged his audience to use all their endeavours to prevent the sweeping away of buildings that had marked the greatness of the great city, and then turned to what he termed another act of vandalism—the completion of the incomplete works of great artists. He asked what would be thought of some learned man who offered to alter the works of the great masters of music, or of the artist who undertook to finish an incomplete portrait by Velasquez or statue by Michel Angelo? Finally he referred to the suggested completion of the Wellington Memorial by Alfred Stevens, which he spoke of as the finest work of its kind in England, with the possible exception of Torrigiano's monument to Henry VII. in Westminster Abbey. There were those, he said, who wanted now to make a new monument of Stevens's work. The spirit was rife and the purses were open of those who would contribute to such a desecration. But to interfere with the monument would be an insult to the memory of a great artist like Stevens, whose work in its unfinished state is as dignified as the mutilated Phidian marbles.

A large portion of Mr. Gilbert's fifth address was devoted to architecture, the mother and the chief of all the arts—the art that has taught us history, has inspired the painter, and has brought to life the necessity for the sculptor. The renaissance of architecture in the last half of the past century had been effective, Mr. Gilbert thought, chiefly in the direction of supplying domestic wants and in commencing to beautify our towns and our country in a way that should meet the requirements of a coming and a more advanced period, and fall in with the general march of things. In his last address he had pointed out how little chance the architect of a generation or two ago had of finding sculptors who would co-operate with him, and he had cited beautiful buildings that had been made by men who showed that they valued co-operation by making preparation for sculptural embellishments that were still wanting. But in the last twenty years things had changed for the better, chiefly through the influence of the advance of education. And in architecture especially, said Mr. Gilbert, was education essential. The architect had to be an educated man; if he were not he could not live. He had problems to solve, he had to respect mechanical conditions and many other things that the painter and the sculptor were told sometimes to overlook. So that the artist who really aspired to be an artist had no right to consider himself as above co-operating with a man who could conceive and build a great edifice, an edifice which would itself conserve the work of the painter and the sculptor by whom it is adorned.

Mr. Gilbert said that he was very keen upon the subject of the co-operation of the architect and the sculptor. Their work together had begun in England, and in some respects we were perhaps better off than our continental neighbours, who had never lost touch between the two arts, and were therefore to some extent bound down by traditions. He would not like to call the new movement an evidence of originality, for the word was one to which he objected. The students should be warned of the danger of seeking too much after originality—it was a snare, and often tended towards eccentricity. The quality in itself would be better formulated if it were called purpose, or intention, or endeavour, or, still better, decision. And after all what was called originality was really individuality. Style was another word that nobody could define, except perhaps the French critic, who said that "the style was the man."

One heard people say of a work, "Such style—like Michel Angelo." But if it were like Michel Angelo where was its originality? Returning after this diversion to the subject of the co-operation of the sculptor and the architect, the lecturer expressed his belief that hand in hand they would inaugurate in our country an epoch of art equal to that of any past period. In years to come he hoped that the students would be able to see that this hope of his was not merely an idle dream, and they should be glad and proud if they were able to contribute even in the smallest way to the development of this great artistic movement.

He had spoken very freely the other afternoon upon the vexed question of restoring and completing other men's work, and he still felt as then, that undue meddling with such work was nothing less than desecration. The artist was not a restorer but a creator. Therefore he should create rather than imitate, and never take upon himself to act as critic of his brother's creation or of interfering with it except to preserve that brother's work from actual decay. Then it became his duty to try and preserve it. What would they say if they heard that the Government was about to overhaul the national collections and to alter and complete the Greek marbles by adding arms and legs to such as wanted them, on the ground that modern ideas demanded that they should be brought up to date? Mr. Gilbert criticised the men who altered the proportions of sculptural figures in elevated positions with the idea of making them look right from the lower standpoint, and suggested that a man standing on a ladder 60 feet high looked just as right in proportion as when he was on the ground. Finally Mr. Gilbert referred again to Watts and to the reforming and humanising influence of his art. The students, too, must aim at humanising by creating beauty, whose influence should be as powerful in another way as that of the head of Medusa, which turned everything to stone. The aspect their art gave to life should turn all ugliness into dirt and into the gutter. As sculptors they were not to think only of making a statue. They should aim at making every work a conquering expression of beauty and a something that should combat the heartless brutality of the common herd. For the artist to sign his work is the very last thing he should think of; his work should be signed enough by the excellence of his endeavour.

STUDY OF ART IN ITALY.

THE new regulations for the admission of artists and students gratis to the Italian galleries and excavations are very much more stringent than they have been hitherto, and it would be of great service if newspapers would draw the attention of their readers to them. In the case of artists and students they should now submit their credentials to the Italian Ambassador in London, and on his certificate a pass will be granted. Until lately the certificate of the artist's consul was accepted. Now unless the artist has provided himself with a certificate from the Italian Ambassador in his native country he must make his application to the Ambassador accredited to the Court at Rome, who must first judge whether the applicant belongs to a "recognised academy," and if in his judgment he does so forward his application to the Minister of Education, who eventually sends a pass to the Embassy, whence it is usually forwarded to the Consulate of the city from which the application is made, and then by the consul transmitted to the applicant. The pass when obtained permits the bearer to measure, sketch and photograph, and to go in and out of the gallery or excavation free as often as he pleases. If he wishes to copy a picture he must apply to the director of the gallery in which it is exhibited, who will inform him under what conditions he may work.

Amateurs can obtain permission to photograph on application to the director of the gallery or excavation in question. The application must be on stamped paper of 60 c., which can be procured of any tobacconist in Italy.

The Restored Monument of Bishop Hooper, Bishop of Gloucester and Worcester, who was burned at the stake on February 9, 1555, has been unveiled in Gloucester. In 1861 the foundation-stone of a monument to his memory was laid on the spot on which he was burned, and this was in due time completed and unveiled. It represented the bishop on a high pedestal, an ornamental canopy, supported by four pillars, being over the figure, which is life-size. The work has been under the direction of Mr. Waller, the cathedral architect.

NOTES AND COMMENTS.

IN all things relating to building, Manchester from its importance is expected to show an example to other provincial cities. Having wealth and skill it ought to represent progress, especially in buildings where science has to be recognised. It is therefore not satisfactory to learn that two trustees of the Royal Infirmary have resigned their positions through apprehensions that the new buildings will be of too costly a character, or, in other words, will subserve the latest theories of medical science and energy. Mr. ALFRED SIMPSON in his explanation says that when the instructions to the architects who were to compete were prepared he protested against the adoption of the "unit" system, as being costly in construction and adding greatly to maintenance per bed. When plans were adopted he again protested against the enormous cost per bed. Mr. SIMPSON believes that the character of the institution, when at Stanley Grove, will be changed. It will become much more a teaching hospital, instead of the primary one for the treatment of the sick poor. Placed there the professional influence will increase, and the lay share in the management must decrease. Mr. JOHN KENDALL's objections are financial. Originally it was calculated that a building to contain 500 beds could be erected for 250,000*l.*, or 500*l.* per bed. The plans selected were estimated to cost 324,000*l.*, with a margin for extras not to exceed 10 per cent., which if put down at 7½ per cent. makes a total of 350,000*l.* Added to this there has been the cost already incurred of acquiring land, &c., 45,000*l.*; architects' fees 5 per cent. and surveyors' fees 2½ per cent. on the 350,000*l.*, 26,000*l.* There is also the furnishing, estimated at 25,000*l.* Taking the interest to be paid on bank advances at from 30,000*l.* to 40,000*l.*, and assuming that a central receiving house and out-patients' department, with site, will cost 20,000*l.*, the financial responsibility to be incurred will amount to at least half a million. It will be observed that there is no charge of unnecessary expenditure. If hospitals are to be erected which will correspond with the most advanced practice in medicine and surgery a large outlay cannot be avoided. On that account membership of hospital boards and committees involves constant anxiety, but there are always courageous volunteers for the office, and liberal supporters also arise from time to time.

IF ADOLPH MENZEL lived until December 8 he would have completed his ninetieth year. For seventy of them he has been before the world as an artist. Beginning with pen-and-ink drawings, he afterwards took up lithography, and next he devoted himself to drawing on wood. Meanwhile he endeavoured to learn the mysteries of oil-painting, and in his twenty-first year he produced his *Chess Players*, which he described as *mehr knetend als malend*, i.e. kneaded rather than painted. He might therefore be considered as an illustrator, and if he lived in France he would probably have been treated like GUSTAVE DORÉ, and never recognised as a painter. MENZEL was, however, very skilful in painting, and he was more fascinated by light and shade than many of his contemporaries. Artificial light no less than daylight afforded him opportunities which he gladly seized. Nature endowed him with all the qualities which are requisite for a painter, and he improved them by study and exercise. But if he were a less able man his position in Germany would be just as privileged. He confined himself to the history of Prussia, and especially to the history of FREDERICK THE GREAT. The latter was a theme which caused much misery in the CARLYLE household, and people still wonder why CARLYLE should have bestowed such colossal labour on "The Last of the Kings." He imagined that he was carrying out his mission. MENZEL may not have given attention to a mission, but he knew the subject was within his powers. Never was there a king who was

made the subject of so many drawings and paintings as FREDERICK THE GREAT, and [never was there an artist who was more honoured in consequence. The first wreath to be laid on his corpse was that sent specially by the KAISER. In England his work was always regarded coldly, and consequently it was more appreciated by artists than by the general public. He painted for his countrymen and succeeded in what he attempted. As long as Prussia prevails in Germany MENZEL's renown will be secure, and for painted biography his works must be accepted as almost unique.]

ILLUSTRATIONS.

WESTMINSTER CATHEDRAL: FRONT, LOOKING WEST.

MOUNT STUART, ISLE OF BUTE. N.B.: UPPER PART OF ENTRANCE HALL.

CLOCHER ST. ANTOINE, LOCHES.

THIS tower is one of four or five good examples of Early Renaissance still existing in Loches, and, being the highest object in the town below the ancient castle, it forms a striking object from many points of view, and groups most happily with the picturesque masses of the castle, which, were the sketch extended panoramically, would appear some little distance to the left, high up. It is now a solitary tower, unconnected with any buildings as old as itself, but at its base may still be seen a few traces of a once famous chapel. Built in 1529, the tower belongs to probably the richest period of French Renaissance, but it combines with the usual exuberance of detail belonging to this period also considerable dignity. A circular staircase turret, just indicated in the sketch, pleasingly varies the sky-line from another point of view. The tower served formerly as the belfry of the town and district, and still retains the name.

ST. OURS, LOCHES.

THE romantic old town of Loches possesses in its church of St. Ours, says Mr. HAIG, one of the most singular ecclesiastical monuments in Europe. Seen from any point of the valley to the east and north of the town, the church forms a conspicuous and picturesque object in the group composed of the various buildings of the famous castle of Loches; but it is only on nearer approach that the peculiarity of the building becomes apparent. There is a tower over the crux and one over the west end of the church; but these features are to be met with elsewhere, and it is only when we come to contemplate the roof over the nave that any striking departure is observed from the ordinary arrangements of churches. The roofing has been effected by means of two octagonal pyramids, almost as pointed as the east and west spires, but of course springing from a much lower level, and open to the vertex. The effect of the four points formed by these roofs and the two spires is not happy from all external points of view, but the impression of the interior is rather pleasing. The covering over the crux is of similar shape, but terminates at a lower level than the nave roofs, and at the west end a combination of low and massive arches supports the tower, the lower part of which is open to the nave. The church terminates to the east in a central apse and two smaller ones, projecting from the transepts, as indicated in the illustration. The western termination consists of a low square narthex, which, as well as the crypt under the choir and the lower part of the western tower, date from the eleventh century, and the rest of the church from the twelfth, the whole having been completed in 1180.

CATHEDRAL SERIES.—ST. ANAPH: GENERAL INTERIOR, FROM EAST END.

THE ARCHITECTURAL ASSOCIATION.

A MEETING of the Association was held on Friday evening last at the premises in Tufton Street, Westminster, Mr. E. Guy Dawber, president, in the chair.

The following were elected as members:—Messrs. J. M. H. Watson, C. E. Lovell, R. C. Coulson, M. Jewson, T. D. Dixon, J. Filtress and A. A. Fillary. Messrs. James Lemon and A. S. Millar rejoined.

A vote of condolence to the widow and relatives of the late Mr. John Leaning was passed.

The PRESIDENT said he had a very pleasurable duty to perform, and one in which all members would readily join with him. It was to accord a hearty vote of thanks to their old friend, Mr. W. G. B. Lewis, for the work he had accomplished in arranging and supervising almost by himself the hanging of the casts round the museum. Mr. Lewis had undertaken no light task, and he gave his services ungrudgingly for nearly a year past. Although the hanging of the casts was not quite completed, they could appreciate the good work achieved by Mr. Lewis in his labour of love.

A vote of thanks was also passed to the Board of Education authorities at South Kensington, and to the Society of Antiquaries for the loan of lantern slides.

Mr. C. S. SPOONER read the following paper:—

Church Fittings.

What do we include in church fittings? I do not much like the word, and it may be understood to cover a very wide field, including everything except the actual structure of the building. I take it to mean the furniture and ornaments of a church and such decoration as is connected therewith. The furniture for a church differs from house furniture chiefly in the difference of scale and the different use to which it is put—these two conditions will, of course, materially affect the design, but there need not be any other difference. Church furniture may be of any shape and of any material, and it may be decorated in any way that pleases the fancy—provided always, of course, that it is in good taste, suitable for the solemn and sacred purposes for which it is used, and also that it complies with the rules and directions of those in authority.

What do we mean by a church? I take it that we mean a building set apart for the worship of Almighty God, and I must still further restrict the meaning, for the purposes of this paper, to the worship of the Christian religion.

For our purposes to-night we may think of Christians as divided into two schools of thought—the one, while by no means neglecting or underrating the office of the preacher, looks upon the Sacrament of the Holy Eucharist as the central act of worship and centres everything round that act; the other school, while not neglecting prayer and praise, looks upon the sermon as all-important. Of course, each school is subdivided—the latter very much so indeed—but these subdivisions do not concern us here. Each of these schools keeps, more or less everywhere, its own general arrangement of churches. In the first the altar is always the central and chief feature of the church, and in the second the pulpit takes that position.

Now, it is with the furniture and ornaments of the church of the first school of thought to which I have referred that I propose to confine myself. I must still further clear my ground. This school of theological thought is, as we all know, roughly divided into three, which divisions are respectively known as the Orthodox Church of the East, the Roman Catholic Church and the Church of England.

Differences in the rites and ceremonies of these three bodies make some differences in the furniture and ornaments of the churches belonging to each, and it is with those of the Church of England that I am chiefly concerned to-night.

There is, unfortunately, some difference of opinion about the laws and rules affecting the furniture and ornaments of the Church of England, in spite of the clear directions in the ornaments rubrick, which is placed in a prominent position at the beginning of the Prayer Book, and which runs as follows:—"And here it is to be noted that such ornaments of the Church and of the ministers thereof at all times of their ministration shall be retained and be in use as were in this Church of England, by the authority of Parliament, in the second year of the reign of King Edward the Sixth." It must be remembered that the word "ornaments" is not confined, as by modern usage, to articles of decoration. . . . "All the several articles used in the performance of the services and rites of the Church are ornaments."

The Alcuin Club has issued a very valuable tract on this subject by Mr. J. T. Micklethwaite, in which he points out that the second year of King Edward VI. began on January 28, 1548, and ended on January 27, 1549, and that, as the first Prayer Book could not, according to the Act authorising it, be used by the authority of Parliament earlier than February 11, 1549—i.e. three weeks after it had received authority—the rubrick refers to the ornaments that were in use before the first Prayer Book of King Edward VI. Mr. Micklethwaite, after giving very convincing evidence for his opinion, proceeds to give a list of the ornaments that were in use in the year 1548, and he says:—"I cannot hope that nothing will be left out of it, but I will try that nothing shall be put into it for which reasonable proof cannot be given." Such a list by such an authority is, I think, useful to us. I do not propose to give the whole of the list; there are many things which have become useless—e.g. crescents for lights and the chafing ball—and there are several which seem to me to be outside our subject.

But it is well to know, on the authority of a learned archaeologist, what furniture and ornaments are included in the rubrick which regulates these things for the Church of England.

The list of things runs as follows:—Images and pictures; the high altar; minor altars; the table or reredos; the altar shelf; the canopy of the altar; the upper frontal or dorsal; the nether or lower frontal; the frontlet; the curtains, riddels or costers; carpets; tapestries; lamps; the altar cross; the altar candlesticks; standing candlesticks; the chalice; the paten; the cruets for wine and water; a box for altar breads; the censer, &c.; two basins for washing the hands; registers, viz. a thin strip of silver with ornamental ends, for use as a book-marker; the sacring bell; processional cross, &c.; alms basins; the lectern for the Gospel; the lavatory, called in Latin *sacarium* or *piscina*; the sedilia; screens; the rood-loft; other lofts; the rood; stalls and desks; the great lectern; lectern cloth; lesser lecterns; the organ; chanters' stools, &c.; pews; pulpit; a desk for books; tables with inscriptions; the font; the font cover; the Litany desk; a cross for funerals; the bier or hearse, standing candlesticks, &c.; banners, standards or streamers; the dedication crosses; bells in the steeple, the clock and chimes. To this list we might add certain things as being required in our churches nowadays, all of which have been authorised by the proper authorities. Here let me remind you that nothing should be put into a church without the authority of the bishop of the diocese—the parish priest, be he rector, vicar, or curate-in-charge, is responsible to the bishop for everything put into the church or churchyard. Some means of warming the church; some means of lighting the church at nights or on dark days; notice boards; hymn boards; alms boxes; a bookcase for devotional books; cupboards or boxes, either in the vestry or in the church, in which to keep the frontals and altar linen, the vestments, the candles and other things; a safe, preferably in the priest's vestry, if there be more than one vestry, in which to keep church plate, the alms, until the money is put in the bank, the registers and other valuable things.

This is a long list, and there is, no doubt, a great deal to say about many of the things included in it.

Let us, therefore, first consider the most important.

The first and most important thing in the church is the altar. It is one of the things essential in the worship of the Church. Most of the other things are conveniences, but some sort of altar, together with a plate and a cup, are absolutely indispensable. Besides this, on account of the sacred use to which it is put, churchmen have always desired to make the altar the most beautiful and most honourable thing in the building. In a large building the problem is how to do this, because, even if the altar is as large as possible, it still remains a small thing relatively to the building. The two ways which have centuries of precedence are, I think, still the best. First, to place it on a raised platform, reached by a flight of steps, and then, if possible, to put a canopy over it, or, at any rate, some rich background. All those things in the list, such as the reredos, the canopy, the upper and nether frontals, the carpets, tapestries and the standing candlesticks, are for this purpose.

The altars in the churches throughout England in the year 1548 were nearly all made of stone. Mr. Micklethwaite says, in the tract to which I have referred, that "there can be no doubt that wooden altars were sometimes used in England in the fifteenth century, and they were not mere

makeshifts, but things of some cost." And, further, "The destruction of the old altars and the substitution of movable wooden tables, which seem to have been set up at the time of the celebration of the Eucharist, appears to have been begun in the diocese of London by Dr. Ridley, in the fourth year of King Edward." "The real contest in the seventeenth century was not about the material so much as the position of the altar, and that was finally set at rest after 1662."

All through the eighteenth and the first part of the nineteenth centuries stone or marble altars were by no means uncommon. Sometimes they were fixed to the walls or floor, and old stone altars still remain in Arundel Church, in Gloucester Cathedral and elsewhere. Of late years, however, some of the chancellors of the dioceses have objected to altars of stone or marble. I think this is regrettable and curious considering the words of the rubrick.

I think everyone will agree that, although the altar is seldom seen, it should nevertheless be made of the very best quality of whatever material may be used, and the construction should be good and handsome.

It is important that the altar be of sufficient size, and, in order to give it due importance, the larger it is the better. No considerations of utility need limit the length, but anything shorter than 5 feet is likely to prove inconvenient. I think it is a safe rule to make it as long as possible, so that it will look well and be in good proportion with the sanctuary where it stands. Utility will regulate both the height and the width. The priest stands at the altar during the whole of the celebration; it must, therefore, be high enough so that he may not be obliged to stoop unduly at any part of the service. Although men vary considerably in height, it has been found by experience that 3 inches is the limit of variety in the height of an altar. Anything lower than 3 feet 3 inches is most inconvenient for a tall man, and 3 feet 6 inches is as high as a short man can possibly use. I have made some altars 3 feet 6 inches high, and the clergy who use them tell me they find that height convenient; but it is the extreme limit, and I think, perhaps, 3 feet 5 inches is the most convenient height for an altar.

It is important not to make it too wide. The corporal is usually about 20 inches square, and a little more width than that is needed. I think 2 feet is as narrow as an altar should be, and 2 feet 3 inches is a better width. Unless the altar shelf (when it is intended to have one at all) stands on the altar, 2 feet 6 inches will be found to be wide enough for any altar.

Altars should be quite simple in design, with no elaborate mouldings or carvings in high relief. It is essential that the edge of the top be almost square, the angles should be just softened, and if it is desired to enrich it with mouldings they should be sunk into the flat edge, but on no account must such mouldings turn over on to the top of the slab. Unless the top of the altar is perfectly flat and smooth right out to the extreme edge, there is a risk of the sacramental vessels being upset. There is also a danger of irregular projection or points, such as might occur in high-relief carving or open tracery, catching in the vestments of the celebrant. Such risks should not be run. Moreover, ornament of this kind is out of place. It is better for altars to be quite plain in design but of handsome material, and to reserve for the frontals such ornament as funds will permit.

The top or slab should be thick and heavy. A slab of stone or, better still, marble carried on five pillars is perhaps the best general form; or if wood is to be used, then I think it should be framed together with five or more legs braced at the bottom, and carrying a thick top, which (so that it may not split or warp) should be framed with flush panels. I have myself made wooden altars with framed fronts, ends and backs; but I now think that is not the best way, and I recommend the form of a heavy table as being altogether better.

What I have said about altars applies, I think, to all, whether a high altar or side altars, with one exception. The minimum length of 5 feet is not enough for a high altar, *i.e.* an altar which may be used for a high celebration; the minimum length in this case should be 8 feet, as the celebrant, the deacon and the sub-deacon stand side by side in certain parts of the service, and anything shorter than 8 feet looks undignified. In churches where there is only one altar it is better to make it the high altar, and a length of 8 feet will not be found to be too much even in the smallest churches. A high altar should always stand raised upon a platform, three steps above the level of the sanctuary floor, and not more than three. The sanctuary itself may be at any level above the chancel that is not

inconvenient. These three steps are required for the celebrant, the deacon and the sub-deacon, or, as they are sometimes called nowadays, the gospeller and espistler. I myself prefer the old names.

The top step should be deeper from front to back than the others; a clear space 3 feet at the least is necessary in front of the altar, and rather more is better. The other two steps should be at least 18 inches deep (front to back). The height, or rise, is a matter of taste, and will be different under different conditions, but I think it will be found inconvenient if the rise of each step is greater than 7 inches. The rise of all three should be the same.

It has been supposed that the cross and candlesticks should not be placed upon the altar itself. It appears, however, that in the year 1548 these ornaments often stood upon the altar, and Sir Walter Phillimore wrote to one of the members of the Alcuin Club that "No Court has decided that it is illegal to put candlesticks directly on the mensa."

The altar shelf has become very usual nowadays, no doubt by reason of the foregoing supposition; nevertheless, it does not seem to have been uncommon towards the end of the Middle Ages to put the cross and candlesticks on a ledge or shelf, either standing on the altar itself, or just behind it. It is mentioned in many inventories, where it is described by different names, which, however, all mean the same thing. In some places, I think, such a shelf adds to the dignity of the altar and is a convenience. It is better for it to stand behind the altar rather than upon it, unless the altar is very broad, in which case it should be loose. In the former case it becomes the base of the reredos. The shelf should be from 9 inches to 12 inches wide, to give room for the cross and candlesticks to stand upon it, and it should not be too high.

It may be ornamented with carving or painting or covered with a cloth, coloured and ornamented or not, according to circumstances.

The object of the reredos is, as I have said, to give dignity and importance to the altar, and this should be the first consideration in designing a reredos. It must be spaced in such a way as not to detract from the altar nor to overpower it, but rather to add to its prominence and make it unmistakably the principal object at the east end of the church. The existence of a reredos will not necessarily do this—indeed, it is possible to draw the attention away from the altar and to make the reredos itself the principal object; and it is very easy to do so, especially as the purpose of the reredos is not always sufficiently realised. I suppose effect is produced by the right relation of things one to another, by subordinating certain things to other things and by concentrating the means at disposal at the right points. Certainly, differences of spacing and proportions make great differences in effect.

The size of the reredos will vary, of course, greatly. Much will depend upon the amount of money that may be spent upon it, upon the character, materials and lighting of the church. Besides giving dignity and prominence to the altar, it should harmonise with its surroundings in size, shape and material. Generally speaking, the simpler it is in form the better it will look; much variety of outline seldom adds dignity, and often detracts from that quality. The choice of material, too, is a thing of vital importance to good effect, and no general rules can be given, since any material may be used. There is, however, one material which seems to me hardly suitable for a reredos, and that is mosaic—unless the reredos is to form a part of a complete scheme of mosaic decoration. If mosaic is used at all it needs to be used in large quantities and in conjunction with marble, also used in large quantities. Under these circumstances, nothing perhaps could be finer. But a single panel of mosaic, surrounded with a frame of marble or alabaster, is so very different to all the surrounding material that it seems impossible to make it take its proper place in a building. Again, I think it is a safe rule never to use mosaic unless it can be 15 feet at least from the eye.

Generally speaking, I think the reredos is better as a separate thing, not forming part of a scheme of wall decoration, but a definite background to the altar, a sort of solid screen at the back of it, with perhaps the altar shelf or shelves forming part of it. These shelves can be used for flowers at high festivals. There are many ways in which such a reredos can be treated. There are some old examples for instance, those at Winchester Cathedral, St. Albans and Southwark, to mention three well-known ones. They consist of a great screen of niches filled with figures, but divided as to give due importance to the altar. This is done by a vertical division a little wider than the altar and by

part immediately over the altar being treated on a different scale to the rest.

The effect of these reredoses must have been magnificent. There seems little hope that we can do anything of this kind at present. Our sculptors nowadays seem to have turned their attention to realistic portraiture instead of to decorative art, and until someone arises who is possessed with both the devotional and the decorative spirit, figure-sculpture is out of our reach—unless, indeed, M. Rodin would turn his immense powers to express the devotional as well as the intellectual.

A painted reredos might be attempted with better chances of success, if, indeed, there was any real desire to make use of the best of our painters to ornament our churches. I cannot forget the fact that five, if not more, really great painters—men who possessed the decorative and the devotional spirit equally, I think, with any of their predecessors—have died during the last few years, but as far as I know, only one of our cathedrals and very few, if any, of our parish churches have a single example of their paintings.

There is one picture by Watts at St. Paul's Cathedral, which, unless I am misinformed, he himself gave to the Dean and Chapter, but we shall have to search indeed to find any paintings by Rossetti, Madox Brown, Burne-Jones, Millais or Watts in our churches. Thousands of pounds have been expended upon stained glass during the lives of these men, much of which is rather a disfigurement than an adornment to the churches where it has been put up.

I am afraid architects have been too ready to employ tradesmen to carry out decorative work rather than artists. I know quite well how much more smoothly everything goes. Promises are kept, the work is done very cheaply, and, alas! these things please our clients more than a work of art would. The blame must, therefore, rest upon their shoulders rather than on those of the poor architect, who certainly has to bear quite enough blame for other people's failures.

Of course unless there is a good deal of money to spend on a reredos it would be impossible to employ a great artist, be he sculptor, painter, or anything else, although I am inclined to think that it need not be so costly as is sometimes supposed.

It is a mistake to attempt any sort of figure decoration unless an artist can be employed. It is of no importance whether the artist is working independently or for a firm so long as he is an artist and can work and express himself freely. But so far the firms who undertake decorative work have not succeeded in finding artists to work for them, with some rare exceptions. I think the reason is that they have not realised that an artist cannot work except in his own way. If he has to obey orders and do as he is told, one of two things happens—either he gives it up altogether or he degenerates into a mere mechanic. I believe great good might come to everyone concerned if these firms could be induced to employ artists, to consult them about their part of the undertaking, and put them in direct touch with the customers and allow them to have the credit due to them for their work, and leave them as free as possible to work in their own way and to pay them a fair amount for their work. It would relieve the artist of much business which the business man would do better, and it would save the business man from bothering about things that he has no ability to deal with, and from a good deal of humbug.

In cases where figurework would be too costly, very good effects may be produced by painted patterns, more or less repeating, dividing and powdered over a field of colour, or even colours. I need hardly say that it wants a very nice sense of colour to produce a good effect, but this surely comes within the work which an architect should undertake personally. For such a purpose I would recommend the use of very few colours, and I think very much may be learnt from good examples of heraldry in the use of colours and metals.

The heraldic rule—never to put colour on colour or metal on metal—is one to bear in mind, although it need not be so binding in decoration as in heraldry; such rules tend to simple effects and treatment, and are useful on that account.

Every one will find his own method of using colour. One very good way I would suggest is to lay on the colour very light—almost, if not quite, pure—and then to glaze it down with thin coats of colour superimposed till the brightness or crudeness has been brought down to harmonious tone. Personally, I much prefer tempera to oil paint. I think it is a pleasanter quality and it darkens less with time.

This brings me to the upper frontal, or dorsal, which serves the same purpose as the reredos, namely, to give dignity and prominence to the altar, and it is perhaps the best way of doing so in poor churches where they cannot afford a good reredos. It may be of any material, even cotton, and may be hung in any way that will give a good effect. If it is brought right forward over the altar as a canopy a very good effect may be obtained, but it looks much better if the material is suspended over rods of metal and is all in one piece, rather than if it be strained over a board. I think hangings nearly always look better if hung more or less full. The folds of hanging drapery are one of its distinctive beauties, differentiating it from everything else. It is a little more difficult to hang it full and to bring it forward over the altar, but it is worth the extra trouble. There is, however, one drawback to a canopy—it is apt to get very dirty from the smoke of the candles; indeed, a canopy must always be a considerable height above the altar. The amount of smoke that a good-sized candle makes is surprising, and, as the candles always stand in the same position, the smoke is concentrated in one place. For this reason, too, it is well to arrange for the candles to stand well away from the dorsal, or from the reredos either.

At either end of the altar should hang the curtains or riddels. They should be about as wide as the altar, and may be of any height so long as they are well above the candles, to protect them from being blown about by currents of air. It looks better, I think, for them to be a good bit lower than the dorsal, unless the dorsal itself has to be low. They may be hung from rods which fit into sockets in the east wall or attached to the poles which carry the dorsal. In some old manuscripts with pictures of the celebration of the Mass the riddels are shown hanging from rods carried by poles at the four corners of the altar, and also as a continuation of the dorsal, the whole being carried round the three sides of the altar.

The dorsal and riddels may be of any colour or colours, and of any material. The colour must, of course, harmonise with surroundings and the liturgical colours of the frontals and vestments. The dorsal and riddels are not changed with the frontal to the colour of the day. When funds permit it is nice, of course, to have extra gorgeous hangings for the great festivals, but two sets are enough for any church.

It is, I think, absolutely necessary to see a large piece of the material in the church in the position where it is to hang before choosing. The surroundings and light are so very different to a show-room, and in a building the size of a church very strong colour is necessary in order to get any effect of colour.

Most delicate tints have a tendency to look grey. But it is impossible to make any general statement, for colours are so very much affected by what is next to them or near them, by light and by position, that it is almost impossible to tell how they will look without seeing the actual materials together in the position they are to occupy.

The nether or lower frontal is "the cloth in front of the altar, to which the name frontal is now generally given."

The frontal for the high altar "was amongst the things to be found by the parishioners," says Mr. Micklethwaite in his *Alcuin tract*, "and old pictures of English altars in use always show them vested." "There is no English authority for the altar itself being carved and painted. Most old ones were quite plain, but a few were panelled in front; as, for instance, that in William of Wykeham's chapel in the cathedral church at Winchester. The covering of the altar with 'a carpet of silk or other decent stuff' at the time of service was ordered in the canons of 1603, which set forth the least in the way of ornament which might be tolerated."

The frontal need not be mounted on a wooden frame. If it is well made with a proper backing, it can be hung with rings and hooks under the slab of the altar, and can be folded up and put away in a drawer when not in use. The five liturgical colours in the Church of England are white, red, green, purple and black, and therefore five frontals are required. Black is only used for funerals, on Good Friday, and on occasions of national mourning. Poor churches can do without it—on such occasions they would use the purple frontal. A dark indigo blue answers the same purpose as purple, and it is easier to get a good quality of colour in this than in purple. Any colours may be used to decorate the frontals that fancy can desire, so long as the colour of the day is not obscured and everyone can see that it is white, red, green or purple. The purple frontal should have very

little ornament and should be very subdued; it is used at penitential seasons and sometimes at funerals.

"The frontlet was a strip of stuff fringed on the lower edge and sewn as an 'apparel' on to the front edge of one of the linen cloths, from which it hung, so as to hide the suspension of the lower frontal."

The frontlet need not be changed with the frontal, and may be of any colour that will harmonise with the five frontals. It is better, I think, to have a purple and a black frontlet to use with those two frontals.

It is usual for both frontals and frontlets to be ornamented with embroidery, and, when it is well done, nothing could be more beautiful or suitable. But, just as much as the painting of the reredos, it needs an artist to do it. The firms and the church shops have failed in this respect just as dismally as they have in pictures and windows, and, unless an artist can be employed to do the embroidery, it is much better to do without. Simple bands of colour or woven or printed patterns will be infinitely better than the mechanical and inartistic work of which there is such a painful amount in our churches.

Carpets are often mentioned in old inventories, but it does not follow that the word means what we understand as a carpet, viz. a floor covering. It was used for any cloth or covering. The cloth covering the seat of the sedilia and that covering the lectern were called carpets as well as floor coverings. A carpet to go on the floor and over the steps in front of the altar is a great addition, almost a necessity. It prevents any chance of the priest slipping, and makes all his movements quiet. I like to see it brought right down the chancel—it gives a fine bit of colour and a strong leading line up to the altar.

Tapestries, or wall-hangings, are amongst the ornaments of the rubrick, and may be used with good effect in many places, particularly on the east wall and round the sanctuary.

The Altar Cross.—Mr. Micklethwaite says:—"A cross was not thought a necessary ornament for an altar, although a common one. The cross which a parish was bound to provide, was for processions. But often it served for the altar as well, being fitted with a foot to stand in and a staff for carrying. This cross generally had a figure of Our Lord crucified, and sometimes there were brackets at the sides with figures of St. Mary and St. John."

The bede roll of St. Mary's, Sandwich, recorded the benefaction of John Colwyn and his wife, who gave "the best cross of sylver and gylt with a staf of laton ther to, the whyche cost XXV^l," and also of Thomas Grene and his wife and John Byschop, who gave "the fote of sylver for that crosse to stand ther on the hygh auter."

There is a curious superstition in the minds of some people, and, amongst others, some of the chancellors of the English dioceses, that although a cross may be used on our altars, it must on no account have a figure on it. In the year 1548, to which the Prayer Book refers us, it seems more than probable that every altar cross had a figure on it. Inasmuch as the cross is the Christian standard, I do not know that it is a matter of great importance, from a didactic point of view, whether it bears a figure or not; but from that of the artist it is very desirable, when funds will permit. I think it is generally accepted that it requires the highest artistic ability to represent the figure properly, and one would suppose that every Christian would desire to see the best art and the best work lavished on the standard of the Kingdom of Heaven. Here, again, when there are no funds to provide a work of art, it is better to have no figure at all.

In my opinion any kind of naturalism in a crucifix should be avoided—a quiet, dignified figure, expressing self-sacrifice and Divine love, rather than a human being in torment is very preferable. I myself like the sentiment of early Christian art, that of Our Lord conquering Death, better than the late Mediæval and Renaissance treatment of the crucifix. The altar cross should not, I think, be very large. It is, after all, the standard in front of the priest, rather than in front of the people. The great rood answers the second purpose, and it is always behind the priest when he is in the sanctuary.

"The direction in the Order of Communion," says Mr. Micklethwaite, "that the old service should continue without varying of any rite or ceremony, sends us back to the ancient usage as to altar lights." "The Order of Communion was to come into use on Easter Day, 1548, and to continue until it was superseded by the English book of 1549." The ancient usage "differed much in different churches, the only fixed rule being that there should be at least one light on

the altar at the time of Mass. Rich churches would have more, and it was the custom to vary the number according to the day or service, but the greater number of parish churches probably had ordinarily two lights on the high altar and one on each side altar."

"On occasions the number used might be very great, but, as a rule, the extra lights were put round about the altar rather than on it. The lights were used at Matins, Mass and Evensong.

"The modern custom of having several sets of candles on the altar at the same time for use at different services has no authority in antiquity."

It is better, I think, for candlesticks to be of the same material as the altar cross, and here let me say that it is not necessary to use brass. It is, no doubt, a very good and beautiful material, which is, by the way, generally spoilt by being lacquered, and sometimes a material of another colour would look better.

I must pass over several things in the list of ornaments, of which, no doubt, much might be said, such for instance as the chalice and the processional cross. The lectern for the Gospel is rarely if ever used nowadays. Mr. Micklethwaite says, "richly furnished churches often had them," and "in a few churches, chiefly in Derbyshire, stone Gospel-desks are found against the north wall. Such exist at Mickleover, at Crich and at Chaddesden, all in Derbyshire."

We do not always find a piscina in modern churches. It is supposed not to be required, but that is a mistake. It is required as much to-day as it was in the Middle Ages, and for similar purposes. It may be made as a beautiful little niche in the south wall of the sanctuary, and it may be combined with the credence, although a projecting shelf or table is more convenient than the small shelf found in many old churches. The drain from it should always run into the ground.

The Sedilia.—Mr. Micklethwaite, in the Alcuin Club tract, gives the following interesting note:—

"What we call the sedilia is the last remnant of the bench which, in primitive times, ran all round the apse and was assigned to the priests, whence probably by tradition came the name presbytery, which seems to have been the old English name." In the contract for the rebuilding of Catterick Church (1412) they are called three prismatories, an evident corruption or miswriting of presbyteries.

The sedilia is a triple seat for the celebrant, deacon and sub-deacon. It should always be on the south side of the sanctuary. In old days it was generally formed in a triple niche, or arcade, recessed in the wall, and the seats were sometimes stepped down to express the degrees of the clergy, but this was not always done. There are many beautiful examples of the sedilia and piscina and credence combined in an arcade of four arches or niches. Of late years it has become more usual to make the sedilia a separate and movable piece of furniture generally of oak, sometimes with a back and canopy, and on the whole, it suits us better than stone seats, which are apt to be rather cold. In building a new church it would be well to form a recess in the south wall large enough for three seats side by side, and to fix a wooden seat and back divided into three, allowing a width of 2 feet for each seat at least, and more if there is room. Everything must be soft, smooth and round, no sharp points or open tracer that might catch in the vestments. There is no longer any need for a canopy now that the windows are filled with glass and the church is comfortably warmed.

(To be concluded.)

MR. ROOSEVELT ON ARCHITECTURE.

THE President of the United States was not able to devote much time to the Convention of the American Institute of Architects at Washington, and the members had to be content with the following brief address:—

It is a great pleasure to have the chance of coming here this evening and saying a word of greeting to a body of men who are engaged in doing work for this Republic which is to count not merely in the present generation, but during the lifetimes of many generations to come. We hear a great deal said about true Americanism. Now the real American, the American whom it is worth while to imitate, such, is the man whose belief in and work for America is not merely for the America of to-day, but for the America of the future.

It is a comparatively easy thing to do work when the reward is to come in the present; but every great nation that has ever existed on this globe has been great because its sons had in them the capacity to work for the well-being of generations yet unborn. Such a spirit is peculiarly necessary when the work that we desire to have done is essentially work of a non-remunerative type, non-remunerative in more than one way; non-remunerative in money and it may be in fame. We do not know the names of the architects and builders of the great cathedrals whose magnificent bodies are an heirloom to civilisation. We do not know the names of the builders of the great majority of the works to which every man with any aspiration after beauty naturally turns when he thinks of the past. We owe that beauty, we owe the elevation of thought, of mind and soul that come with association and belief in it to the fact that there were a sufficient number of men who worked in the spirit that Ruskin prayed in—the spirit of doing work not for the sake of the fame, but for the sake of the work itself.

There are things in a nation's life more important than beauty, but beauty is very important. And in this nation of ours, while there is very much in which we have succeeded marvellously, I do not think that, if we looked dispassionately, we will say that beauty has been exactly the strong point. It rests largely with gatherings such as this, with the note that is set by such men as those I am addressing to-night, to determine whether or not this shall be true of the future.

A very large percentage of the durable work, the work which is lasting, must be done by the Government. Great buildings and beautiful buildings will be erected by private subscription; but many of the grandest buildings must necessarily be erected by the Government, national, state or municipal.

Those in control of any branch of that Government necessarily have but an ephemeral lease of power. Administration succeeds administration; congress succeeds congress; legislature succeeds legislature, and even if all of the administrations, all of the congresses are actuated (a not necessarily probable supposition) by an artistic spirit, it would still remain true that there could not be a coherence of their work if they had to rely on themselves alone. The best thing that any administration, that any executive department of the Government, can do—and if I may venture to make any suggestion to a co-ordinate branch, I would say that the best thing that any elective legislative body could do—is in these matters to surrender itself within reasonable limits to the guidance of those who really do know what they are talking about.

The only way in which we can hope to have worthy artistic work done for the nation or for a state or for a municipality is by having such a growth of popular sentiment as will render it incumbent upon successive administrations, successive legislative bodies, to carry out steadily a plan chosen for them, worked out for them by such a body of men as that gathered here this evening. What I have said does not mean that we shall go here in Washington, for instance, into immediate and extravagant expenditures on public buildings. All that it means is that, whenever hereafter a public building is provided for and erected, it should be erected in accordance with a carefully thought out plan adopted long before, and that it should be not only beautiful in itself, but fitting in its relations to the whole scheme of the public buildings, the parks, the drives of the district.

Working through municipal commissions very great progress has already been made in rendering more beautiful our cities from New York to San Francisco. An incredible amount remains to be done. But a beginning has been made, and now I most earnestly hope that in the national capital a better beginning will be made than anywhere else, and that can be made only by utilising to the fullest degree the thought and the disinterested effort of the architects, the artists, the men of art who stand foremost in their professions here in the United States, and who ask no other reward save the reward of feeling that they have done their full part to make as beautiful as it should be the capital city of the great Republic.

The Administrators of the Carnegie donation for the erection of a "Palace of Peace" have decided to admit to the competition for the selection of plans and designs architects of all nationalities besides those who have already been specially invited to compete.

OLD DUBLIN PLASTER.*

SO far as plaster is concerned, the Renaissance in England may be described as that fresh departure which, beginning with the tentative efforts of imported workmen by Henry VIII., reached its highest development in Inigo Jones and Christopher Wren, and eventually ran itself out in the uncertainties induced by the literary eclecticism which sapped the energies of art at the time of the Union. After that, architects abandoned the Italian and Roman examples and applied themselves to all sorts of revivals more or less literal. Nowhere is the change more marked than in our old plasterwork.

Until the end of the sixteenth century, when the great Inigo Jones began to work, the transitional Elizabethan and Jacobean, in which the new detail overlaid the old constructional types, prevailed. With Inigo Jones, these islands were introduced to Palladio's art (which was a closer conformation to the Roman models and the precepts of Vitruvius than had previously obtained in Italian work), and his matured treatment of it exercised a healthful influence upon our architecture for the next 200 years. While other countries ran into all sorts of extravagances, the main lines of our architecture, whether developed externally or internally, have always been true to his Palladian traditions. In plaster and other such decoration only have we permitted license.

Sir Christopher Wren, although he only lived twenty-three years into the eighteenth century, may be regarded as its architectural father. His is a strange example of how genius and assiduity may make up for the lack of sufficient training in early years. A Fellow of All Souls, Oxford, at twenty-one, and Savilian Professor of Astronomy at twenty-nine, he slipped into his profession over the wall, as someone has remarked, like "Formalist" and "Hypocrisy" in Bunyan's "Pilgrim's Progress," but, unlike them, he proved that he had a right to be there. Though he was a true successor of Inigo Jones as a Palladianist, and his sympathies were with Bernini, the intended Italian, rather than with Perrault, the actual French architect of the Louvre, his foreign studies were limited to France, and most of his life's work, like that of Grinling Gibbons and Caius Cibber, his colleagues in plaster and wood, exhibits French leanings. I know, however, of only one example of plasterwork in Dublin in which Wren was concerned, and that is the ceiling of the chapel at the Royal Hospital, Kilmainham,† an institution like the Chelsea Hospital, now partially occupied by the Commander of the Forces and his staff.

Gandon, the architect of the Dublin Custom House, commenced in 1781, states that the design of the Royal Hospital had been attributed to Inigo Jones, but points out that as the latter died in the middle of the seventeenth century, and the Royal Hospital was commenced towards its close, it was rather unlikely. It has been ascertained by Sir Thomas Drew and Mr. Penrose that the design was due to Sir Christopher Wren. Sir Christopher did not, however, come to Dublin to superintend the execution, and, as in the case of Sir William Chambers's designs for Trinity College and Charlemont House, there were doubtless many stupid misinterpretations and ill-advised alterations and additions.

Still more unlikely is the current belief that the plaster decoration of this ceiling was modelled by Cipriani. Cipriani was much more of a painter than a sculptor, and belongs to the latter half of the eighteenth century. In his younger days he did some work for Lord Charlemont at Marino, Clontarf, and probably at Charlemont House, of which I shall have to speak presently, and in later years we hear of him in connection with Angelica Kauffmann and her second husband, Antonio Zucchi, who were largely employed by the architects, Robert and James Adam, in painting the panels of their ceilings. The modelling of the plaster details was as a matter of fact often entrusted to Pergolesi.

This ceiling is distinctly of the school of Grinling Gibbons and Caius Cibber (who, by the way, was the father of the celebrated Colley Cibber, actor and dramatist), full of exuberant, naturally treated, deeply undercut foliage, fruit and flowers, and as far removed from the enervated modelling which accompanies the panel painting of Cipriani, Kauffmann or Zucchi in such houses as that of the Representative Church Body in St. Stephen's Green, as it would be possible to imagine.

* From the lecture delivered by Mr. Howard Pentland, R.H.A., of the Office of Works, before the Association of Master Painters in Ireland, in Dublin, Convention of 1905.

† For some of the illustrations see *The Architect*, Oct. 2, 1903

Rococo influences were now at work and soon began to show their mark on the freer Palladian treatment of the old Roman acanthus scroll *motif*. The Rococo variety of the Renaissance, a style to which Michel Angelo showed decided leanings early in the sixteenth century, might have been developed by his immediate successors but for the restraining influence of Palladio, who lived a generation before Inigo Jones. It is hard to define Rococo in a few words. It developed and flourished perhaps more luxuriously in France than elsewhere during the reigns of Louis Quatorze and Louis Quinze, a period extending from Cromwell's Irish Viceroyalty to the opening of Grattan's Parliament. Its chief characteristic is the mutilation of every feature of architecture and decorative sculpture by interruption or broken curvature, or both, and the filling-in of plain spaces with symmetrically disposed medleys of architectural, animal and vegetable forms, often tortured and scrolled out of recognition, and frequently combined with the realistic garlands and wreaths which characterise other Renaissance styles. It is a general name for those foreign extravagances which never took root in this country except in internal plaster and woodwork, and in external stone panels, tympana and cartouches, and even there only in a simple and comparatively restrained manner, and (except in much of Sir Christopher Wren's and Ware's work) with Italian rather than French feeling. Most people are familiar with it in old picture-frames, good or bad; but in France it infected all architecture, and has broken out again and again—in our own days in such work as Charles Garnier's great building, the New Opera House, Paris. Some of it is very charming, but if you want principle you must look elsewhere.

Dublin Castle, 1740.

When the viceregal residence known as the State apartments was built is a subject upon which authorities differ, and nothing definite is known about the architect or the original artificers. In "Pool and Cash's Views" published in 1780 it is stated that they were erected in or about 1740.* The names of Ivory, Castel, Ensor, Cooley, Sempie, Smith, Mack, and other architects are indelibly associated with the design and superintendence of many well-known public buildings of the early eighteenth century, and those of Sir William Chambers and some others with the design only. In those days it was not uncommon to employ a great architect to make drawings (or even a preliminary sketch) probably without even a visit to the spot, and entrust it to the tender mercies of a clerk of works to work out, adapt, or alter as he or his employer thought fit. Finally they clothed it with the details of carvers and plasterers, in many cases foreigners, who had at least the merit of having been selected by and trained under some of the great home or foreign architects of the day.

Owing to the political and social unrest in the century preceding the Union, there were even more causes than now tend to the chopping and changing of official residences. When chopping and changing goes on, it is very difficult in comparatively modern times to assign dates from style alone, because there are always three courses open to the designer—to carry out the alteration in accordance with the original style; to carry it out in accordance with the current style; or to carry it out in accordance with his own fancy, if not the fancy of some influential person. Be this as it may, the main character of the plasterwork of the small reception-room is, so far as the cove is concerned, in accordance with the freer forms of the early eighteenth-century work. It shows traces of Rococo feeling in the birds and trophies, but the ceiling proper, in which are flat ornamental ribs with plain and ornamental panels, is in accordance with the native Palladian feeling of the seventeenth century, which Sir William Chambers strove to maintain against the advancing tide of Rococo and later styles.

Another example from a building close to the State apartments, now used for official purposes, also belongs to the first half of the eighteenth century. The relief is tolerably high. It became less, as a general rule, towards the close of the century. Here we have Rococo detail in modest development, the swags as usual defying gravitation. Such work might be reproduced by casting, did not the deep undercutting stand in the way; but its great charm lies in its being done *in situ* by the free hand, and largely by the thumb. A good broad, flexible thumb, and a fair gift of draughtsmanship and modelling,

constituted the plasterer an artist in those times, and distinguished him from the ordinary tradesman of the trowel and float. He had an intelligent interest in and love for his work, and he knew that the better his work the better his pay. He thought of Cibber and of Grinling Gibbons, and that, like them, he might fill a niche in the Walhalla of art. (Grinling Gibbons, by the way, was the real author of the now poor and infirm equestrian statue of William of Orange in College Green, Dublin—not Van Nost, as is commonly supposed.)

Modelling is sculptor's art, be it in wood, plaster or anything else, and the humblest freehand modeller of a leaf differed, not in kind but only in degree, from Cibber or Chantrey. In those and earlier days the great sculptor did not as now desert the lowlier field of decorative sculpture. He filled in with due subservience to the architect's composition the spaces allotted to him. He gathered young workers of all classes around him, who worked up from leaf to limb, and studied the engaged grouping of leaf, limb and inventive form as a part of subordinate architectural expression, before they essayed monumental figures and groups. The result was that the sculptor's profession was not so precarious a one as it is now for many who are not Royal Academicians. In the intervals between detached statesmen and dukes in *al fresco* glory, the sculptor of fame stretched his second string, and tendered for such work as I am now showing to you.

Trades-unionism has extinguished all this. Every workman, according to the dictates of this movement, is as good as his fellow. Besides this, the development of manufacture and the requirements of civilised society are now so much more than they used to be that architects have to be architects only, and not architects, engineers, painters, sculptors, armourers and jewellers, as they were in the days of Michel Angelo; or even dramatists as in the case of Sir John Vanbrugh. So late as the close of the eighteenth century Vincent Waldre, the architect of the Board of Works, executed the historical paintings on the ceiling of St. Patrick's Hall with his own hand. The brotherhood of artists and workers has been ruined by these two causes, and until it is in some measure restored the days of freehand plasterwork on our walls and ceilings *in situ* will not come back—I do not say that it is not to be got, but it is for the rich and cultured few, not for the people in the sense in which it was in the houses of the middle classes before the Union.

Few young sculptors of to-day are masculine enough to tackle the sweeping thumb work of a ceiling. Sir Thomas Drew remembers meeting an old resident in Waterford whose grandmother had been employed by John Roberts, great grand-uncle of Earl Roberts and architect of Waterford Cathedral. She used to say how well she remembered "the beautiful Italian gentlemen and their spectacles, lying for hours on their backs jammed up against the ceiling, about the year 1770."*

These men worked cheaply. There is no useless high finish about their work where it cannot produce an adequate effect. They made "lightning sketches" in plaster when on the scaffolding and reserved their higher finish for work at the level of the eye, and they didn't work by the hour.

The paintings on the ceiling of St. Patrick's Hall, and probably much of its ornament, are of a much later date. The paintings, as I have just mentioned, are the work of Vincent Waldre, who was architect to the Board of Works in Gandon's early days. He was a native of Vicenza, and was brought to Dublin by the Marquis of Buckingham. He possessed considerable ability as a historical painter, and was one of the seven architects who were consulted on the additions to the House of Commons before the ultimate conversion of the Senate House into Bank premises. The subjects are St. Patrick preaching, Henry II. in Dublin, at the ends, and in the centre the noble Marquis bringing peace and prosperity to Ireland.

Trinity College, Dublin, as I have already mentioned, was largely designed by Sir William Chambers, who lived from 1726 to 1796, an able but rather too coldly correct successor of Wren. He did not superintend the work, and that executed is by no means free from mistakes and incongruities. It is stated in "Pool and Cash's Views," published in 1780, that the principal or west front was approaching completion from his designs in 1759. But as I am more concerned with domestic work this evening, I propose to show you some examples from the Provost's House. The design of this, according to Pool and Cash, was taken from

* The Parliament House now occupied by the Bank of Ireland was first occupied in 1739.

* The spectacles were, of course, to protect their eyes.

Campbell's "Vitruvius Britannicus," and was attributed to Richard, third Earl of Burlington and Cork. The English architects of those days were, many of them, terrible sycophants, and, dealing with a rich and *dilettante* nobility, were apt, whilst advertising themselves, to exalt their clients' thumb-nail sketches, or even suggestions which they were afraid not to adopt, to the level of designs, and to flatter some of them into the belief that they had genius. Mr. Reginald Blomfield, in his admirable work on the English Renaissance, has shown, in spite of Horace Walpole's easy assimilation of all the commercial humility of Campbell and Kent, and Leoni, a Venetian architect, who was another "ghost" of Lord Burlington's, that there is every reason to believe that they were the real authors of all that was attributed to this so-called architect.

These examples well exhibit the restraint of those architects like Chambers, who, whilst adhering to the precepts of Palladio, were able to give a native character to their decorative work, but they lack the warmth and freedom, the *élan*, of the best Rococo. Men of Chambers's type were so afraid of license that they became architectural prudes. Poor Chambers! He would have been rather sick had he seen the Trinity clerk of works' version of his central feature facing College Green, but he would have collapsed altogether had he seen some of the fine free internal detail. A man like Chambers only promotes those lapses from orthodoxy which he seeks to prevent.

Leinster House, 1745.

In 1744 James, twentieth Earl of Kildare, afterwards first Duke of Leinster, had a house in Suffolk Street. So had Richard Castel, the real architect of the Parliament House, now occupied by the Bank of Ireland. He was the "ghost," who was not even paid the stipulated amount for his designs and advice by the so-called architect, Sir Henry Pearce, one of those geniuses (like Richard, third Earl of Burlington and Cork, the reputed architect of the Provost's House) who are supposed to have burst upon the scene fully equipped, like Pallas from the brain of Zeus—men who, like poets and Swiss admirals, are born, not made.

The Earl employed Castel, bought the ground between Molesworth Street and Merrion Square, known then as Mynchen's Fields, from Viscount Molesworth, and, in spite of the remonstrances of his friends (who thought the site too remote), laid the foundation-stone in 1745. It has a long inscription, beginning

DOMUM
CUJUS HIC LAPIS FUNDAMEN
IN AGRO MOLESWORTHIANO,

and ending with the name of the architect. I am not going to describe Leinster House, which has been occupied by the Royal Dublin Society since the battle of Waterloo,* for everyone who does not know it ought to go and see it. When masquerades were introduced into Dublin in the last half of the eighteenth century Leinster House was the scene of the most sumptuous entertainments. On these occasions Gilbert tells us that the rank and fashion of Dublin used to stroll through such houses, which were thrown open for the occasion, before going down to see Peg Woffington at Violante's Theatre or the subsequent masquerades at the Rotunda.

The ceiling of the Duke's own *sanctum* has a very beautiful treatment of free acanthus ornament, but with the same contempt for gravitation as we observed in a previous example. The staircase presents a nice, sober piece of wall decoration, showing both extremes. The three main panels are intended for family portraits without further framing, and the narrow intervening panels are quite in the style of Gibbons, whilst the inevitable Rococo is beginning to clamber over the constructive lines.

We now come to a tremendous departure. I am going to ask you to imagine that you are all Rip Van Winkles and have gone to sleep during the Irish Rococo period, from the battle of Fontenoy till the first meeting of the "Whig Club" in 1791. The second duke gave a magnificent series of entertainments to those who supported his parliamentary party on the Regency question, and, probably in anticipation, had brought over James Wyatt, a London architect, who was following closely in the footsteps of the celebrated Robert and James Adam. Robert was buried in Westminster Abbey the next year, and James survived him only two years. Under Wyatt's directions the "long room" on the north side was redecorated in the now popular and fully developed Adam style, which bore the same relation to the

Rococo, alongside of which it grew, as the Louis Seize style bore to the sober Rococo of Louis Quatorze and the extravagant Rococo of Louis Quinze, or as the Sheraton and the Adam furniture bore to the Chippendale.

Rotunda Hospital, 1751.

We must now, like the bucks in the second duke's time, go from his picture gallery in Leinster House to the Rotunda, where the gardens were as much the resort of fashion as Ranelagh and Vauxhall. Castel had seen the Parliament House built from his designs in 1739 and Kildare House, afterwards Leinster House, commenced in 1745, and in 1751 another of his important works, the Rotunda Hospital, was commenced. This hospital, which was opened in 1755, owes its existence to the exertions of Dr. Bartholomew Mosse. He had previously established the germ of his scheme in South Great George's Street in the house that had been Madame Violante's theatre, the scene of the famous Peg Woffington's triumphs.

It is easy to recognise the same hand in the staircase and the ceiling, where the signs of the Rococo, now so popular on the Continent,* are even less than in the Leinster House examples. But in the chapel Rococo extravagance is strongly in evidence. The cove was probably modelled by another hand and possibly at a later date; at all events, by someone more in touch with contemporary foreign work.

The Rotunda itself, which consists of a series of rooms for public entertainments, built to supplement the hospital revenues, was designed by Ensor.

Charlemont House, 1763.

In 1762 Lord Charlemont selected a site on the north side of the fashionable Rotunda Gardens and employed Sir William Chambers, the bent of whose genius I have described when speaking of Trinity College, to design Charlemont House for him. The house was commenced in 1763 and was occupied by the family till 1870, when it was bought by the Board of Works. It has since been used as the office of the Registrar-General. The house reminds me of Chambers in many ways, but some of the decorative plaster-work does not. Observe how the outer enriched mouldings of some of the internal door architraves are prolonged and scrolled into pedimental forms to hold masks of Bacchus, or other features, instead of being left to do their own business. Chambers had previously been employed for Lord Charlemont at Marino, his Clontarf residence, where some of the decorative sculpture was designed by Wilton and some chiaroscuros were executed by Cipriani, and it is known that a sculptor named Vierpyl, whom Lord Charlemont had met on his travels, was employed on some work at Charlemont House. Chambers, like Wren, was, I believe, never in Dublin, so that his interior work was probably altered and embellished to an extent that would have surprised him.

"Buck" Whaley's House, No. 86 St. Stephen's Green S., 1785.

No. 86 St. Stephen's Green South is a famous house adjoining Lord Clanwilliam's house, now forming portion of the "Catholic University." It was commenced in 1785 by Richard Capel Whaley, father of the celebrated "Buck Whaley," one of those dare-devil magnificents of the type that Lever has so well described. He was also known as "Jerusalem Whaley," because he made a bet that he would go to Jerusalem, play hand-ball against the walls and get back in some incredibly short space of time. He pocketed 20,000*l.* over the transaction, and won another large sum by jumping out of one of his windows over a mail coach beneath. His father seems to have been of a somewhat similar disposition, as he swore that he would build such a house as would make his neighbour's—Lord Clanwilliam's—look like a pigstye.

The design is evidently by some architect who, while keeping to Palladian lines in his main features, was somewhat partial to Rococo detail. You observe the usual fantastic features, the panel mouldings with broken curves scrolling into quasi-vegetation, or clasped by it; the shells, the suspended trophies of musical instruments, and the contrasting festoons of realistic flowers.

I have referred to the fact that you may look in vain for principle in Renaissance plaster. Its attraction lies in its refinement and its waywardness. In fact, it has a feminine charm. Pope said that most women had no character at all, and he meant it for satire; but Shakespeare, who knew men and women very much better, saw that it was the perfection of women to be characterless, as Desdemona and Ophelia. So much for the sentimental side. On the other hand,

* Malton's well-known View of Dublin, published in 1794, gives a very full description of its beauties in its heyday.

* Louis Quinze was about half-way through his reign.

whenever I see monumental paintings like that of Vincent Waldre's in St. Patrick's Hall, representing the Earl of Buckingham distributing peace and plenty, hear Italian and Dutch names bandied about, and see heathen gods and goddesses with their insignia presiding over our houses, I always think of Thackeray's cynical shafts in the "Book of Snobs," where Major Ponto and Mr. Snob are shown over Lord Carabas's house by the housekeeper.

Before concluding I want to say a few words about Italian workmen. It is the habit to speak of Dublin eighteenth-century plaster and kindred work as if it was peculiar in this respect; but ever since Henry VIII. brought over John of Padua and all his men, it has been the fashion for architects and virtuosi to bring over foreign workmen from time to time, especially Italians, for Italy is the fatherland of the Renaissance. I have therefore not troubled to look for their names or to lay much stress on the point. That a good many were brought over is doubtless true, and if you wander along the quays and back streets you will meet with many an Italian name on a signboard—architects, too, such as Leoni and Vincent Waldre were introduced from time to time.

In our new departures, which I hope may in no way be related to that terrible thing known as *l'Art nouveau*, let us look for something better to work upon than the threadbare ornaments and implements of dead people, whose ghosts have already been raised so many times.

Photographs of plasterwork in the Royal Hospital, Dublin Castle, Trinity College, the Rotunda Hospital, Leinster House and many other old mansions were exhibited and described.

MODERN ARCHITECTURE IN LONDON.

AT the rooms of the Leeds and Yorkshire Architectural Society on Thursday, the 8th inst, Miss Ethel Charles, A.R.I.B.A., read a paper on "Modern Architecture in London," Mr. G. B. Bulmer, F.R.I.B.A., president, in the chair.

The President, in introducing the lecturer, explained that Miss Charles was the only lady Associate of the Royal Institute of British Architects.

The lecturer said that London is believed to contain more bad work than any city in the world, though it contains some of the finest buildings in existence, but that most of these buildings had been erected during the last thirty years. Art in architecture was certainly advancing, and the favourite scapegoat of our art is the public. Salt-glazed bricks were not used nearly enough, as they keep their colour and do not collect the dirt and grime like stone and brick. Slides were shown on the screen of New Scotland Yard, National Liberal Club, City of London Schools, London School Board Offices and many others, which illustrated how the general tendency of modern work is to experiment rather than to rely on tradition, how modern work is personal rather than national, and how it is characterised by endless diversity, and how this diversity is further intensified by the complexity of modern life and modern requirements, and also by the large amount of material within easy reach. How steel, unacknowledged, plays so prominent a part in modern designs accounted for much of the unsatisfactory appearance of our street architecture. Many of the buildings on the Embankment were shown, as this is the most successful river frontage in Europe, and it would be difficult to find so many fine and important buildings in one thoroughfare, ranging from the Houses of Parliament to the electric-light station, and which offer excellent examples devoted to the most varied purposes.

The lecturer also spoke on the question of whether to treat a building as part of a scheme or as an isolated building, but favoured the latter.

There were also shown slides of various business premises in the City, as illustrative of the fact that it is to the commercial element of our social condition that we must look for the growing prospects of London architecture.

A discussion afterwards followed, and a vote of thanks to the lecturer was proposed by Mr. R. P. Oglesby and seconded by Mr. W. H. Thorpe, F.R.I.B.A.

Walmer Castle will, it is officially stated, no longer be used as a residence for the Lord Warden. The rooms of historic interest, as well as the ramparts and gardens will, subject to regulations, be thrown open to the public on and after May 1 next.

GENERAL.

The Bournemouth Town Council have decided to erect municipal buildings for the borough at an estimated cost of 70,000*l.*, exclusive of a sum of 14,000*l.* for the cost of the land. Mr. F. W. Lacey and Mr. C. E. Mallows have been appointed joint architects. The Council also contemplate other costly schemes, including the preservation of the cliffs and the construction of an undercliff drive at an estimated expenditure of 58,000*l.*, besides the purchase of the Belle Vue hotel site, near the pier, at a cost of 60,000*l.*, on which to erect a kursaal or pavilion.

The Lord Mayor of Liverpool (Mr. John Lea) is to be entertained by the artists of London at a dinner at the Prince's Restaurant, Piccadilly, on April 27. The chair will be taken by Sir Laurence Alma-Tadema, R.A.

The American Academy having purchased a villa in Rome, a Bill has been introduced in Congress for its incorporation under the laws of the United States.

A Memorial of the late M. Gérôme, the French painter, is to be erected in the garden of the Louvre. It will be the work of his son-in-law, M. Aimé Morot, the sculptor.

Mr. R. Phené Spiers was elected honorary member of the American Institute of Architects at the Washington Convention.

The Manchester and District Branch of the Classical Association, which was established last autumn, has been informed by the excavations committee, that there are about a dozen sites within a radius of 30 miles from the city, in several of which it would be advantageous for the Association to undertake or aid systematic excavation. There was also the work of watching for finds in Manchester when important alterations were taking place.

Mr. Charles Horsley, of Highbury New Park, London, and of Wharf Road, City Road, London, civil engineer, has left property valued at 67,443*l.*

The Local Taxation Returns show that the sum received by the London County Council from the local taxation account was 1,145,811*l.* The Council raised loans which amounted to 3,120,750*l.*, while the amount received by it out of the rates, added to the grants under the Agricultural Rates Act, was 2,531,228*l.*, as compared with 2,432,670*l.* in 1901-2. The rateable value of the Administrative County of London, according to the valuation lists in force on April 6, 1902, was 40,677,589*l.*, including 21,964*l.*, the rateable value of agricultural land.

In All Saints Church, Dorchester, a mural brass to the memory of Thomas Beach, of Bath, the celebrated portrait-painter of the eighteenth century, and the pupil of Sir Joshua Reynolds, was unveiled on the 10th inst. The brass was designed and executed by Messrs. Singer & Son, Ltd., of Frome. Beach was buried in the churchyard in 1806.

The Glasgow Executive Committee of the Hector MacDonald National Memorial on Saturday finally resolved to erect the monument on the site of the town flagstaff at Dingwall, from which a view of the surrounding country for some twenty miles around can be obtained. The monument can be seen from the late General's birthplace in the Black Isle. Mr. J. S. Kay, the architect, estimates that the cost of the memorial will be over 2,000*l.*

The Royal Dublin Society announce that under the Taylor art scholarships a sum of 100*l.* is offered for competition amongst Irish art students not exceeding twenty-five years of age who shall have attended for twelve months a school of art in Ireland, or who, being of Irish birth, shall have attended a school of art elsewhere. Competitors will be required to produce at the exhibition to be held on March 20 a work or works of art in one of the four classes.

The Society of British Sculptors held a statutory meeting on Tuesday, Mr. T. Brock, R.A., presiding. The following officers were elected:—President, Thomas Brock, R.A. treasurer, Sir Charles Lawes-Wittewronge; secretary, Perc Edsall. Council:—Alfred Drury, A.R.A., George Frampton, R.A., W. S. Frith, F. Lynn Jenkins, W. Goscombe John, A.R.A., Sir Charles Lawes-Wittewronge, T. Stirling Le David McGill, F. W. Pomeroy, W. Reynolds-Stephen Hamo Thornycroft, R.A., and F. Derwent Wood.

The Prince of Wales has offered to present two paintings by Constable and two by Corot, and the Princess of Wales one by Constable, as contributions to the proposed Gallery of Modern Art for Dublin.

Mr. G. M. R. Layton will deliver a lecture this evening to the Nottingham Master Builders' Association on "Portland Cement." Mr. Robert Evans, architect, will preside.

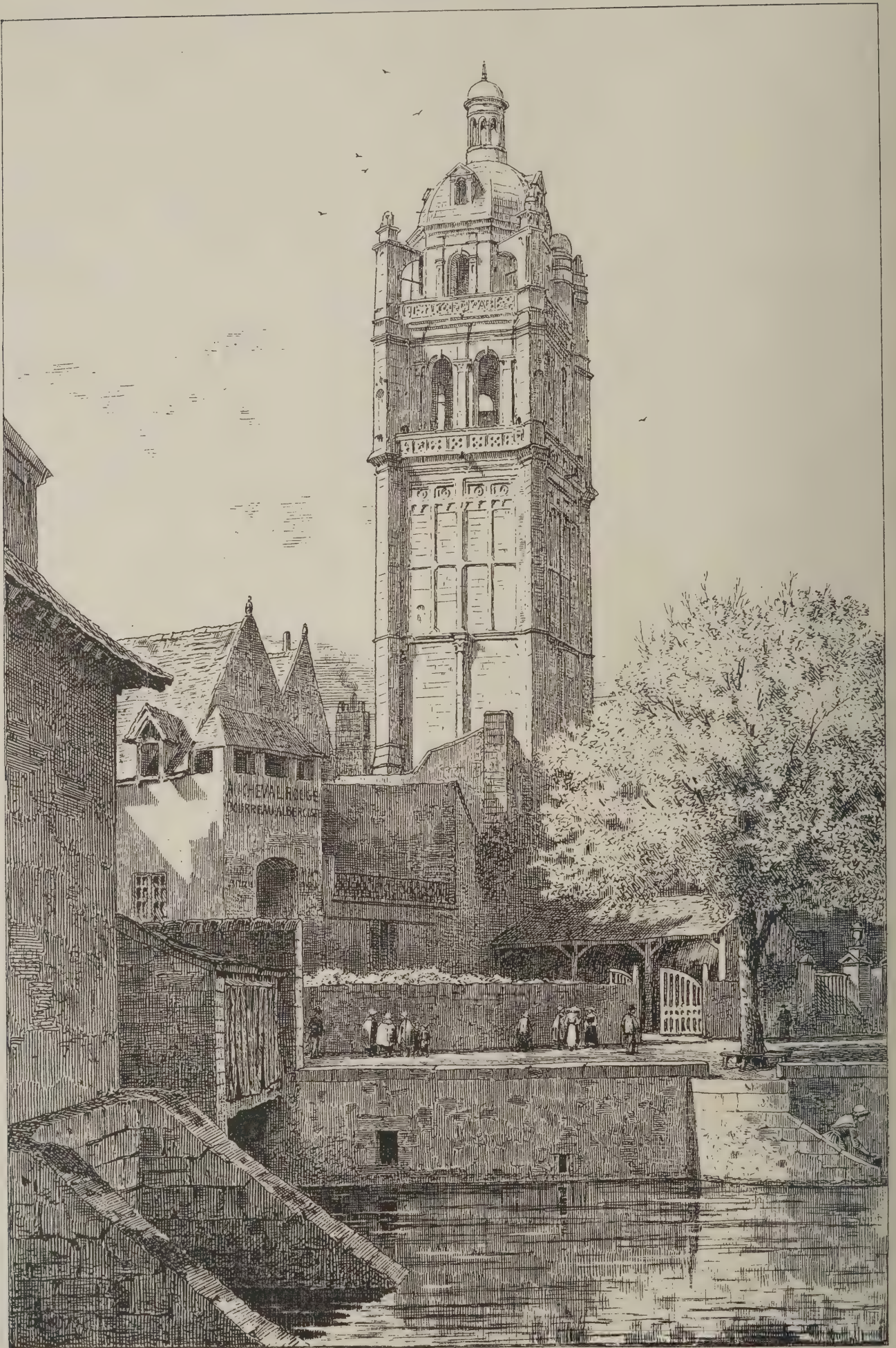


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Continental Sketches by A. H. Haig
Clocher St. Antoine, Loches.

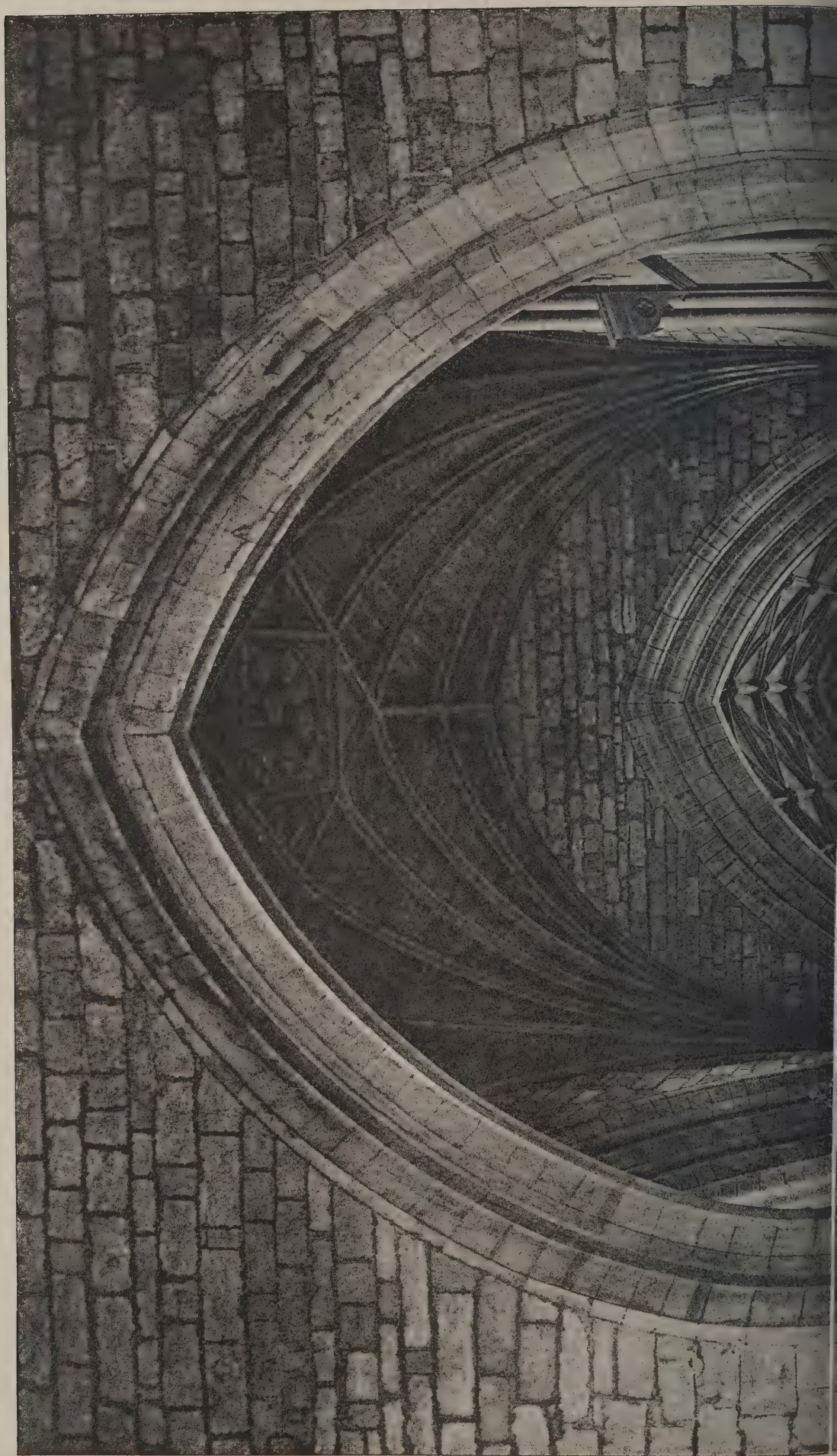


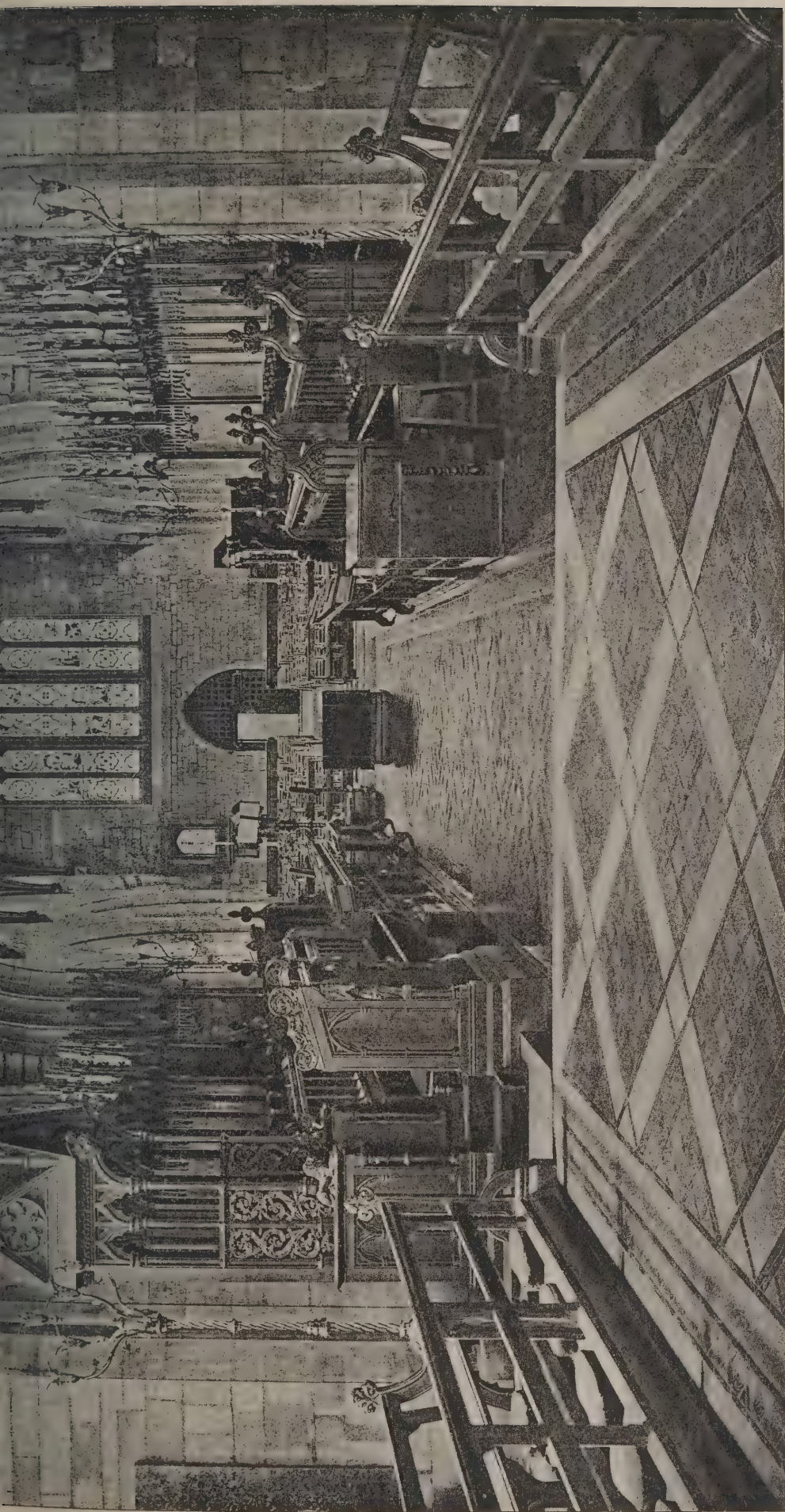
PHOTO-LITHO. SPRAGUE & CO. LTD. 4 & 5, EAST HARDING STREET, FETTER LANE, E.C.

Continental Sketches by A. H. Haig

Ed. Currier, London.

Die Architektur, Feb. 17th 1905





PHOTOGRAPHED BY CHAS. R. H. PICKARD, 5 PARK LANE, LEEDS.

"INK-PHOTO," SPRAGUE & CO. L^{TD} 4 & 5, EAST HARDING STREET, FETTER LANE, E.C.

CATHEDRAL SERIES, No. 520.—ST. ASAPH: GENERAL INTERIOR, FROM EAST END.

Chie Architect, Feb 17th 1905.



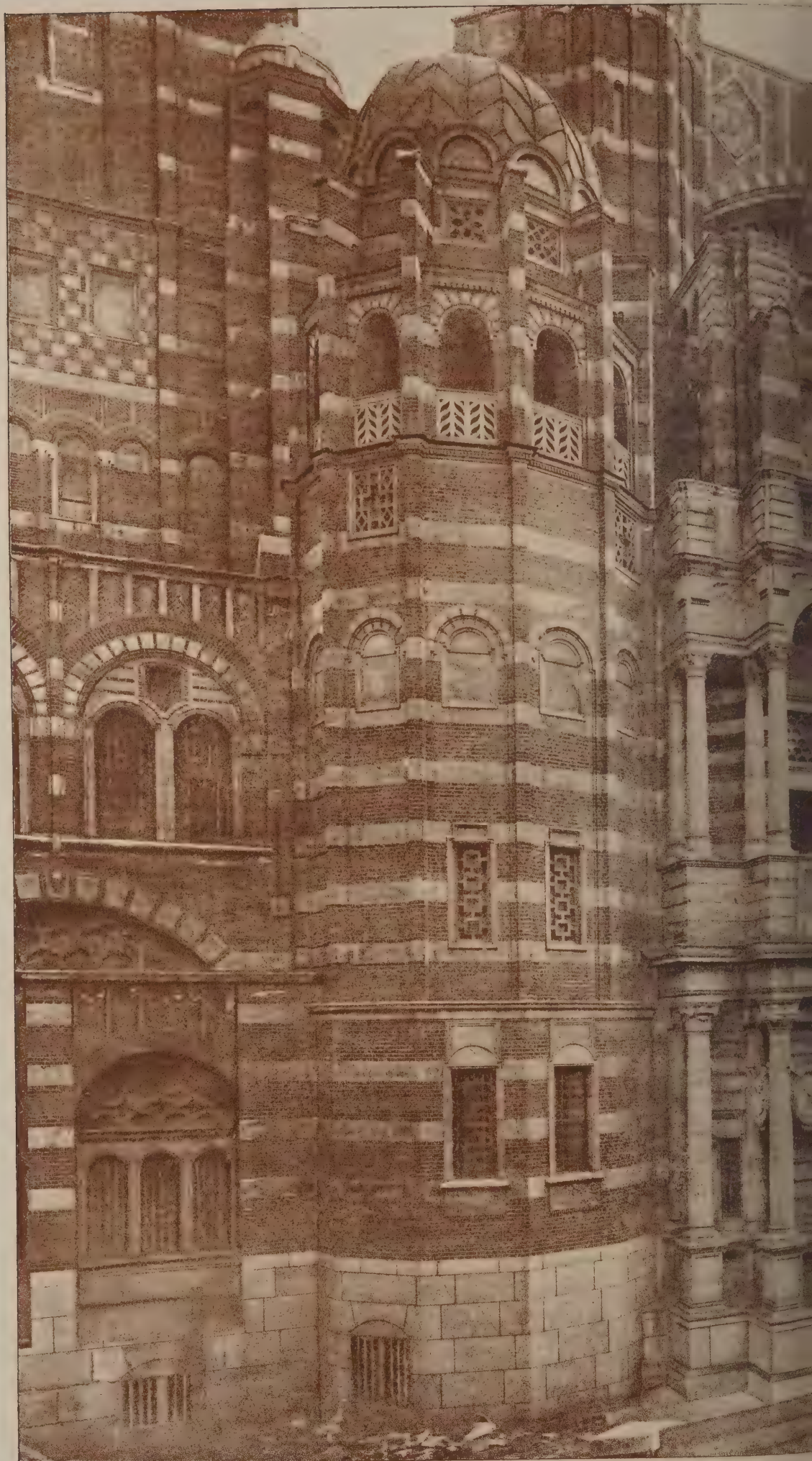


PHOTOGRAPHED BY BEDFORD LEMERE & CO 147, STRAND, W.C

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"MOUNT STUART": ISLE OF BUTE, N.B.: UPPER PART OF ENTRANCE HALL.

SIR R. ROWLAND ANDERSON, LL.D., Architect.



PHOTOGRAPHED BY S. B. BOLAS & CO. 68, OXFORD STREET, W.



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1 LOOKING WEST.

Architect.

The Architect.

THE WEEK.

An exhibition is now open in the Industrial Museum at Berlin which is not without interest for Englishmen. Through many causes the farmhouses, peasants' cottages and other buildings in villages and country districts of Germany have received as little consideration as those in England. They have been sacrificed to the necessities of individuals. Of late, as in this country, it has been discovered that they possessed interest and their loss is deplored. Efforts are now being made to preserve the examples which have survived. One of the objects of the exhibition is by means of paintings, drawings and sketches to convince the citizens of Berlin and other visitors how much picturesqueness is to be found in the country, in the hope that deeper interest will be taken in the buildings. The exhibition is also intended to demonstrate by means of selected designs by architects that it is possible to erect buildings which will meet all the necessities of agriculturists and others who wish to derive wealth from the land, that it is possible to have efficient buildings without suggesting that they are allied to the factories and manufacturers' premises which are also being set up in places regardless of the contrast they offer to the landscape.

It suggests the anxiety of the Germans to maintain their hold on cement production and, if possible, to extend it, when we find they have offered about 700l. in prizes for essays on the chemistry of the material. The following subjects are proposed:—Demonstration of the properties and of the hardening process of calcareous hydraulic cements synthetically, analytically, microscopically, mineralogically (hardening in air, fresh water and sea water). (a) To prove whether silicic acid, alumina and oxide of iron combine with lime as crystalline compounds in stable proportions or as colloids in varying proportions. (b) To prove whether double combinations result between silicic acid, alumina and oxide of iron with lime, and in what manner these substances are engaged in the hardening process. (c) Consideration of the swelling phenomenon which accompanies the hydraulic hardening. (d) Consideration of the influence of the temperature and length of time of the burning process on the different kinds of hydraulic cements. (e) Properties of puzzolana and its hardening with lime, beginning with silicic acid as the most active and prevailing puzzolana, alumina, oxide of iron and manganese, independent and in combination with silicic acid, as natural or artificial puzzolana. Competitors have up to the end of 1906 for the preparation of their essays, which are to be sent in to the Ministry of Public Works, Berlin. The aim of the offer is no doubt to interest a large number of men of science in the production of cement. The subject is important, and out of the effort something may be gained by manufacturers. The scheme is, moreover, worth attention as evidence of the close connection which exists between trade and Government in Germany.

The office of engineer to the City of London is important. It should be held by a gentleman of superior attainments and wide experience. There is rivalry between the City and the County of London, and any works undertaken in the City ought to be as fully designed as possible. The salary which the officers and Clerks committee proposed to be paid to the next engineer appointed was 1,250l. a year, rising to 2,000l. Some members of the Council considered that the salary should commence with 1,500l. per annum. Eventually a majority succeeded in having an amendment adopted by which the salary is to com-

mence at 1,000l. a year and never to exceed 1,500l. The City of London is looked upon as a standard in municipal affairs, and whatever it does is imitated. The proposed salary, which is too low, is therefore likely to have effect in many towns which employ an engineer. That consideration should always be borne in mind by the Corporation, and it might perhaps often prevent miserliness from being accepted as economy.

A GREAT deal of attention is given of late to the architectural character of streets in the Metropolis, but it would be an advantage if some attempt were made to regulate the character of the business which is transacted in the buildings. The terrible fire which burst out in Long Acre on Wednesday morning suggests the enormous risks which are unnecessarily incurred by the inhabitants of many parts of London. The street can be considered as a continuation of Piccadilly, and if care were exercised it would quickly become part and parcel of a most important thoroughfare. But some years ago the houses got into the hands of coachmakers, and it has become the centre of the industry. As a development, the making of motor-cars is practised in several of the buildings. Carriages are a class of goods which are not required at a moment's notice, for people do not buy broughams or motor-cars under the same circumstances as they buy hats or ties. But the report prepared by the Fire Brigade is almost appalling, from the number of premises which are found in Long Acre containing objects which are easily consumed and which would communicate destruction to other premises. There are not only factories and warehouses, but premises which are occupied by painters and other trades of a dangerous kind. Anyone who will examine the part of Long Acre and the adjoining streets which have suffered must come to the conclusion that if it were not for the energy of the Fire Brigade a colossal conflagration might still be raging. An industry of the kind should be followed in some one of the outlying districts of the Metropolis, and we do not believe that much inconvenience would be suffered either by those engaged in it or by the public in general if such a transference was compulsorily carried out.

THE purposes of the British Academy are not yet made evident. But a service was done to archaeology by allowing a paper to be read on Wednesday by Dr. HODGKIN on ERNST CURTIUS. His efforts to promote exploration in Greece are familiar to his countrymen, but they can hardly be said to have received due recognition in this country. It was to him mainly the excavations at Olympia are owing, and the results gave an impetus to the study of antiquity which was almost without precedent. ERNST CURTIUS was a typical German scholar. He went to Greece when young simply for the purpose of obtaining information which would be useful in his future studies. On his return he became connected with the University of Berlin, and was fortunate in obtaining the appointment of tutor to the Crown Prince, who afterwards became the Emperor FREDERICK III. His essay on the Acropolis of Athens is dated 1844, and during the successive years he brought out books connected with the archaeology and topography of Greece. Some of them were connected with the work to which he devoted himself, viz, the "History of Greece," of which the first volume appeared in 1857. Through his influence with the Crown Prince he succeeded in having grants assigned for the exploration of Olympia, which amounted to 30,000l. He was able to arrange that Germany should retain entire control of the work. The discoveries which followed, we need not say, have been revelations concerning Greek sculpture. CURTIUS died in 1896 in his eighty-second year.

THE WHISTLER EXHIBITION.

THE persistent zeal of his friends in endeavouring to compel the public to recognise the merits of the works of the late JAMES MCNEILL WHISTLER is remarkable, if not unique. Many artists of great merit have had to pass from life without adequate recognition, and they have left their cause with confidence to the judgment of posterity. But in the case of JAMES WHISTLER it seems to be decided that by securing the suffrages of the present time in his favour his renown is established. That, however, is a vain aspiration. Posterity will judge of things, whether they are buildings, pictures, statues or etchings, in its own way, and little regard will be given to the opinions which we may have had on those subjects. In WHISTLER's case there is, however, something amusing and consistent with his own efforts. He professed to believe that artists were beings apart, and that it mattered little to them what the public might think of their works. But he went through extraordinary efforts to attract public attention to himself and to all classes of his productions. To be unnoticed would be to him like living in a receiver from which all air was exhausted. The public were shrewd enough to recognise his anxieties, and enjoyed them. His friends, in the same way, are eager to anticipate the verdict of the amateurs of the future by holding one exhibition after another of his works.

That there are numerous champions on his side is evident. They would not, however, care to have it understood that their admiration went so far as imitation. The majority of them would make no scruple about acknowledging the shortcomings of his works. The reason for their loyalty is that WHISTLER represents revolt against ancient methods. He belongs to the American section who insist on independence whatever the cost. Artists who may exceed WHISTLER in revolting are therefore glad to use him as a symbol of their own aims and aspirations.

It is hard to judge of the works of a man who holds such a position in the same spirit with which those in ordinary exhibitions are scrutinised. To appreciate what is to be seen in the Regent Street Gallery it is necessary to assume for a time the artist's situation. WHISTLER was not a man who believed in a laborious systematic evolving of a picture or an etching. Like his favourite butterfly his operations were always brief. The butterfly does not exhaust all the juices of a flower, and WHISTLER was sufficiently logical to express no more than was possible with his peculiar method. It was the belief of HENRI TAINE that a book could be abstracted into three pages, and the three pages condensed into three lines. A treatment of a similar kind was adopted by WHISTLER. Some of the etchings, for example, consist of simply a few lines. They were sufficient to reveal the features which he thought the most interesting in the subject before him, and would no doubt recall to him many other details which were omitted. But it cannot be expected that they would be equally eloquent to strangers. We may endeavour by imagination to supply the shortcomings, and in that way some sort of complete subject can be created, but it does not follow that it will correspond with the subject which was before the artist. In other words, we may look on his representations as a kind of stenography, but as the system was his own it will be always doubtful whether we can properly interpret the characters. Whether hereafter people will be able to do more we do not presume to decide.

The exhibition in the New Gallery is undoubtedly representative. It contains examples of his paintings in oil, his water-colours, his pastels, his etchings, dry points and lithographs, together with various sketches and studies. The majority of them, regardless of size, correspond in apparently suggesting the mood of the moment when they were produced. There is no complexity, and we cannot believe that he took up the work after intervals of suspense. The treatment therefore corresponds with the lightness and decision of the

handling. WILLIAM COBBETT believed that his marvellously natural style of writing was owing to his resolution to never substitute one word for another, and WHISTLER's works all suggest that his strokes were never replaced. The Comte DE MONTESQUIOU relates that when WHISTLER was painting his portrait he used repeatedly to approach the canvas with a pencil full of colour without ever laying on the paint. He would draw back and take a larger or smaller pencil of which he made use. It was a revelation of the resolve that if the colour was once used it would have to remain, or that a stroke was not to be supplanted by another. The majority of people will say that neither COBBETT's nor WHISTLER's system merits to be universally accepted, but it is not to be expected that their writings or paintings will be identical with those by other writers or painters who followed a different process.

As the greater part of the examples consist of etchings, lithographs and studies, the effect at first is less impressive than in ordinary "one-man" shows. There are 767 entries in the catalogue, but only about a seventh of the number are paintings. It is not possible that very small etchings in white frames, and many of which are hung against a white cotton background, can produce much effect on the ordinary visitor. Only those who have already studied and discussed the various "states" of the etchings can be expected to give attention to those which have been lent. They are all interesting not only from the lightness and effectiveness of touch, but as records of various moods. Some are elaborated to an extent that suggests the work of a different artist, while others consist of the fewest possible number of lines. In fact, spontaneity might be said to characterise all the examples of WHISTLER's works which are on the walls.

The lithographs are not to be compared with the examples by French painters such as DELACROIX, DECAMPS, FRANÇAIS and others. They elaborated their drawings on stone by a systematic course which might be compared to painting, for there were many stages and the first bore little resemblance to the last. In that way the plates became masterpieces, not only of form but of light and shade. WHISTLER used paper for his chalk drawings and he was therefore limited in results. He was unable to express much contrast between black and white, and in some instances the work became defective, as if through chemical action in transferring to stone. But slight as are many of the plates, they demonstrate the accuracy with which he seized the characteristics of a subject at a glance.

Etchings and lithographs by WHISTLER have appeared in earlier exhibitions, but his nude studies will be novelties to the majority of visitors. He did not obtain much credit for knowledge of the figure, but his studies are in parts excellent. He had not the patience to seek correctness throughout, and they were all likely to be drawn quickly. The contours are, however, graceful, and the proportions just. Evidently his preference was for a slim type of figure.

In two of the rooms are the paintings, or, as they are described, "Nocturnes, Marines and Chevaux Pieces," oils, water-colours and pastels. Not many of them are adapted for reproduction, but the two which were made the subjects of prints, the *Portrait of Thomas Carlyle* and the *Portrait of my Mother*, which are hung on opposite walls in the West Room, are first to attract the notice of visitors. If more of the paintings were photographed the reputation of the artist would rest on a firmer basis. CARLYLE was a difficult subject, and neither WATTS nor MILLAIS succeeded with him. The most characteristic likeness of him was by a young American sculptor, but the bust never reached the marble or bronze stage. WHISTLER gave the expression of the old writer when he had been subdued after the death of his wife, and was suffering remorse for errors which were never committed by him. All the fierceness against shams has vanished from his face, and instead we have resignation to fate and

artist's will. The painting is open to the objection of having an excess of wall space which is of no advantage. The portrait of Mrs. WHISTLER, which was lent for the exhibition by the special decree of M. LOUBET, also suffers from the extent of the wall, but in this case one of her son's etchings hangs on it, and it has therefore some use. The reverential spirit with which the work was painted must strike everyone and disarm criticism. On the same wall is the portrait of PABLO SARASATE, which might be said to be in relief, although the violinist is in evening dress and the background is black. It belongs to the Carnegie Art Gallery, Pittsburgh. Sir HENRY IRVING as Philip of Spain is as sombre as the subject required, but there is a variation from the prevailing darkness in the gold embroidery, white silk lining of the cloak and the jewels. The fleeting fame of actors has been lamented by themselves and their admirers; it may be, therefore, an error to represent them with the solidity of REYNOLDS, LAWRENCE and MACLISE when they painted them in character. For suggesting evanescence there is no painter like WHISTLER, and indeed all his sitters became more or less ghostlike under his hand. He adopted a more substantial manner in the portrait of M. THEODORE DURET. But he was the first of the French writers to recognise WHISTLER's power, and he deserves to be shown as a strong and courageous man. Some other portraits are shown, under such titles as *Girl with a Red Feather*, the *Little Blue Bonnet* and the *Fur Jacket*. There are a few portraits of WHISTLER, but he treats himself with the same latitude as any of the ordinary subjects. The Piano Picture (portraits of Lady SEYMOUR HADEN and her daughter) which was painted in 1860, continues to be one of the most interesting in the collection.

The landscapes are numerous. WHISTLER never is reminiscent of an earlier master of the art. It is believed, for instance, that too much light cannot be cast on St. Mark's, Venice, in order to exhibit all the details. But here we have the building as a nocturne, and only dimly traced against the sky. *Old Battersea Bridge* is another nocturne, but the darkness is varied by fireworks. *Valparaiso*, although a night scene, appears enveloped in a pleasing light blue. No scenes are more effective than those which recall Cremorne, for they seem as if they were visions of a dream. The *Blue Wave* shows unexpected power and realism, but we have an explanation of its peculiarity when we find it described as "painted in company with COURBET when they worked together for one or two summers on the coast of France."

From the peculiar manner of his painting, by which colour was not superimposed on colour and chemical action was avoided, it was to be expected that WHISTLER's paintings would show fewer signs of age than those by ordinary painters. It must be allowed that in the majority of them the colours have stood well. Only in the *Old Westminster Bridge* and the portrait of Mr. IONIDES are there cracks in the paint. The former is an animated scene, for it represents the erection of the existing bridge which PAGE designed. It is curious that although the artist knew something of engineering he shows the first cast-iron arch as painted blue, a colour which is unknown in foundries. On the whole the exhibition is novel and merits attention even from those who will not accept the principles which inspire the works.

We must not, however, make more of the exhibition than it is worth. CARLYLE said in no place was so much insincerity displayed as in an art gallery. There are amateurs who can easily work themselves into enthusiasm about trifling things, and they are likely to find while the present exhibition is open. They will not realise that much of the work on the walls is erratic. A book is said to be a book although there may be nothing in it, and by conferring titles on the slightest things and drawings on transfer paper WHISTLER has made them "works of art" regardless of their nature.

THE POETRY OF ARCHITECTURE.*

IT is commonly accepted that JOHN RUSKIN's long period of authorship began in 1843 with the first volume of "Modern Painters," when the author was in his twenty-fourth year. But his manuscripts were familiar in printing offices much earlier. He was able to rhyme when he was quite a child, and at fifteen he contributed to "Friendship's Offering." He had reason to believe that he came into this world with a mission, and was endowed with means for its fulfilment. There were grounds for his belief. The father was an old-fashioned merchant who was not above acting as a commercial traveller, and on most of his journeys his wife and his only son were his companions. JOHN RUSKIN became familiar in that way not merely with a great part of England and Scotland, but with France, Germany, Switzerland and Italy. At an early age he was taught to draw. A love of nature, of buildings, of pictures, was soon developed in the precocious boy. He was taught drawing, and, as in other things, was expected to be exceedingly accurate. At a time when other children are not out of the nursery, he proposed the preparation of a book with plates engraved by himself. Of his attempts he said afterwards:—"I have never seen drawing by a youth so entirely industrious in delicate line, and there was really the making of a fine landscape or figure outline engraver in me."

When he was sixteen he began to contribute essays on geology and natural phenomena to *LOUDON'S Magazine of Natural History*. The editor was an industrious and enterprising Scotsman, who had practised gardening, but who was not satisfied with the superintendence of workmen. He wrote several books, and had established three or four magazines. The first number of his *Architectural Review* appeared in March, 1834. It was intended to attain the same purpose as his "Encyclopædia of Cottage, Farm and Villa Architecture and Furniture," viz. to diffuse among general readers a taste for architectural beauties and comforts, and to improve the dwellings of the great mass of society in all countries. Among his contributors were W. H. LEEDS, E. B. LAMB, GEORGE WIGHTWICK, E. TROTMAN, J. A. PICTON, J. ROBERTSON, G. DIAMOND, ROBERT MALLET, the engineer, G. COTTAM, I. J. KENT, and others who are still less remembered. It was a time when the Five Orders held sway, and when there seemed to be doubts about the applicability of Gothic for modern buildings. LOUDON could not be expected to be an adherent of any one style, for he realised there were fictions in all, except, of course, the "rustic." But he was anxious to see, as he said, our country residences as celebrated for their architecture as for their gardens and landscape scenery. He must have believed that Providence had sent him a true disciple in the young JOHN RUSKIN, who, although he was not partial to gardens and looked on the florist's flowers as leading a tormented life "in earth that they know not and in air that is poison to them," yet believed that nature, that is to say, landscapes, should be the source of inspiration for all who design buildings. Accordingly, in November 1837 there appeared in his *Architectural Magazine* an article entitled "Introduction to the Poetry of Architecture; or, The Architecture of the Nations of Europe considered in its Association with Natural Scenery and National Character." It was signed "KATA PHUSIN" (i.e. according to nature), and was written by JOHN RUSKIN, then in his eighteenth year. A year afterwards LOUDON expressed the character of the essays by admitting that they would afford little pleasure to the mere builder or the architect with no principle of guidance but precedent. They were not addressed to them, but to the young and un-

* *The Poetry of Architecture; or, The Architecture of the Nations of Europe considered in its Associations with Natural Scenery and National Character.* By John Ruskin, LL.D., D.C.L. With Illustrations drawn by the Author. (London: George Allen.)

prejudiced artist. It was added "there are some, we trust, of the rising generation who are able to free themselves from the trammels and architectural bigotry of VITRUVIUS and his followers; and it is to such alone that we look forward for any real improvement in architecture as an art of design and taste." It certainly was remarkable to find so young a writer attempting a subject which was supposed to be outside the capacity of an amateur. To become a censor at the age of eighteen is not desirable. But at that time, defects in building were so glaring they could not escape eyes which had compared fewer examples than JOHN RUSKIN'S. That he confounded particular instances with the general character was inevitable in so young a critic. Describing contemporary building he said:—"All unity of feeling (which is the first principle of good taste) is neglected; we see nothing but incongruous combination; we have pinnacles without height, windows without light, columns with nothing to sustain, and buttresses with nothing to support. We have parish paupers smoking their pipes and drinking their beer under Gothic arches and sculptured niches, and quiet old English gentlemen reclining on crocodile stools and peeping out of the windows of Swiss chalets." He did not, however, assert that all the responsibility lay with the architects. Their clients, he considered, were the dictators who insisted on having the utmost variety in their dwellings. He describes the manner in which instructions were given to architects in the following passage:—

He [the architect] is requested, perhaps, by a man of great wealth, nay, of established taste in some points, to make a design for a villa in a lovely situation. The future proprietor carries him upstairs to his study to give him what he calls his "ideas and materials," and in all probability begins somewhat thus:—"This, sir, is a slight note; I made it on the spot; approach to Villa Reale, near Pozzuoli. Dancing nymphs, you perceive; cypresses, shell fountain. I think I should like something like this for the approach; Classical, you perceive, sir; elegant, graceful. Then, sir, this is a sketch made by an American friend of mine; Whee-whaw-Kantamaraw's wigwam, king of the Cannibal Islands, I think he said, sir. Log, you observe; scalps and boa-constrictor skins; curious. Something like this, sir, would look neat, I think, for the front door, don't you? Then, the lower windows I've not quite decided upon; but what would you say to Egyptian, sir? I think I should like my windows Egyptian, with hieroglyphics, sir; storks and coffins, and appropriate mouldings above; I brought some from Fountains Abbey the other day. Look here, sir; angels' heads putting their tongues out, rolled up in cabbage leaves, with a dragon on each side riding on a broomstick, and the devil looking on from the mouth of an alligator, sir. Odd, I think; interesting. Then the corners may be turned by octagonal towers, like the centre one in Kenilworth Castle, with Gothic doors, portcullis, and all, quite perfect; with cross-slits for arrows, battlements for musketry, machicolations for boiling lead, and a room at the top for drying plums, and the conservatory at the bottom, sir, with Virginian creepers up the towers; doors supported by sphinxes, holding scrapers in their forepaws, and having their tails prolonged into warm-water pipes to keep the plants safe in winter, &c." The architect is, without doubt, a little astonished by these ideas and combinations, yet he sits calmly down to draw his elevations, as if he were a stonemason or his employer an architect, and the fabric rises to electrify its beholders and confer immortality on its perpetrator.

RUSKIN declared there was no exaggeration in his account, but we cannot imagine that in 1834 any ordinary client would be so absurd as is represented. The author could have had few opportunities of discovering how business was transacted, and he must have drawn on his imagination for the interview.

In order to explain the absence of that unity which was desirable as the basis of grace and the essence of beauty, RUSKIN proposed to begin by a comparison of cottages in England, France, Italy and Switzerland. Then to compare British and foreign villas, and subsequently to treat of residences of a more important kind.

But as the magazine ceased to exist in 1838 the series was never completed. The articles may therefore be considered as forming a prologue to "The Seven Lamps" and "The Stones of Venice," in which the subject was treated with a more matured judgment, but not with a greater respect for nature.

When proposing a reform in architecture the simplest and most practical way of suggesting the critic's ideas is to prepare designs which can at once appeal to the judgment through the eye. In 1837 RUSKIN was a better draughtsman than the majority of amateurs in England. Then, however, as in subsequent years, he was without any power as a designer. In spite of all his industry and enthusiasm in studying buildings and his wonderful knowledge of the details of many of the principal examples in Europe, he had to endure the infirmity of being incapable of preparing a design, and there is not the simplest building or artistic object which the world will care to preserve because it was his work. When he was allowed to co-operate with others, as in the museum at Oxford, the result was most unsatisfactory. It might be supposed that in his young days his courage would have led him to attempt a design in order to emphasise his words. But the illustrations which appeared in the text were derived mainly from foreign structures. In that way he differed from the majority of the contributors to the *Architectural Magazine*. Their projects were not masterpieces, and, according to modern standards, some of them are very amusing. But they at least enable us to judge of the value of the designs, whilst of KATA PHUSIN'S proposals we can only have the vaguest notions. Indeed, it might easily be supposed that his articles were addressed to landscape-painters, and were simply suggestions about the kind of buildings which it was desirable to introduce into their paintings or drawings.

As we have remarked, he treats only of cottages in country districts. The country he divides into three classes: the cultivated, or blue; the wild, or grey; the hilly, or brown. The division, he allows, has to be liberally interpreted, blue Italy being very different to blue England. Architecture should depend on its situation in one of the divisions, and thus in the landscapes of CLAUDE, SALVATOR ROSA and POUSSIN the horizontal lines and simple forms of the Ausonian villas are employed with great success. The groups formed by Italian villages in general become beautiful by the respect which is shown for the curves of the landscape. We have also a passage about the relation between buildings and national character, which exemplifies the peculiar if imaginative power which was afterwards to be exhibited in many of his references to Italian ways in former times:—

Thus much for the mere effect on the eye. Of correspondence with national character we have shown that we must not be disappointed if we find little in the villa. The unfrequency of windows in the body of the building is partly attributed to the climate; but the total exclusion of light from some parts, as the base of the central tower carries our thoughts back to the ancient system of Italian life, when every man's home had its dark, secret places the abodes of his worst passions; whose shadows were alone entrusted with the motion of his thoughts; whose walls became the whitened sepulchres of crime; whose echoes were never stirred except by such words as they dare not repeat; from which the rod of power or the dagger of passion came forth invisible; before whose stillness princes grew pale, as their fates were prophesied or fulfilled by the horoscope or the hemlock; and nations as the whisper of anarchy or heresy was avenged by the opening of the low doors, through which those who entered returned not. The mind of the Italian, sweet and smiling in its operations, deep and silent in its emotions, was thus in some degree, typified by those abodes into which he went to retire from the tumult and wrath of life, to cherish or to gratify the passions which its struggles had excited. Abodes which now gleam brightly and purely among the azure mountains and by the sapphire sea, but whose stones are dropped with blood; whose vaults are black

with the memory of guilt and grief unpunished and un-
 venged, and by whose walls the traveller hastens fearfully
 when the sun has set, lest he should hear, awakening again
 through the horror of their chambers, the faint wail of the
 children of Ugolino, the ominous alarm of Bonatti, or the
 low cry of her who perished at Coll' Alto.

The theory that architecture was expressive of life,
 with, policy, was afterwards treated at length in "The
 Seven Lamps," and a large part of "The Stones of
 Venice" is made to exemplify it. There is interest to
 find the germ of it in an essay by a writer so young.
 If the theory is accepted, it must follow that the form
 of building which is adopted by a people at one time
 will not necessarily serve their purposes at a later time,
 and still less will be adapted to those of a different
 race. In 1838 "Elizabethan" possessed popularity as
 a style, and JOHN RUSKIN found little difficulty in
 finding correspondence between it and his principle.
 Describing a mansion of which a woodcut was given,
 he said "it is a humourist, an odd, twisted, inde-
 pendent being, with a great deal of mixed, obstinate
 and occasionally absurd originality." It resembled
 English character; it was thoroughly domestic, "spark-
 ing in its casements, brisk in its air, letting much
 light in at walls and roof, low and comfortable-looking
 at its door," regularly planned, &c. He would permit
 grotesque ornament, but not in the garden, for he
 says:—

Though the grotesque of Elizabethan architecture is
 adapted for wood country, the grotesque of the clipped
 garden, which frequently accompanies it, is not. The
 custom of clipping trees into fantastic forms is always to
 be reprehended: first, because it can never produce the
 true grotesque, for the material is not passive and, there-
 fore, a perpetual sense of restraint is induced while the
 great principle of the grotesque is action; again, because
 we have a distinct perception of the two natures, the one
 neutralising the other, for the vegetable organisation is too
 palpable to let the animal form suggest its true idea; again,
 because the great beauty of all foliage is the energy of life
 and action, of which it loses the appearance by formal
 clipping; and again, because the hands of the gardener will
 never produce anything really spirited or graceful. Much,
 however, need not be said on this subject, for the taste of
 the public does not now prompt them to such fettering of
 fair freedom, and we shall be as sorry to see the character-
 istic vestiges of it, which still remain in a few gardens, lost
 altogether, as to see the thing again becoming common.
 The garden of the Elizabethan villa, then, should be laid out
 with a few simple terraces near the house so as to unite
 it well with the ground; lines of balustrade along the edges,
 guided away into the foliage of the taller trees of the garden
 with the shadows falling at intervals. The balusters should
 be square rather than round, with the angles outward, and
 if the balustrade looks unfinished at the corners, it may be
 surmounted by a grotesque bit of sculpture of any kind, but
 it must be very strong and deep in its carved lines and
 must not be large, and all graceful statues are to be avoided

"The Poetry of Architecture" enables us to judge
 of the qualities with which JOHN RUSKIN was endowed
 by nature, for in his nineteenth year he was still under
 parental control and had not come into collision with
 the world. We find he was not only a keen observer,
 but a reasoner. He might be supposed to have devoted
 attention mainly to the phenomena of the material
 world as if in preparation for the investigation of
 landscape art. But the essays testify that he was not
 indifferent to "the still, sad music of humanity," and
 when speculating about the fitness or unfitness of a
 house for a site, he also thought about the occupiers.
 There is much in the book which now can be considered
 as fateful, for it reveals what the writer was to become
 when his ebullient sympathies dashed against doctrines
 which were as ill-adapted to the times as the Vitruvian
 conventions. RUSKIN will be better known in his
 strength and weakness when "The Poetry of Archi-
 tecture" is carefully studied.

Mr. Thomas Blashill, architect, Tavistock Square, London,
 has left property valued at 11,269/.

ROYAL INSTITUTE OF BRITISH ARCHITECTS.

A MEETING of the Institute of Architects was held on
 Monday evening last at Conduit Street, Mr. John
 Belcher, A.R.A., president, in the chair.

Mr. ALEX. GRAHAM (hon. secretary) announced the
 decease of Mr. James Barnet, of Sydney, New South Wales,
 Fellow, elected 1886, and Mr. James Thomson, Fellow, of
 Glasgow. Mr. Thomson was the architect of many im-
 portant buildings in Glasgow, and was twice president of
 the Glasgow Institute of Architects.

The PRESIDENT offered the congratulations of the Institute
 to Mr. Blomfield on his election to the membership of the
 Academy. They all admired, he said, the work of Mr.
 Blomfield, and recognised the zeal he had displayed in
 architectural training, evidenced by his attending the
 meeting to read a paper on that subject.

Mr. REGINALD. BLOMFIELD, A.R.A., read a paper on

Architectural Education.

The subject of architectural education, he said, had long
 engaged the attention of all thoughtful architects. Notwith-
 standing the increasing tendency to develop school training,
 and the improvements that had been made in it, the pupillage
 system had, in the main, held the field. No successful
 attempt had been made to bring it into relation with the
 schools and to co-ordinate the various methods of training
 in use in the latter. It was highly important that a pupil,
 before entering an architect's office, should have gone
 through such preliminary training in the schools as would
 enable him to get his bearings in the office without waste of
 time. Hence they had to consider how the student should
 be started in his course of architectural training, what sub-
 jects he should study and how they should be taught. To
 arrive at clear ideas on this matter it was necessary to
 define what was wanted in an architect.

Architecture is the art that translates construction into
 beautiful forms; the architect, therefore, must master the
 principles and methods of construction before he can trans-
 late them. His real technique consists of the mastery of
 building processes: these are the true vehicle for the
 expression of his imagination. Another highly important
 matter is the possibilities of new methods of construction.
 Steel and iron render possible feats of construction which,
 on economic grounds alone, are irresistible; and it is the
 architects' business, as artists of form, to study steel and
 ironwork in order to develop out of its practical use methods
 of construction which have a beauty of their own in their
 adaptation of means to ends. The architect's training
 ought to enable him to take this matter up where the
 engineer is compelled to leave it through want of training
 in form and lack of artistic imagination.

Dealing with the unsatisfactory condition of architectural
 education the paper summarised the chief defects of the
 present system of schools as (1) faults of syllabus; (2) faults
 of teaching method; (3) the absence of co-ordination, re-
 sulting in waste of resources and loss of driving power.
 Two years ago some informal conferences of architects were
 held to discuss the situation; and finally, at the invitation
 of the Royal Institute of British Architects, a Board of
 Architectural Education was formed to consider the whole
 matter. The conclusions arrived at by the Board were
 embodied in a report which, together with a syllabus, had
 been provisionally adopted. Five points were dealt with, viz.
 (1) Preliminary education; (2) the length of the proposed
 course; (3) the syllabus of training; (4) the laboratory or
 workshop for training in practical work; (5) the steps to be
 taken to initiate and administer the scheme.

As regards (1) preliminary education, it is a difficult
 matter to assess the exact amount of general education
 necessary to an intending student of architecture. A student
 may have great natural aptitude for architecture, but little
 aptitude or little opportunity of acquiring the knowledge
 usually given by a good general education. The Board
 consider it best not to impose any preliminary test for
 admission to the architectural course, but to leave it to the
 individual training institutions themselves to lay down the
 amount of preliminary education they severally consider
 desirable. The Board, however, consider that evidence
 should be shown of some capacity in drawing, both
 geometrical and freehand.

2. For the length of the proposed course, the Board
 recommend four years as a minimum—the first two years
 to be spent in the schools, the last two in an architect's
 office. The object of this is twofold: first, to enable the
 student to master his rudiments in the schools, in order
 that when he enters the architect's office he may know how

to learn, and get the full advantage of his opportunities in the office; secondly, that in view of the pupil being partially trained, architects may be disposed to take pupils at a lower premium, and parents and guardians may not be put to a greater expense than they are under the present pupilage system. The pupil should continue his studies in the schools during his term in an architect's office. The preliminary course must of necessity be rudimentary, and should be supplemented by more advanced studies under his old teachers during his last two years. His studies will thus be pursued on a consecutive system, and under competent supervision from first to last. It is suggested that, on the completion of the course, a certificate should be granted to the student in consideration of satisfactory progress and capacity as proved by his work in the schools, and by a study of some architectural project, to include working drawings and specifications, and an analytical account of the nature and intention of the project. This study would be on the lines of the thesis submitted for degrees in certain university courses. The certificate would be endorsed by the architect with whom the student had served his time.

3. The first step towards standardising the different systems of training would be the adoption by the schools of a common syllabus. The syllabus proposed by the Board rests on the general principle that construction is the basis of architecture, and the correlative principle that architecture is the interpretation of construction into forms of æsthetic value. In drawing up this syllabus the Board have been guided by the following considerations:—(1) That it should be thoroughly practical, stress being laid on the teaching of construction as the basis of architecture; (2) that it should not attempt too much, that is, should not overload the student with a vast array of subjects, but should cut down those subjects to the essential and irreducible minimum, and insist on the student obtaining a thorough mastery of the subject as far as he goes. The following is the syllabus proposed by the Board:—(1) Building materials; (2) construction, including (a) applied mechanics, strictly in practical relation to construction, and (b) the practical methods of the building trades; (3) architectural drawing, including working and freehand drawings, solid geometry and measured drawings of historical examples of architecture; (4) geometrical projection and rudimentary perspective, this latter to be studied as an aid to the shaping and modelling of buildings, not as a means of elaborating architectural drawings; (5) design and the history of architecture as supplemental to and elucidatory of the study of construction. These subjects would be taught by classwork in the schools and by demonstration in the laboratory or lecture theatre of practical work.

4. The laboratory or workshop for training in practical work is an essential feature of the scheme. The demonstrations given in the laboratory would be in intimate relations with the lectures given in the classrooms of the schools, and the course would be arranged so that training in the classrooms and in the workshops should proceed together. The author explained that there was no idea of using these workshops for the purpose of turning the student into a skilled plumber or mason or whatever the trade may be. The object was to enable him to see with his own eyes, and if necessary handle with his own hands, the various materials and processes employed, in order that when he had to direct these processes himself in after years he might have actual knowledge and realisation of what he was doing. The author thought there was a little too much of the dilettante and the fine gentleman about the modern young architect. He would do better if he took off his elegant frock-coat and set to work in his shirt-sleeves.

5. With regard to the steps to be taken to initiate and administer the scheme, these must to some extent be tentative at first. The scheme could only be got under way by the goodwill and co-operation of the various educational bodies concerned, and it was proposed to submit the scheme and its syllabus to recognised architectural training institutions, and to invite them to adopt it. Where engineering schools exist side by side with architectural schools, as in some of the modern universities, the student should avail himself as far as possible of the training there given, but, generally speaking, it was proposed to invite the county councils to place their technical workshops at the disposal of recognised training institutions for purposes of practical demonstration.

In concluding his summary of the proposals the author said that in recommending the adoption of a uniform system and syllabus, the object the Board had in view was

to reinforce education, to enlarge its opportunities by bringing the schools into touch with one another, so that, for example, their united resources might admit of lectures and demonstrations on a level beyond their attainment individually. The last thing the Board had in view was the establishment of a rigid and inelastic method of training; their aim was the co-operation of the schools in a scheme adopted by them all. It was proposed that the Board of Architectural Education should act as a central advisory body to the several schools, with power to direct the administration of the scheme by means of visitors, who would report to the Board on the work done in the schools. The future constitution of the Board had not yet been determined, but endeavour ought to be made to make it as representative as possible of the profession generally. It was for architects to put their house in order, to prove by visible evidence throughout the country that the practice of architecture is an affair of real skill and solid knowledge; that the architect from his point of view is an expert in building every bit as much as the engineer is from his. When the public realised that to spend their money on building to the best advantage they must go to the architect as the man who really knew his trade, they would readily accord them the recognition due to men of special knowledge and admitted ability in their own calling. The first step to this desirable end was to see to the training of their students; that they, at any rate, should master the technique of the great art of building. So should they prepare the way for the return of architecture to her rightful place as the mistress of the arts.

Sir ARTHUR RÜCKER said he took it as a great compliment to the University of London to be called upon to propose a vote of thanks to Mr. Blomfield for his admirable paper. He felt reluctant in addressing such a meeting, but as architecture combined both science and art, and he had all his life been a devotee of real science, he might be allowed to say a few words. No man in the room felt more strongly than he did that if the great movement in education was to have a sound foundation, it was absolutely necessary that it should be carried out by those who were themselves the professional members of the great professions and trades which they wished to carry to a higher point of education. It was absurd for non-professional men to set themselves up to dictate what should be done in training the student in all such matters. It was, therefore, with the greatest delight that he saw a great profession taking up the whole question of architectural education from a practical point of view, and if the organised educational bodies could give any help by their knowledge of teaching and the like he hoped the profession would regard it with favour. It was a matter of the greatest possible importance that the universities should not stand aside and merely look on while those great movements were going on around them. In carrying out the scheme which had been proposed he hoped they would not merely do what they could to place the young architect in a separate architectural school and office, but where possible would allow him to be educated in an institution where he could mix with men of other professions. He would like them to remember that after all it was a matter of the very greatest importance that young men of different professions should so far as possible and within reasonable limits be brought up side by side, for it was not a good thing that the individual members of a profession should become members of a caste. Friction of mind against mind was the great benefit of the work at the universities. Such a training broadened a man's views and increased his resources, and if this could be done—and perhaps it could be done—only by the co-operation of the universities, it was well to accept their aid. He thought the university might be able to do something to provide that mixture of ideas that was so essential to the professional man. He was surprised when first he came across the word uniformity in the proposed scheme, because he would have very much regretted had they issued a mandate to the world that architects were to be brought up under a uniform system. From what he had heard this was not the purpose of their system, which was to be of gradual growth. He hoped they would regard the university as a friend in matters concerned with the improvement of education, and that they would recognise that the University of London was working side by side with them to prevent waste in co-ordinating education, and to do as much as they could with the limited means at their disposal to make architectural students worthy members of a real constructive profession.

Sir ASTON WEBB, R.A., in seconding the vote of thanks, said he found himself in agreement with the views expressed in the paper. It had been his pleasure for some time to work with Mr. Blomfield on the Architectural Education Board, and he was only saying what all the members of that Board felt when he stated that they were all indebted to Mr. Blomfield and to Mr. Slater for the enormous amount of time they had given to the work. He thought the meeting would agree that it was proper and fitting that the Board should at that stage of their inquiries have Mr. Blomfield to explain the position to which they had been able to bring their work. The matter of architectural education was one in which they as architects might unite and work together for the one object that those who came after them could have greater knowledge than they had had. They felt the disadvantages under which they had carried on their work, and were endeavouring to remove those difficulties which were unnecessary. They were not attempting a cast-iron scheme, but one which could be altered when any improvements were suggested.

Mr. H. H. STATHAM said the tone the lecturer had adopted in speaking upon the importance of practical knowledge was very much needed in the present day, and he hoped Mr. Blomfield's effort would have its effect. He was a little sorry to hear something like a slur cast upon the French system and the Prix de Rome work. The French appeared to be taught that plan and design must go together, and there was no doubt that they were right. At the Paris Salon plans and elevations of buildings were shown in drawings of the same size, but in the Academy the plans were small compared to the elevations.

Professor SIMPSON said there was one little point in the paper he wished to be allowed to refer to. Mr. Blomfield had stated that there had been no serious attempt between the schools to bring the pupilage system into accord with the training of the student. He could not speak for a certainty of all schools, but he fancied there had been more done towards that end than Mr. Blomfield had implied. At Liverpool it had been done, and it worked satisfactorily. He thought he could claim that there at least the pupilage system and the course in the schools were brought into direct relation with one another.

Mr. T. G. JACKSON, R.A., thought nobody could doubt that there was room for improvement in architecture, and that until the middle of the last century no attempt had been made to do better work. Then out of ten buildings erected nine would be bad. There never was a time when there was such a large proportion of inartistic work, he might almost say base, and there was a great deal of that kind of work going on in the present day. There was a commercial architecture which disgraced the streets, and the question was how to alter it. Amongst the rising architects there was great promise of good work, and one could notice in their buildings a growth of a feeling of restraint and reasonable design very different from the kind of work he had alluded to. Their aim must be to bring the whole class of architecture up to the same standard of those who were the future hope of the profession, and the keynote was that architecture should be based on constructive principles. This meant that architecture was founded upon reason and common sense, and that the development of the art in the past would be found to have arisen from suggestions of construction, difficulties of materials and appliances, which had been the most powerful means of inspiration to the architect. He was glad to see there was to be no fixed test to the course of study, and he trusted that the scheme which had been proposed would be as useful to builders and engineers as it would be to those who were more strictly constructive architects. After all, the results depended upon the student, and though they might provide the best education, they could only hope thereby to place facilities in his way for achieving better work.

Messrs. John Slater, Maurice B. Adams, E. M. Gibbs, G. A. T. Middleton, H. C. Corlette, H. G. Ibberson and E. Woodthorpe also joined in the discussion.

The PRESIDENT, in putting the vote of thanks to the meeting, said the remarks they had heard from the different speakers would clear the ground when the scheme of the Architectural Education Board came before the members for approval.

Mr. BLOMFIELD replied, and the meeting terminated.

The Bust of Charles Garnier, which has been placed against the exterior wall of the Louvre, is to be gilded at the expense of an anonymous admirer of the artist.

ACADEMY LECTURES ON SCULPTURE.

IN the last of his series of six addresses at the Royal Academy Mr. Gilbert referred briefly to the general motive of his preceding address, which was the discussion of sculpture not so much from a didactic point of view as from the point of view of moral influence, and then, speaking specially to the students, he touched upon the difficulties of the artist's life. The days, he said, fortunately were gone by when great exponents of art were looked upon as people with no fibre, as nothing more than ministers to the pleasures of the few people who could afford to possess and to delight in their efforts. As a fact, art was really the most masculine of callings, and took much more than any other out of the men who professed it. And the artist undertook the hardships of his calling, not under pressure, as the soldier does, who might be shot if he refused, but because of the conviction of his one desire to humanise and beautify the world. The sculptor's share in the great fabric of art is an onerous one. He has to look for beauty everywhere, and in reproducing his fellow-man to try and show him to be such as Phidias would have liked for a model. He must give not merely his model's proportions, he must look through him, and try to hand down to future ages a transcript of all he thinks beautiful, and not the small blemishes of human flesh. He must do nothing unworthy. It was no excuse to say that he must live, for there was no need for him to live if he did unworthy things. Nor was there any need for the sculptor possibly to injure his work by getting it done by a certain day lest the client should fall foul of him. Those who would fall foul of the sculptor for doing his best were not worthy to be his clients; and if a thing did not satisfy him the artist should begin it again, for he would have an unhappy life if he let unworthy things exist. "There are places," declared Mr. Gilbert, "where I dare not show my face because they contain some of my earliest efforts." It did not matter whether the artist when he died left one work or a hundred, but he ought to leave to the world something that would carry on in it his own individuality—a little writing on the wall, just as the painter of the wonderful *Jean Arnolfini and his Wife*, in the National Gallery, wrote above the mirror in the background of his picture, "Johannes de Eyck fuit hic," or "John van Eyck was here." The artist should never mind praise or censure; both should fall off him as lightly as water from a duck's back. What did it matter to him what anybody said the day after his work had been exhibited?

Referring to the general tone of his addresses, Mr. Gilbert, according to the *Morning Post*, said that he had been blamed by some of his friends for not being sufficiently "plastic" in his remarks. But plastic had two meanings, and he thought in a sense he had been plastic-elastic enough. He had been so elastic that he had been blamed again for overstepping the boundaries of the sister arts instead of confining himself to sculpture. But to him all arts were one family, and he had purposely tried to deal as widely as possible with sculpture, because it depended so much upon the influence of the so-called "sister-arts." He wanted to say something to them about inspiration, although it was hardly a matter upon which any mortal—and least of all such a poor one as himself—ought to speak. He felt that he could not define inspiration, and it was not easy to recall any specimen of art illustrating that enormous word. Looking back, though, he could see it in the untutored work of Giotto and in that of Donatello and the Della Robbias. No one could doubt, too, that Turner was inspired. Adaptability was another quality he wanted to mention in this last address. He wished to impress upon the students that adaptability did not mean that they should allow themselves to be called from their path to copy a prevailing fashion in art. They must bear in mind that they were to have nothing to do with new movements, new art or new anything else. Sometimes a moment would come when it seemed impossible to surmount difficulties, a moment when they might ask themselves, "Am I doing what is right? Am I not a little bit antiquated, and had not I better follow So-and-so?" No, they must keep always to their own path. It was a narrow path, and at the end was a tall ladder with lots of room at the top but a tremendous scramble to get up, and if they got up the first thing they must do would be to extend a helping hand to those still on the lower rungs. Charity and love were essential to the artist. The good artist never was a bad man and the bad man never was a good artist. Memling, for instance, repaid six weeks' succour by the monks of St. John's Hospital, Bruges, with the labour of six years.

NOTES AND COMMENTS.

IN the article we wrote about the Brighton Wood-Paving case, when judgment was given for the contractors by Mr. Justice GRANTHAM, we suggested that many things are done for the protection of Corporations which are not allowed for individuals. But we asked whether it was wise for the Brighton Corporation to undergo further expenses. Finally it was said:—"If it should happen that the contractors are to go unpaid the public will not be disposed to place any higher value upon the infallibility of the Corporation or upon the excellence of their system of conducting public works. It is not an advantage either for public bodies or for individuals to acquire a reputation for unfairness." In the Court of Appeal the Master of the Rolls, with Lord Justice MATHEW and Lord Justice COZENS-HARDY, adopted the same point of view. At the beginning of the hearing Mr. MOULTON was forced to admit that counsel's assumption was the action of the surveyor could not bind the Brighton Town Council. Whereupon the Master of the Rolls exclaimed, "Now, the murder is out." The Master of the Rolls also insisted on another point which we raised, that in one part only superficial measurement was adopted while in other parts the cubic quantities were given. Lord Justice MATHEW summarised the proceedings by saying, "The whole thing came to a deadlock, and it comes to this. The Corporation said, 'We won't pay.' The contractor said, 'You ought to pay'—litigation. Isn't that all?" The animus of the Court was so evident that on the third day the Brighton Corporation suddenly withdrew their appeal. The terms were not mentioned in Court, but it is known that the sum of 17,500*l.* will have to be paid the contractors, Messrs. MACARTNEY, McELROY & Co. Then there is the important question of costs. The whole case arose out of carelessness in the preparation of documents and the desire to obtain work below its cost, regardless of the loss which would have to be borne by the contractors whose work was faithfully performed.

ACCORDING to Herr MUTHESIUS, Germany and Japan were the most successful countries in the section of industrial art at the St. Louis Exhibition. Germany, he considered, made the most favourable impression, especially on the Americans. They were willing to purchase the libraries, dining-rooms, music-rooms, bedrooms designed specially for St. Louis. Herr MUTHESIUS received from the exhibition as a whole a more favourable impression than he had anticipated from the articles in the journals. The exhibition buildings were effective although they were only erected for temporary purposes. Germany recognised the importance of the American market and made efforts to secure it. The visitors found that the Empire was able to compete with France. In such estimates an official usually becomes an optimist. Great Britain took part in exhibitions in the United States and on the Continent of Europe, and found the actual advantages were to be easily counted, although reports might easily be interpreted as indicating a large amount of profit to the exhibitors.

It is rarely we find it stated that railway companies are indifferent to their own interests and charge contractors diminished weights when carrying building materials. A curious case relating to the subject has been tried in the Scottish courts before Lord Low. A firm of carriers brought an action against a firm of building contractors, and counter actions were brought by the builders. Messrs. M'LACHLAN entered into a contract to carry out the masonry, brickwork and iron-work at Stobhill. They also contracted to have the carting done by Messrs. MARSHALL & Co. Messrs. M'LACHLAN claimed that they were charged in excess. The carriers pleaded that the actual weights of the

materials—bricks and sand—were largely in excess of the railway weights, for the companies habitually understated the weights of such materials as bricks and sand. His Lordship said he could not understand such a statement unless in cases when, after the weights had been taken by the railway officials, the bricks or sand were exposed to rain and became saturated with moisture, which added very considerably to their weight. That, however, was a fact which must be well known to carters, and which, it must be assumed, they took into consideration in agreeing to cart the goods from a railway station at so much per ton. His Lordship therefore resolved to adopt the weight ascertained by the railway companies as a standard. Judgment was given in favour of Messrs. M'LACHLAN for 794*l.* and for the carriers for 142*l.* The case may suggest to other contractors the necessity for overhauling their bills for carriage.

ILLUSTRATIONS.

CHURCH OF ST. THOMAS THE APOSTLE, HOVE.

THIS new church at Hove, on the outskirts of Brighton, is intended for the large and rapidly increasing district now being opened up on the northern part of the Goldsmid Estate, where houses of an attractive class are being erected in great numbers. The building, as the illustration shows, will be of a dignified and simple character, relying for its effect upon plain surfaces and a wide and lofty nave. The site, which is a prominent and central one, has been generously given by Mr. D'AVIGDOR GOLDSMID, and the building committee, under the chairmanship of the newly appointed vicar of the parish, the Rev. WALTER MARSHALL, M.A., have decided to proceed slowly but continuously with the erection of this fine church at an estimated cost of 12,000*l.* The architects are Messrs. CLAYTON & BLACK of Brighton.

A STREET IN LOCHES, TOURAINE.

THE ancient castle of Loches, from actual history as well as from the romance with which tradition has surrounded it, absorbs so much of our interest that we are apt to forget that there are a few objects in the old town itself which may well command our respect both as historical monuments and as remnants of the architectural art of both Gothic and Renaissance periods. The town gates, for instance, are imposing enough as examples of that class of architecture which, while serving the peaceful object of admitting friends, has also to fulfil the grim purpose of defence against foes. Of the gates of Loches, the northern—the one shown in Mr. HAIG's sketch—is perhaps less successful, architecturally, than the eastern one—that which opens towards the road from Beaulieu, but when seen from the interior of the town, it will strike anyone who beholds it for the first time as a more grand and uncommon structure, especially when taken in combination with the Renaissance Hôtel de Ville, which, in its feminine gracefulness, forms an appropriate contrast to the manly strength of the gate-tower. Faithful companions since the year 1535, when the Hôtel de Ville was completed, these two venerable structures have grown grey and timeworn in the service of the town, and fitting is it to observe that, whereas the morwarlike building has many a distinct scar and memento of furious war, the more delicate one has been comparatively spared. They have both done good service and it is pleasant to see that the town in return does try to care for and preserve the veterans.

MOUNT STUART, ISLE OF BUTE, N.B.: THE CORRIDOR.

THE COTTAGE, BOSCOMBE.

CHURCH FITTINGS.*

(Concluded from last week.)

THE next items in our list are screens, the rood-loft and the rood, all of which we may consider together.

During the fifteenth century screens seem to have been erected in most churches to enclose the chancel and chapels, and elsewhere. Some still remain unrestored (long may they remain so). They are quite exquisite in line, in detail, in sentiment and in workmanship. Richly ornamented with carving and painting, they are among the most beautiful works of art that Englishmen have produced. They have suffered frightfully, first at the hands of puritan fanatics, and then by the blind neglect and stupidity of eighteenth-century protestantism, and last, but not least, most of those that escaped or survived these two causes of destruction have been stripped of their colour and so "improved" by well-meaning but mistaken "restorers" that but little of their beauty remains. Enough, however, remains to make me, for one, exceedingly wroth with the sacrilege that destroyed them and the stupidity that restored them. But enough remains also to teach us, to inspire us and to guide us. May I beg all here to move heaven and earth to preserve these priceless relics that still remain from further destruction or restoration. They will remain a very long time yet if proper care is taken of them.

On top of the screen separating chancel from nave, and supported by it, ran the rood-loft, reached by a winding stair. The rood-loft was used as a minstrels' gallery. It was customary for strolling minstrels to be hired on great festivals. Parts of the service were occasionally sung from the rood-loft, but not the Epistle and Gospel.

The rood itself, a large cross with a figure of Our Lord carved or painted upon it, and generally the figures of St. Mary and St. John, stood upon the roof-loft, or was suspended over it from the chancel arch. Sometimes other figures of saints and angels were added, and upon the loft many candles were put. There are reasons for and against a chancel screen of a theological kind, which do not concern us now. Such screens are beyond doubt among the ornaments of the rubrick, and they add greatly to the beauty of a church. Screens are generally required by the authorities to separate a chapel from the rest of the church. It is questionable whether a rood-loft should be put nowadays, unless it is required for a practical use, which will only be the case in some churches. We no longer engage strolling minstrels who have to be put where they cannot get at valuables, in case they should be tempted to steal. All too few of our churches, however, have anything worth stealing.

Screens may be made of stone, wood, or metal, or a combination of any two or all three of these materials. On the whole, I think wood is the best of the three, but that may be because I have a particular affection for woodwork.

There are a few conditions that should regulate the design of a chancel screen. The clergy stalls ought to return against the chancel side of the screen, therefore the lower part must be panelled with solid panelling to a sufficient height to form the back of the stalls, from 3 feet to 4 feet from the chancel floor. It is undesirable to block the view of the altar from the congregation, and unless it is raised on several steps, a high solid base to the screen would do so. If the chancel is long enough to allow of such an arrangement, it looks well, I think, for the chancel floor to be only one step above the nave and for the sanctuary to be raised three more steps beyond the choir seats, leaving enough space at the east side of the choir seats for easy access to them on their own level, say 2 feet 6 inches or 3 feet wide. It is awkward for the members of the choir to have to step down to reach their places. Thus, two steps with a tread of 12 inches each would ascend from the level of the chancel to a space at least 4 feet wide for the communicants; then one step more to the level of the sanctuary floor. A space of at least 5 feet 6 inches must be allowed before the next step rises. (The altar rail, if there is to be one at all, should be set 18 inches back from the front edge of communicants' step, leaving a width of 4 feet within.) Then two more steps, each 18 inches wide, and a foot space in front of the altar 3 feet wide, making a total length eastwards beyond the choir seats of 18 feet 6 inches or 9 feet to the front of the altar. The altar itself would be

raised seven steps above the nave, say, 3 feet 6 inches or 3 feet 9 inches, in the former case all steps having a rise of 6 inches, in the latter the first four having a rise of 6 inches, the last three 7 inches. The screen would be fixed on the first step, and the panelled base might be 3 feet 6 inches high, without hiding the altar. In my opinion the central opening should be nearly as wide as the altar, 7 feet or 8 feet in, a narrow church, and more in a wide one. It is well, I think, to have as few mullions as may be, and for them to run up a considerable height before the more intricate and ornamental part of the screen begins. Where a loft is not required, I think a strong horizontal line looks well at top, with or without a cresting. In churches where there is no chancel arch, I see no reason why the screen should not run up and be framed into the timbers of the roof, with the rood and any other figures worked into the design of the screen itself. In spite of the long tradition there is for standing figures on top of the screen, more or less isolated, I must say I feel that, if they could be joined on or worked into the design of the screen, it would have a better decorative effect—amongst other reasons, no doubt, because the figures must be less realistic to take their proper place in the whole. In some churches, especially where the chancel is narrow and there is a chancel arch, a high screen may not look well. In such cases a low screen of stone or wood is wanted to stop the return stalls. The rood may then stand upon a beam, in which case I think it is better to have a little ornament of some kind to connect it to the beam. Or it may be suspended in the arch, which is, I think, the better way. In either case a cloth of suitable colour hung behind helps the decorative effect. I think the rood should not be too plain, whether or not figures be added—it is, as I have said, the standard of the Christian army, the symbol of self-sacrifice, rather than the cross of execution.

Gates may be added either of wood or metal, and in churches where valuable or holy things are kept in the chancel they are most desirable, to prevent theft or sacrilege. In such churches a strong but very light metal grille should be fixed between the mullions of the screen. Most, if not all, Mediaeval screens were painted, and there is every reason why modern screens should also be decorated with colour. The probability of failure is considerable, and it should not be attempted unless it can be carried out by one who possesses a keen sense of colour. Most modern attempts are such dismal failures it makes one think that the colour sense is now very rare. But there are some exceptions to the failures, and improvement is impossible unless attempts and experiments are made. In the old examples of painted screens that remain very few colours have been used. Nearly all good colourists seem inclined, from time to time, to reduce their palette.

I personally deprecate the attempt to reproduce the work of the past. An artist cannot copy other people's work, either in form or colour. His work may, no doubt, unconsciously reproduce forms and so forth, but, however strong the resemblance may be between his work and that which he most admires, it will not be a copy or reproduction, but his own expression of the beautiful. The demand for mere copying leads to the very poor, uninteresting and inartistic work which is to be seen in such large quantities all around us. The old work has been studied a great deal, no doubt, but perhaps more with a view to reproduce than to learn, to copy than to acquire experience and knowledge.

No one has ever made a closer or more careful study of old work than did William Morris, and no one ever copied less than he did. He did not confine his study to one branch of old work but to all, and he made just as careful and close a study of nature, the fountain-head of all beauty. The study of nature has been too much neglected. It seems to me absolutely essential for everyone connected with the decorative arts.

Stalls and Desks.—Mr. Micklethwaite's tract tells us that "well-furnished churches had stalls with misericordes, or turn-up seats and desks on each side of the chancel, and returned at the west end against the screen. Parish churches had only one row of stalls, but sometimes there was a bench in front of the desks for the use of song boys. Poor churches had plain settles instead of stalls."

The growth of the choir in most modern churches necessitates a considerable amount of accommodation. I must say I think many churches have too large a choir. The old arrangement can hardly be improved upon, unless it is considered better to turn the choir out of the chancel and put it into a gallery at the west end. There is, no doubt, much to be said for both plans, and where the

* A paper by Mr. C. S. Spooner, read before the Architectural Association on Friday, February 10.

chancel is small it is certainly better not to block it up with choir seats and organ.

One row of seats for men and one for boys on each side of the chancel should be enough for any parish church. I think it is better not to divide the seats with arms or elbows, as that arrangement would make the whole very long and would fill up the chancel too much. The great thing is to arrange the seats not only to leave plenty of room in the chancel, but also to give the appearance of space. I think it is a mistake to raise the choir seats above the level of the chancel, and better to stand them on the floor. If raised, too much prominence is given to the choir. No better arrangement has yet been devised than that of returning the back row of seats against the screen for the clergy. These seats might very properly be divided by elbows, when that luxury can be paid for. The advantages of this arrangement are that the clergy are brought well out into the church in the most convenient position for them to take the services. In the greater part of morning and evening prayer they act as the spokesmen for the people and should face the same way, and in the parts where they address the people they only have to turn round where they stand to do so. They are not separated from the choir and yet occupy the most important places—as they should—and there is plenty of room for all the staff connected with the parish and generally some over for any extra clergy who may be present on special occasions.

The desks should not be too near the seats, nor too high; plenty of room should be left for kneeling and the height convenient for that attitude; there should also be an extra shelf, or shelves, for books below the desks. The boys will only want a desk, which should be as small as convenience will allow. The Rev. Percy Dearmer, in his book, suggests that boys behave better without a desk and kneel upright, which is, no doubt, very desirable, and it would look better in the church, but it strikes me as being a little hard on the boys to have no place for their books.

The great lectern stood in the middle of the choir, and upon it lay the books for the choir office and the service of the altar. Now that everyone can have his own book such a lectern is unnecessary. It is, however, usual to provide one for a big Bible. The old lecterns in the form of an eagle were probably used to read the Gospel from, and stood on the north side of the sanctuary. The form is equally suitable to read the lessons from, and if artistically treated and made very unlike a real bird, may be rather nice.

Personally, I don't think the form a very good or suitable one for a desk to carry a book. The thing is, after all, a desk, and the more it looks like what it is the better. The various attempts one has seen at a figure representing an angel holding the book upon his head would, if even passably executed, be open to the same objections as apply to caryatides.

The form of a double or single desk seems to me to be much the best; it may be treated in a great many different ways, with or without candle-holders, and may be made of either wood or metal. The lectern should stand on a step or platform raised above the level of the nave, more or less according to the size of the church. The top of the desk should not be too high, or the reader's voice is checked. This is one of the few cases in which utility clashes with appearance. In the case of a single desk, it certainly looks better for it to be steep and to rise well in front, but there is no doubt as to which ought to be sacrificed.

A long lectern cloth over the desk, and hanging low down front and back, looks extremely well. It should be of rather heavy material, the exact width of the desk, and be finished with a good fringe at each end. It may be decorated with embroidery, but if so there should be a good deal of embroidery, or else none at all, and the design should, I think, be restrained and quiet, something that will give a rich general effect. Embroidery is necessarily expensive, and unless it is thoroughly good and artistically done it is rather disagreeable than otherwise. Poor churches must dispense with such an expensive luxury. A good woven material will look very much better than any but the best embroidery.

It is important, when planning a church, to provide a place for the organ. Much has been said about the best position for it, and I understand that musicians agree that a gallery at the west end, or the rood-loft, is the best place for it. There are objections to both of these places if the church is not very lofty. Unless there is a clerestory a large west window is necessary to light the church; an organ at the west end would block up this window.

Now, it is difficult to make a clerestory look well from

the outside unless a good deal of money can be spent upon the building. I have not seen a modern inexpensive church with a clerestory that seems to me successful externally. I particularly dislike a lean-to roof over the aisles. Lofty aisles with a flat roof and a parapet get over the difficulty but this is, of course, rather expensive, and may not suit the position of the church. A minimum height of 17 feet is wanted for an organ, and that will only do for a small one; 33 feet is wanted for a fair-sized organ. A clear space of even 17 feet above the rood-loft to the wall-plate means a lofty church. The organ should be divided and placed each side of the loft in any case, as the middle is required for the rood.

It is obviously objectionable to shut the organ up in a small chamber. Perhaps the best way is to divide it and provide two small shallow transepts on either side of the chancel for the swell-box and other parts, and to bracket out for the pipes. The drawback to this plan is that it adds a good bit to the cost of the organ. I shall be much interested to hear how others have got over the difficulty.

The organ case may be made a very pretty thing in a church, especially if the instrument is bracketed out from the wall. Unless the pipes are gilt, they look best in their natural colour, and if decorated at all, the patterns should be very quiet and not conspicuous, and of such a kind that the pipes always look like organ pipes and nothing else. They can be grouped to suit the position and surroundings, and can be supported by bands or rails framed into or attached to posts or uprights. The lower part must be panelled, to hide the bellows and the unsightly parts of the instrument. It is better to arrange for the organ to be blown by a small gas or oil-engine or an electric motor, a being more convenient and, I understand, cheaper in the long run than hand labour. But if the organ is to be blown by hand, then the lever should be so arranged that the blower is not shut up in a chamber where he cannot take part in the service. Late Mediæval pews still remain in some churches. Where they were provided, they were arranged with wide alleys both in nave and aisles, and were placed in a block towards the east of the church, leaving wide space at the west end. Modern churches are too much blocked with pews or chairs to look well. At St Agnes, Kennington, I noticed many of the chairs—which, by the way, are not battened together—are piled together at one side out of the way, leaving a good many in a block each side of the middle alley towards the east of the nave, quite enough for use on a week-day. This not only has a very good effect in the church, but it gathers a small congregation together. English people seem to be very shy, and they will slip into a church and take a seat in the nearest back row that is unoccupied. We have all seen a very fair congregation scattered about over a good-sized church, giving a sense that there are very few present.

Some of these Mediæval pews are very nice pieces of furniture. They may not be very comfortable, but comfort is a more or less modern invention or discovery in the North. We must remember that people in the Middle Ages went to church to take part in the service of the altar, not to sit and listen to a sermon, and these pews would not be used for sitting very much. There was a good deal of movement, and much more kneeling and standing than English people have been accustomed to of recent years, and besides this, these seats were not much more uncomfortable than the seats the people had at home. They generally have a solid end, shaped at top, sometimes into a "poppy-head," with a moulding running down the edge, and the outer face was very often carved. The seat was framed into these ends, and also a rail, often moulded and carved, to lean against. One or two rails lower than the seat strengthened the construction. The pews at the old of the two churches at Walsingham, in Norfolk (I forget whom the church is dedicated), are the best examples I know of Mediæval pews.

The church itself, too, is a very beautiful example of fourteenth-century parish church—unrestored. I think pews should be made as inconspicuous as possible in light in appearance, with either solid ends or framed ends and with low backs, to enable people to kneel comfortably and reverently. The rule of the Ecclesiastical Commissioners that seats must be 3 feet from back to back should be looked upon as the minimum—3 feet 3 inches is better. Mr. Norman Shaw has designed the best modern pews I have seen for the church he built at Bedford Park. As material, of course any wood may be used. There is one, however, which in my opinion should not be tolerated—mean varnished pitch pine. In colour and grain, I think

will most certainly disfigure any building into which it is put. Without varnish it might be just tolerable. I cannot see why cheap pews should not be painted and varnished. If the painting is well done and the varnish allowed to harden before they are used, they will last for a very long time, and, when very shabby, they can be repainted and made to look as good as new. A harmonious and quiet colour can be used, which will add much to the look of the church.

A pulpit "was ordered by the injunctions of 1547 to be provided where it did not already exist."

The pulpit may stand in almost any part of the church. The Rev. Percy Dearmer says:—"As a rule, it should not be east of the easternmost row of seats, but should project forward or two into the seats on its side." He further suggests "that the floor of the pulpit be not lower than the shoulders of the people when they are sitting down," and recommends that the position for it should be carefully fixed, until the spot in the church is found:—"(1) Where the voice rings truest and clearest with least effort. (2) Gesture becomes most easy and unrestrained. (3) The largest part of the congregation can be seen." And he adds, "It will generally be found that the same place will be best for all these purposes."

Obviously, a position in the middle of the church where the pulpit would hide the altar, or compete with it in importance is impossible.

The height of the floor will, of course, vary with the size of the church, but it should never be very high. That elevation which gives the preacher command of the whole congregation is sufficient, and no more should be given. The sides of the pulpit should be 3 feet 3 inches above the floor of it, and the top should be broad enough to hold books. A small removable desk is necessary for those who use manuscript or notes. It should be so contrived as to be easily raised and lowered and easily and rigidly fixed. I think, on the whole, this is best made of metal, with a rather desk tightly strained, and I think that horrid little cloth called by the shops "antependium" should be eliminated. The diameter of the pulpit should be ample; never less than 3 feet. A seat is unnecessary. A lower shelf beside is useful for books, and a secure corner for a glass of water where it cannot be upset is convenient. A standing-board over the pulpit is generally advantageous to both preacher and congregation, and may be made to look very well in the church. A background of wood is often helpful to a weak voice. I think wood is very much the best material for a pulpit; it looks well painted and adds colour to the church. Stone and marble are comparatively cold in this climate, and so is metal.

After the altar the font is the most important thing in the church. The best place for it is at the west end in the middle. If there is room, let it stand on a raised platform, as at All Hallows Church, Southwark, for instance. It should be large and of handsome material, and a cover is essential, which may be made of wood or metal. Stone or marble are perhaps the best materials for the font, although metal may be used. There are several Mediæval fonts of cast lead still existing. It is customary to line fonts with lead, but now that the water is blessed at every baptism and discharged into the earth when the service is over, it seems to me unnecessary, unless a porous stone is used. Most of the bishops, however, I believe, still require it to be done. A waste pipe is necessary, with a plug. This pipe must discharge into a dry well in the ground. A desk to hold the priest's book is a great convenience. It is seldom provided, but it seems almost necessary. The priest can hardly hold the child and the book while he is administering the Sacrament of Baptism. He lays it on the edge of the font usually, but, besides the risk of its being tipped into the font, there is risk of damage by splashes of water. Each desk should be of metal, with perhaps tightly-laced leather to carry the book. It might be removable, fitting into sockets in the font, and should be easily adjustable to any angle or position.

The Litany Desk.—"This has been so often included," says Mr. Micklethwaite, "in lists purporting to be of the elements of the second year of Edward VI., that it is mentioned here, lest it should be thought that it has been inadvertently omitted. But I cannot find any evidence of its use so early. The injunctions of 1547 ordered that immediately before High Mass the priest and others of the choir, not the priest alone, as is now the custom, should kneel in the midst of the church and there sing or say, clearly and distinctly, the Litany. This was a modification of the old procession, and the Litany itself was often

called the Procession. Some such convenience as the desk very likely soon came into use, but the only mention of anything of the kind for many years that I know of is one entry in some churchwardens' accounts of the time of Mary belonging to the parish of Cheswardine, Salop. It runs 'for a forme to serve in procession tyme.' This 'forme,' I have no doubt, was a thing for the priest and others to kneel at when singing the 'procession' or Litany."

"Cousin, in 1627, as Archdeacon of the East Riding, inquires, 'Have you a little faldstool or desk with some decent carpet over it in the middle alley of your church, whereat the Litany may be said?'"

The Litany desk has good authority and has become very usual. It should be large enough for two, or in large churches three, to kneel side by side, and may be covered by a cloth in the way I have suggested for the lectern.

Bells.—A parish church was provided with bells, and even the smallest had two. It would be well if this practice could be revived; a single bell has a depressing effect.

The notice-boards on the door or in the porch are usually unsightly things. I should like to see well-designed notice-boards provided with the permanent notices, or one painted with good lettering and the other provided with a glazed door, and the notices within written by someone who has learnt to write, so that they may be legible and not disagreeable to look at.

That is all that I have to say this evening about church fittings.

There are several things I have not touched upon, not that they are unimportant, but because I feared to occupy too much of your time, and I am afraid that I have not been able to add anything to that which had already been said and written on this subject. My only excuse is that, in recapitulating what others have said and written very much better than I can ever hope to, I may have brought together certain considerations that ought to guide us in designing these things, and which may perhaps be useful to the younger members of the Architectural Association, whose attention so far has not been turned in this direction.

I cannot, of course, suggest how these things may be made beautiful, but unless they are beautiful, not only in design, but in execution, they will be failures.

Some one has well said, "Everything that nature makes is beautiful, everything that man makes should be—it is wrong if it is not."

Mr. H. SIRR, who proposed a vote of thanks to the author of the paper, said Mr. Spooner had not only given them the benefit of his experience and opinion, but he had gathered together a vast amount of information, and brought to their notice the various rules and other considerations which should be present when architects were engaged upon the design of churches. If character and harmony were to be present in their churches, there were at least three considerations not to be lost sight of. First of all, there must be a trained mind and eye to control and direct the introduction of fittings and decorations. Secondly, good artists and craftsmen must be employed, with whom there must be direct intercourse. Thirdly, the best materials must be used. A great deal could be said under each of these headings, but the speaker thought all such considerations had been well acknowledged by the author of the paper. Mr. Spooner had said so much that really very little could be added to the remarks. All the rules touched upon were the result of the experience of those who were best able to speak upon the subject, and they admitted of no discussion at all. He was glad to hear Mr. Spooner say that it was unnecessary that the frontlet should be mounted upon a screen, and if it was properly lined there was no reason why it should not look well. Then, again, with regard to the altar, of course everyone agreed that it should be of the best material, but if they could not have much ornamentation upon it, at times inlay might be used although it would be seldom seen. The paper also mentioned the old world pew, and some seats in Norfolk churches were described. Suffolk also possessed some fine examples. There was no county where so many were preserved. Those in the eastern counties were decorated in a way that suggested there was at one time quite a school of artists in this work, though in the present day they seemed to have little knowledge of the methods employed. It was absolutely necessary to have samples of hangings sent down to churches before making a choice, as it was impossible to judge of the effect of such decoration without seeing it in position.

Mr. F. C. EDEN seconded the vote of thanks and alluded to the great difficulty experienced by architects in controlling the choice of gifts to churches by parishioners. Referring to simple churches he instanced the furnishing of one with a bare brick interior. It seemed to defy the utmost skill because the colour of the brick practically killed any treatment. Whitewash was the only remedy, and nothing made a more sympathetic background for pictures and carving.

Mr. G. H. FELLOWES PRYNNE congratulated the author of the paper on the straightforward way in which he had dealt with his subject, because it was a difficult one to deal with before an audience that must be mixed. Mr. Spooner had taken a broad view and had shown that their art embraced all that was artistic, and the whole subject could be looked at in a broad sense. However interesting the points of the paper were to some, it was not equally interesting to others, because there must be many present who would not have so much chance as others of doing church work. They must all remember, however, that there was a great demand for churches, and it was, therefore, well to be acquainted with some of the details of that part of their work. Speaking as one who had acted as assessor of church designs, the speaker said the deplorable things that were done in church work made him feel that there was very little thought given to anything outside Domestic architecture. It would astound some people to know the ignorance that was displayed in such competitions. Competitors very often did not possess the A B C of church architecture. In conclusion he said any artist should be glad to design the fittings and furniture for churches. The work embodied the highest ideal, and in that spirit alone he was sure would be found the germ that made successful any of the church work of the present day.

Messrs. C. J. TAIT and G. LUCAS also joined in the discussion.

Mr. SPOONER observed that the altar, even where of reasonable dimensions, lacked in appearance the importance that it deserved. Its importance is in a great measure said to be proportional to the number of steps upon which it is placed. His own observation, however, led to a contrary conclusion. The more that it is isolated, and the more its pyramidal approach is accentuated, the more its scale is reduced. Not only does it gain in dignity by standing upon a broad platform, but if the top is below the level of the eye, as viewed from the nave, another dimension is added. The rival claims for the position of the organ do not come into everyday practice. A surpliced choir in the chancel is generally demanded when any additions to the accommodation of a church are undertaken, and where the choir is the organ must be. Therefore a chamber immediately behind the choir is rendered necessary. Nor is the sheltering of tone provided by a chamber an undesirable quality in the case of the average parish organ. One advantage to be gained by placing the choir in a west gallery would be the space thus gained in the chancel. Space is a necessary accessory to dignity of ceremonial, and the chancel under such circumstances might also well be shortened, thus bringing the altar within nearer view. Its present position, pushed closely against the east wall, compares ill with its older position upon the chord of the apse. Space behind the altar is eminently desirable for effect, but probably no adequate effect is to be obtained in the presence of a window situate, as custom dictates, immediately over the altar, the result being that nothing beneath it is seen with distinctness. It would seem neither a serious innovation nor an impracticable one were the morning chapel to be placed eastwards of the chancel, where we are accustomed to see a lady chapel. The eastern wall of the chancel could then be treated as an arcade, and is often done in the latter case, and the limitations imposed by the dead wall thereby obviated.

The Ayr Town Council have had under consideration the steps to be taken for the preservation of the Old Bridge, and consulted Mr. John Young, burgh surveyor; Mr. John Eaglesham, C.E., Ayr, a former surveyor of the burgh; and Mr. James A. Morris, F.R.I.B.A., Ayr. At the last meeting these experts were requested to submit to the committee a scheme for the substantial rebuilding of the bridge, saving as far as possible its present form and structure. The meeting empowered the engineers and architects to make what openings in the bridge they might find necessary for the framing of the required scheme.

LIGHTING OF BUILDINGS, ETC., BY ELECTRICITY AND INCANDESCENT GAS.

I.—INTRODUCTION.

THIS subject is of the utmost importance to architects and others engaged in the erection of buildings. The object of the paper is to help to create an increased interest in this most important part of an architect's duty. Light is essential to health, as it affects the growth, development and maintenance of every living thing, whether of the animal or vegetable world; its influence is much greater than we usually admit, and it applies not only to natural or sun light, but also to every description of artificial light. Allow me to remind you that both kinds of light are very intimately connected, for every kind of artificial light in general use is directly or indirectly produced from the products of the pent-up rays of the sun in past ages. In employing artificial light it is essential in the first instance to determine the amount that may be required, the mode by which it is measured, and the laws that govern its intensity.

Amount of Artificial Light Required.

1. Taking a general average, the amount of light required for reading and writing may be taken at one candle foot, this, however, depends on the nature and extent of the reflecting surfaces influencing the light. For work requiring much detail or on coloured materials not less than five candle feet should be provided; even this may be doubled for the finest mechanical work, such as engraving and similar operations.

Mode by which Light is Measured.

2. To start with, we must have a definite standard light for comparison (which it is said at present we do not possess). The general legal standard is the standard candle, a spermaceti candle of certain dimensions, weighing one sixth of a pound avoirdupois, and burning 120 grains per hour. From this a standard of light is obtained, which at a distance of 1 foot from the object illuminated produces illumination equal to one candle foot, or as generally expressed, "one candle-power." At other distances the illuminating power is determined by the "law of inverse squares," which states that the intensity of light varies inversely as the square of the distance. As, for instance, at the distance of 2 feet the intensity is reduced to one fourth of that at the distance of 1 foot, the same rays of light having to cover four times the area. It is important to bear in mind that this law only holds good when there is no refraction or reflection.

Photometer.

3. Light is measured by an instrument called a photometer, the principles of which depend upon the well-known law of inverse squares. The usual form of photometer is that of a straight graduated bar, having a standard light at one end and the light to be tested at the other. A movable screen is placed on the bar between the lights; the screen has an opaque disc in the centre enclosed by a transparent ring outside the disc; the screen is adjusted on the bar that the shadows on the opaque transparent portions are equal or of the same intensity. The square of the distances at which the lights are from the screen will express the relative intensity of each light.

An improved photometer for testing high-power burners has been invented by Mr. Charles Carpenter and Mr. James W. Helps, and has been in use for some time at the South Metropolitan Gas Company. The standard Carcel or Pen lamp, which is equal to ten standard candles, is not compared directly with the light to be tested, but serves to fix a determined value to a secondary standard of the same quality and colour as the light to be tested; by this method the colour difficulty is overcome. The light of the secondary standard is adjusted by a sliding shutter worked by a screw so as to produce the same amount of light as the standard lamp. Two divided scale bars are used, having a terminal common to both at the secondary standard.

The primary scale is provided with a movable screen box containing a reversible Leeson star disc, the scale bar being divided equally from the centre towards the primary and secondary standards. The secondary standard rotates that it may occupy the same relative position as the primary.

* A paper by Mr. B. R. Tucker, member of the Council of the Society of Architects, Member of the Royal Sanitary Institute, Chief Surveyor, War Office, read before the Society of Architects on Thursday, February 16.

On the secondary bar is mounted a reversible Bunsen disc-box, and at the other terminal the light to be tested. The disc-box having been adjusted, the intensity of the light being tested may be decided by the square of the difference in the distance between the secondary standard and the disc-box.

Light should be Distributed.

4. The law of inverse squares proves that in order to obtain the best result with economy in lighting, it is necessary, in the case of a large room, or building, or church, that it should be lighted by means of a reasonable number of separate lights, judiciously distributed, instead of by a large single light or lights placed centrally in the room or building. It is somewhat difficult to lay down any definite rule for the placing of the lights for lighting large rooms or buildings, as circumstances, &c., so greatly differ; also the quantity of light required is subject to considerable variation, according to the nature of the building and the purpose to which it is to be devoted. However, as the purpose of lighting is generally to produce a certain intensity of light at the plane of illumination, which is usually assumed to be from 3 feet or 4 feet above the floor, the lights should be so placed and of such a nature as to produce a minimum illumination of (say) about one candle foot at the parts furthest from the light.

Light should be Diffused.

5. The best light is a soft well-diffused light, which is usually obtained by employing ground glass globes, &c., of different forms and patterns. Flickering lights or unshaded lights within the field of vision, also a very bright or intense light, or a sudden variation in the intensity of the light, or violent contrasts of brilliant illumination and deep shadows, are all highly objectionable, being harmful to the eyes.

Colour of the Light.

6. Best artificial light is that which most nearly approaches in colour to natural light. Natural light is not perfectly white, but it is of a yellowish-white, which tempers the rays of light; this is especially the case in the morning and evening time, when the light is softer than in the middle of the day.

II.—ELECTRICITY.

Electric lamps are of three kinds—arc lamps, Nernst lamps and incandescent lamps.

Arc Lamps.

These are of two kinds—open and enclosed.

Open Arc Lamps.

7. This lamp is the most intense artificial illuminant. Its light is produced by sending a continuous or alternating current of sufficient potential difference between two slightly separated carbon rods, producing a most brilliant light. In an ordinary arc lamp the upper carbon is the positive. This is slowly fed downwards by means of a plenumoid mechanism as fast as it is consumed. The chief consumption of energy is at the lower end of this carbon, being the most brilliant part of the arc, where the carbon fairly boils away into vapour, producing a slight hollow in the centre of the end known as the "crater." The lower carbon, or negative, is evenly and somewhat sharply pointed. If the arc is short, particles of carbon are torn off from the surface of the crater of the upper carbon, and many of them are deposited on the lower carbon. With a direct current the upper carbon will burn away twice as fast as the lower (if of the same diameter), generally at the rate of about 2 inches per hour, depending on the hardness and diameter of the carbon.

The carbons are generally half an inch in diameter, and the upper, and sometimes the lower also, have a soft core of carbon in the centre, about 1-16 inch diameter; this portion more easily fuses and produces a greater mass of carbon vapour, which tends to hold the arc centrally between the carbons. The rays of light from this lamp come chiefly from the "crater," and fall at an angle of 40 degrees below the horizontal.

Arc lamps of large candle-power, usually called "projectors" (used as search lights), consume from 60 to 150 amperes, and produce a light of many thousand candle-power. These are mostly continuous circuit.

Enclosed Arc Lamp.

The arc of this lamp is enclosed within an inner globe, which excludes practically an access of fresh air. The ends of the carbons keep fairly flat, the arc only fills a portion of the space between the carbons and it travels about slowly

from one part to the other. The carbons in this lamp are consumed only at the rate of one-eighth of an inch per hour, so that they will burn from 80 to 120 hours or more without retrimming. In these lamps the arc is much longer, and the downward obstruction of the light by the lower carbon is much reduced. The double globe in these lamps makes them safer. The advantages of this lamp consist in the saving in the cost of carbons, the saving of labour in retrimming, and the inner globe—being often of opal glass—insures a better diffusion of light.

This lamp also gives a much rounder and fuller distribution of light; although, with the same energy, the minimum light is little more than half that of the open arc, yet the better distribution of light fully compensates for the difference.

For interior lighting the outer globes are sometimes of opal or ground glass, so that the bluish tinge which is produced by the long arc is partially eliminated. Several enclosed arc lamps are now in use fitted with one globe only, and are giving greater satisfaction than those fitted with two globes, as they afford a greater and better diffusion of light.

It should be stated that opal globes absorb from 50 to 60 per cent. of the light. Ground glass, according to its density, absorbs from 30 to 50 per cent., and clear glass about 10 per cent. From this it will be seen how wasteful is the usual method of diffusing the light by opal and ground globes. It is only necessary to disperse the downward rays by such globes, the upward rays should be unobstructed and, for interior lighting, reflected downwards by means of an umbrella-like shade.

Arc lamps are also used in studios, factories, &c., of the inverted type, the rays of which are thrown on a white ceiling, when they reflect and produce a most pleasing effect.

Nernst Lamp.

8. This lamp comes between the arc lamp and the incandescent lamp. The light is obtained by making incandescent a filament of mixed oxides, generally from 1 inch to 1½ inch in length and placed either horizontally or vertically. The filament when cold is a low conductor, but when heated by a coil having a current passed through it, it becomes a conductor and then goes to a vivid incandescence. This filament cannot be run by itself without a resistance, which is necessary to prevent the light becoming unstable. The filament being incombustible, it is not necessary to place it in vacuum, as in the case of the incandescent lamp.

It takes a short time to light the lamp, and no doubt this is one of its drawbacks, together with the frequent breakdown of the filament and heating coil, owing to vibration. The average life of the burner is from 300 to 400 hours. The efficiency of this lamp is extremely high, being .95 watts per candle-power on 100 volts circuit and .88 watts per candle-power on high-voltage circuits. A one-ampere lamp will give 105 candle-power on a 100-volt circuit, and 250 candle-power on a 220-volt circuit. This is practically three times the amount of light given by the ordinary incandescent lamp consuming the same amount of current.

Incandescent Lamp.

9. The incandescent lamp in general use consists of a carbon filament possessing a high resistance to the electrical current and of sufficient strength to insure a fair durability or life to the lamp. For a time it was difficult to obtain such a filament, but by the persistent efforts of Edison, Swan and others, about twenty years ago such a filament was obtained. The filaments, except those for special lamps of large candle-power, are made of soluble cellulose threads, hardened, carbonised and "treated."

The typical lamp consists of four parts—the base to carry the lamp in its socket, the glass bulb, the filament and the filament mounting, which includes the connecting wires. The air is exhausted from the bulb to prevent the filament being consumed when made incandescent. The length, shape and diameter of the filament varies according to the make of lamp. Generally they have one or two convolutions so as to admit of sufficient length to insure the necessary resistance and to obtain the required candle-power, which depends on the superficial area of the filament.

Lamps are made of the following candle-power—2½, 5, 8, 16, 25, 32, 50 and upwards to 600 candles. Those of 16 candle-power are mostly used and the voltage is from 100 to 230. The life of an incandescent lamp practically depends on the temperature employed, other things being equal.

There is a steady disintegration and vaporisation of the filament during incandescence, which produces a material increase in the resistance, and a consequent decrease of current, temperature and light. An ordinary low efficiency 100-volt 16 candle-power lamp takes about .6 amperes. At 200 volts a 16 candle-power lamp takes about .3 amperes, and a 250-volt 16 candle-power lamp about .24 amperes.

Lamps can be obtained of three classes—low, medium and high efficiency, absorbing respectively from $2\frac{1}{2}$ to 4 watts per candle-power. On the whole the best result is obtained by using lamps 3 to 3.5 watts per candle-power.

Practically, the B.T.U. is equal to the current required for No. 16—16 candle lamps per hour. The rate per unit for electrical current in the City of London supply varies from $2\frac{1}{2}d.$ to $5d.$ In one business house $2\frac{1}{2}d.$ is charged per unit for current used in the daytime in the basement, $3\frac{1}{2}d.$ for that used on the ground floor and $4\frac{1}{2}d.$ for the floors above.

III.—INCANDESCENT GAS-LIGHT.

10. Incandescent gas-light is the result of two important discoveries, viz. :—(a) The Bunsen burner and (b) the incandescent mantle.

(a) About fifty years ago Bunsen invented the atmospheric burner (which bears his name), by which a non-luminous gas flame is produced by mixing coal gas with a certain proportion of the air needed for its combustion. The proportion varies, but is generally about one to five or six. The discovery of this burner has been of immense importance, enabling gas to be used for heating purposes as well as for incandescent lighting.

(b) The discovery of Baron Von Welsbach, in 1886, led to the production of a mantle of refractory oxides, having as a base that wonderful and rare earth or oxide of the metal thorium known as thoria, and culminating in 1891-2 in the further and more wonderful discovery of the power exerted upon the thoria by having a trace of ceria mixed with it, led to the production of the marvellous intensity of light which these mantles produce. The exact proportion of these rare earths was found after many careful experiments to be 99 per cent. of thorium and 1 per cent. of cerium. It is remarkable that the slightest deviation from these proportions, one way or the other, causes a diminution of light. It is still necessary to resort to further research before we can fully understand how it is that the incandescent mantle can produce light equal to eighteen candles per cubic foot gas consumed; whereas, when we use the gas in the ordinary way, in producing a flat or other flame we obtain only about three candles per cubic foot of gas consumed, one-sixth that of the incandescent mantles. To produce a good mantle the rare earth must have qualities difficult to find; it must be free from atmospheric influences, must be sufficiently refractory not to seriously soften at the temperature of the flame and non-volatile. So far, it is found that thoria occupies a position by itself as the ideal basis for the mantle.

The efficiency of the mantle at the first start with the "C" burner is equal to fifteen candles per cubic foot of gas consumed; it diminishes with the age of the mantle.

The incandescent "C" burner is—

Five times as efficient as an Argand gas-burner.

Six " " " Ordinary do.

Three " " " a Regenerative do.

Notwithstanding the considerable improvement made in the mantles of late years, it is stated that to see incandescent gas-lighting to perfection it is necessary to go to Berlin. In Berlin the mantles are used without any coating to protect them in transit, the burning off of which when first lighted causes a certain amount of deterioration and loss of incandescence. Mantles should not be kept in stock for any length of time, as they deteriorate by the action of the oxygen of the atmosphere.

By-pass burners should be used; they only consume through the by-pass 1 foot per twenty-four hours. Should it produce an unpleasant smell, it can be prevented by reducing the flame to a small blue light only. Very much depends on the description of shade used with mantle burners; the object should be to soften the light and approximate it in colour to that of natural light.

Take care that the mantles are perfect; sometimes the slightly defective mantles known as "seconds" are sold as perfect mantles. Seconds are the result of the sorting out, and consist of those short in length, stitches dropped in the knitting, or other deformation or damage; these are often palmed off for the perfect article.

The convenience of being able to light and extinguish gas-burners at any one point at a distance away, as in the

case of the electric light, is well recognised. The Pneumatic Gas-Lighting Company and others have invented apparatus for this purpose. It consists merely of a ligular valvular device at the base of the burner to which attached fine flexible tubing to conduct the air-pressure, the other end of which is the pneumatic push or switch, which the valve is worked. The use of this invention insures convenience and economy in cases where gas-lighting is required only at intervals.

Natural ventilation is very much improved by the use of incandescent gas-lighting. The heat of the burners not only causes a healthful circulation of the air within the room or building, but it materially assists in the removal of the vitiated air in all cases where a proper provision has been made for the escape of the same, and it undoubtedly assists in the prevention of down-draught in certain cases in churches, halls, large rooms, &c.

Some experiments were carried out in the Museum of Art Gallery at Birmingham in 1902, and reported by Professor Percy F. Frankland (Birmingham University). The results of which are most interesting and instructive. It is stated that the experiments clearly showed the following results under the condition of the efficient ventilation which prevailed at the time :—

(a) In the absence of any artificial illumination there was a slight increase in the percentage of carbonic acid in the air during the course of the day;

(b) With the electric arc lamp illumination, the increase in the percentage of carbonic acid was distinctly more marked;

(c) With the incandescent gas illumination, on the other hand, there was a distinct diminution in the percentage of carbonic acid in the air.

It is stated that the explanation of this diminution is not far to seek, it being obviously due to the more efficient ventilation of the gallery, caused by the greater draught of heated air through the ventilating shafts placed above the incandescent gas-burners. The circumstance that the percentage of carbonic acid actually diminishes during the use of the incandescent gas-burners proves that the products of combustion, from which damage to the pictures might be apprehended, are completely carried off by the ventilation, which is so much promoted by the gas-burners.

In the opinion of Professor Frankland the incandescent gas installation in the Art Gallery is to be preferred to electric arc lamps; and although these lamps do not give rise to sulphur compounds, they do generate ozone and oxides of nitrogen, which are calculated to act prejudicially on pictures. In order that this advantage may accrue from the use of the incandescent gas illumination, it is, of course, necessary that proper ventilation should be provided over the gas-burners to prevent the circulation of the products of combustion. The following are some of the high-power lamps at present in use :—

The Lucas lamp is a very good description of the latest type of incandescent gas lamp that is now coming very much into use. The special advantage of this lamp is that it does not require any compressing plant or machinery to raise the pressure of the gas as is required by the usual type of high-pressure burner; each lamp is self-contained and is constructed to work with the ordinary pressure of the gas. The lamp is of simple construction, with no working parts to get out of order, and contains a Bunsen burner of large diameter fitted with a special description of regulating nipple for adjusting the supply of gas, a short glass chimney or globe, and an elongated metal cylinder or chimney. The joint between the burner gallery and glass chimney, and that between the glass chimney and the metal cylinder, are substantially closed so as to exclude the external air, thereby causing a powerful suction to be produced on the burner when the lamp is alight. The proportion of gas and air burnt is about $5\frac{1}{2}$ volumes of air to one of gas, which is the most powerful explosive mixture obtainable with coal gas, and produces the highest possible flame temperature. Thirty-nine cubic feet of this mixture consumed by the Lucas lamp per hour will produce an intensity of light equal to 200 standard candles. The lamps are made in four sizes, with consumptions of gas as follows :—

200 candle-power	6 cubic feet of gas per hour.
400 "	10 "
700 "	$17\frac{1}{2}$ "
1,000 "	24 "

The lamps can also be grouped in clusters of two or three lights with either size of burner. The essential principle of this description of lamp is the proportions and the combination of the glass and metal cylinder above

the mantle, and the enlarged Bunsen tube, the object of which is to create a sufficient draught to draw the whole of the air necessary to produce the proper and most perfect combustion of the gas within the mantle through the burner tube, external air being required or used at the point of ignition, and also to admit of a larger mantle being used, by means of which a greater area of incandescence is obtained, producing at the same time the greatest intensity of light, because the flame temperature is the highest obtainable. A special feature worthy of note has recently been introduced which enables the lamps to be lighted by a special by-pass arrangement (previously explained), by means of which a series of lamps can be operated from a distance, and switched on and off as rapidly and as easily as is done in the case of the electric light.

The Khoma lamp is an incandescent arc lamp on the regenerative principle, by which the gas is superheated in a chamber before it passes to the burner. The chamber for heating the gas is placed directly above the mantle, well within the heating zone. This insures the thorough superheating of the gas, in which state it better mixes with the air in the Bunsen burner than if in a cold heavy condition. By the heating of the gas the lamp develops from 20 to 25 per cent. more light from the same amount of gas, as complete combustion is more nearly obtained. No chimneys are used in this lamp; the advantage is, there is no obstruction of light and no breakages. The lamp for outside use has a windproof shield in the form of a copper cylinder for protecting the mantles during their renewal or while the lamp is being cleaned. The consumption of gas is about 4 cubic feet of gas per hour per burner, producing 150 candle-power per burner. A lamp may be fitted with a cluster of burners, but four burners are equal to 600 candle-power.

THE ART OF TO-DAY.

AN address was delivered by Mr. Edward S. Prior, architect, on the 15th inst., at the distribution of prizes to the students at the Municipal School of Art, Birmingham. The Lord Mayor presided.

Mr. Prior, according to the *Birmingham Post*, said that the economy of civilisation must find for artists a place in the theories of its welfare. That it had found them that place up till now was a matter of history, and that it was not giving up the intention was clear from the position which was now given to art in education. The number of art, craft and technical schools grew every day, and they absorbed a large amount of public money. There was, therefore, in the public mind a definite surrender of present economy for the sake of those complex ideas which were conveniently catalogued as art. Professor Lethaby, in his lately published and most suggestive account of "Mediæval Art" had told them that "every school of art is the product of antecedent arts, plus the national equation of the moment." It was clear to him (the speaker) that they had of necessity now to make the extra growth out of the being of their time, so as to qualify their art and separate it from that of former times. The apprehension of this should be the moving force in their training, for it gave them a place in the social life of their country. They were citizens of no mean city, for as artists they were citizens of humanity. The national equation of the moment was clearly set before them in the development of social life, in the conquest of man by himself so that the race might grow to a wider development. It had, therefore, become foolishness for the artist of to-day simply to follow the traditions of ancient artists. To grow to manhood he must move in the spirit of this time, in the advance to a freer and more perfect social life, otherwise he could not retain the allowance to survive. This was a far-reaching condition. It forbade them to walk in the footsteps of the past. It forbade them to paint sacred pictures as did the artists of religion, like Giotto; to exhibit moral allegories, as did Dürer; to build great churches in the fashion of Chartres or Westminster Abbey. For though they were able to do these things, yet these were not the subject matters of their art. To paint with the colouring of Titian, to draw with the draughtsmanship of Michel Angelo, to mould bronze like Cellini or etch copper like Rembrandt, to raise Portland stone like Sir Christopher Wren—all the skill for this, if they had it, yet would not be art for them. When those great men lived their capacity to do their great works was the national equation of the moment. But in these days they had neither the Mediæval atmosphere of religious faith to give their art this ancient

manner; they had no Renaissance of learning to give their art that ancient manner of scholarship. To represent that such was to be the spirit of their art was an hypocrisy. Moreover, it was turning back from the possibilities of their own art—a cowardly surrender in the face of the enemy. If they could not recover courage to make an art of their own, they as artists must break up and disappear.

Their schools in Birmingham had no intention of turning cowards and deserting the Commonwealth. They had been established and developed in view of the wide destiny of citizen art. They studied the manners of ancient artists not by appropriating their style, their treatment and their technique—which in each case was part of their evolution of art. But seeing what those artists did, they, too, trained hand and eye and feeling upon the qualities and expression of the materials themselves. Just as the old artists learnt to express themselves without bungling or uncertainty, so they learned. So they possessed the matter of art, which was its beginning—the good made beautiful—and the manner of art—the skill that grew from the seeing eye and the sensitive hand—and then, by growth away and beyond this, they grew to be artists by bringing their art into the life of to-day. There was only too much, it seemed to him, that the craft and skill of artists ought to be speaking now. They were passing on by social change to a state of humanity that was quite without precedent. In the intellectual and moral manners of mankind they could point to distinct progress towards the qualities which lead to social survival. While intellectually they had learnt to love their neighbours as themselves, in the sphere of arts had they any squeamishness, or reticence, or charity? Very little he feared. The public morals of art had been corrupted by culture. The connoisseur collected pictures, nay built a public gallery, and counted that his duty to his neighbour was done—and he would let his land be developed in a way that of necessity meant a waste of ugliness. When those who were taken as exemplars of art showed this indifference, it was little wonder that the beauty of our cities was sacrificed for the merest bagatelle of material advantage. The public-house was the practical determiner of where streets should run, not the shapeliness and usefulness of the street. The civic community, under the guise of by-laws, denied architecture the right of building for the purpose of seemly presentation. And what the community did and thought no shame for, though it spoiled the beauty of a whole country side, every individual took as the ordinary manner of life. What advertiser cared how shocking to every sense his advertisement might be? What private builder minded ruining a whole street or a whole village by a pretentious erection of glaring ugliness? Did any man think that in these things he should regard his neighbour? What parson was found refusing the most patent insincerity of degraded art, though it drove every artist from his church? The manners of art were in a very elementary state when to be shocking was thought no crime, when picture galleries multiplied, but every year city and town and country side, ever more and more, thought no shame to be offensive. Now a school of artists turning out trained workers such as they were in Birmingham must in this matter see their duty. They must be a force to check the want of manners in art.

The community which gave them that education, and so promised them the right to live as artists, could not but be influenced by them. Their attitude should be militant, as of an army trained for a campaign. The destinies of the coming art were in their hands. Here in Birmingham at some time in the near future might be a preliminary skirmish the issue of which might determine the future campaign. The Bishopric of Birmingham implied a cathedral that would be built in due course, a great church by its function, a public building for the people of Birmingham to call theirs, for them to look at, for them to enter. Why should it not be for them to create, to build it, decorate it, and fit it as a church of this century? It seemed to him that art education was a mere pretence for a city like Birmingham to provide if it denied them the means of using that education for its benefit. If built by them as architect-masons, and architect-carpenters, if sculptured by them as craft sculptors, if decorated by them as craft painters, smiths, glaziers and tilemakers, the cathedral would be, as were the ancient cathedrals, a growth from the art life of to-day which the city of Birmingham was so strenuous in maintaining. What mimicking copy could be half as fine a thing as that? If they as artists in building were to come forward for the building of this

cathedral they must develop a school of building and decoration, one that could take the position they claimed and worthily administer the charge. He knew that as part of their Municipal School of Art they had a flourishing and efficient school of architecture and building construction—a school for the planning of all kinds of building and for the drawing of all kinds of its construction, for the specifications and business of an architect's profession, for the history and style teaching out of which came the designing of the architect. But he was speaking of a school of building and decorative treatment which might be something much more. He meant a workshop of architecture ready to build and decorate. He spoke to them thus because outside of them, and an advance such as a school of art like theirs could make, a practical school of building seemed little likely. He believed that their school of art would not be long before it made a move in the direction of a practical working school of architecture. In conclusion, the speaker remarked that the success of the school had been undoubted; it had made the city a producer of art objects held in esteem in three continents. "Brummagem," which forty years ago had an equivocal sense, now spelt good workmanship and a genuine expression of art. The fruits of their enterprise in having so laid an art foundation to the commerce of their city would prove constant and abundant. But the art of a city did not lie in the distribution, however wide, of artistic products. It lay in the city itself, in its manners of life, in the sanity of its taste, in its citizenship of humanity which believed the beautiful to be good. So should their streets, their houses, their highways and byways, their rooms and courts, their temples and their factories proclaim its belief.

GENERAL.

Mr. H. H. Richardson, solicitor, an Hon. Member of the Society of Architects, of 2 Broad Street Buildings, London, E.C., has been appointed solicitor to the Society.

The Artists of Aberdeen, at a meeting recently held to consider the subject of a memorial to Mr. Robert Brough, A.R.S.A., resolved to co-operate with the London committee in raising subscriptions for the purpose of securing a cast in bronze of Mr. Derwent Wood's bust of the late artist for the Aberdeen Art Gallery, and to found an art scholarship in Aberdeen to be called the "Brough Scholarship."

Mr. George Wilson, D.Sc., A.M.I.C.E., died last week in his thirty-third year. He was lecturer in civil engineering at Leeds University, and was formerly demonstrator in engineering at Owens College.

The Committee for the preservation of the Avon banks have presented to the Home Secretary a petition praying that an inquiry be held to determine whether, having regard to the safety of the public, the detrimental effect on the traffic on the river and the adjoining roads and railways, and the special annoyance and danger caused to the inhabitants of the neighbourhood, the quarrying in the Avon Gorge should not be stopped, or, if not wholly stopped, be removed further away to a safe distance from the river banks.

The Finance Committee of Aberdeen Town Council recommend that the foreign visitors who are to be present at the opening of the extension of the Art Gallery in April should be officially entertained. The visitors are expected to come from all parts of the world, and the invitations are to be issued through the Foreign Office. The addition to the Gallery consists of a sculpture gallery, which has cost 7,000*l.*

The Carnegie Dunfermline Trust have accepted the plans of Mr. Peter L. Henderson, Edinburgh, for a library and reading-room at Townhill. In accordance with the conditions of the competition, premiums of 25*l.*, 15*l.* and 10*l.* have been awarded for the three designs considered next in order of merit, namely, those of Messrs. James T. Scobie, Dunfermline; Henry F. Kerr, Edinburgh; and Kerr & McCulloch, Alloa. The building, which will cost 3,500*l.*, will make provision for a library of 4,500 volumes, reading, recreation, billiard and smoking-rooms.

The Council of University College, London, have adopted the following resolution:—"That the Council, in accepting with much regret the resignation of Professor L. F. Vernon-Harcourt of the Chair of Civil Engineering and Surveying of the hospital, desires to place on record its high appreciation of the services he has rendered to the college and hospital during his long connection with them, and of the distinction he has conferred on the chair he has held."

The Candidates for the headmastership of Sheffield Municipal Technical School of Art have been reduced to the following four:—R. E. Bush, Headmaster of Bris Municipal School of Art; A. C. Jahn, Headmaster of Wolverhampton School of Art; G. Marples, Headmaster of School of Art and Technical College, Huddersfield; and F. Shelley, Headmaster of Plymouth School of Art. The deputation representing the committee will visit the respective towns in which the four selected candidates are located.

Sir W. B. Richmond, R.A., has given notice that he propose at a forthcoming meeting of the London County Council the appointment of a special committee, to designate the "Improvements Reference Committee" whose duty it shall be to advise the Council upon proposals involving permanent or constructive work, designs in the selection of which artistic knowledge and taste are requisite. He will further propose that the following should form the committee:—The President of the Royal Academy, the President of the Royal Institute of British Architects, the President of the Society of Antiquaries, the President of the Royal Institute of Civil Engineers; Mr. Brock, R.A., sculptor; Mr. Frampton, R.A., sculptor; Mr. Jackson, R.A., architect; Mr. R. Blomfield, A.R.A., architect; Sir Laurence Alma-Tadema, R.A., painter; the Earl of Carlisle, Lord Windsor and Lord Balcarras; and that the general purposes committee should submit to the Council for approval an order of reference to that committee.

In the Notice of the death of Mr. James Thomson, Glasgow, which appeared last week, the Clydesdale Bank Scotland and the British Linen Company's Bank were erroneously included among his works. The business will continue to be conducted by Mr. Thomson's two sons, the remaining partners of the firm.

The Carnarvon Town Council have appointed a special committee for the purpose of securing the selection of a site in their town for the proposed Welsh museum. They are prepared to expend 120,000*l.* to 150,000*l.* in providing suitable building.

Mr. G. Gilbert Scott has lent to the Liverpool Architectural Society the working drawings of the cathedral, the meeting to be held on the 27th inst. A paper will be read by the Rev. T. W. Lund on "The Classical Architecture and Sculpture of Rome."

The Edinburgh Architectural Association presented Mr. William Page, at their dinner on Saturday last, with several volumes of standard works on architecture in recognition of his services as secretary during the past four years. Mr. Page is moving to Glasgow.

M. Marcel, Director of Fine Arts, has been appointed Administrator-General of the National Library, in succession to M. Delisle, who has retired on a pension.

A War Memorial will be unveiled in Truro Cathedral March 6 by the Earl of Mount-Edgcumbe. The architectural part of the monument is worked in grey Cornish stone, and it was designed by Mr. Frank L. Pearson, who completed the cathedral begun by his father. Part of the memorial is to consist of two bronze figures representing an officer and a Yeomanry private, executed by Mr. Nesfield Forsyth.

An Arts and Crafts Exhibition for the West Riding of Yorkshire will be opened in the City Art Gallery, Leeds, March 11, by Lord Londonderry, Minister of Education. The director of the School of Industrial Arts, Geneva, will give an address in French descriptive of the aims and objects of the school and the various means adopted to attain them.

Mr. Seton Karr has arrived in Egypt from India, where he has been engaged in explorations in the Indus Valley. Mr. Seton Karr is resuming his archaeological researches in the Fayoum, which he has been investigating for several winters past.

Northumberland War Memorial.—We are informed that the successful candidates in this competition are:—1st. Mr. Eyre Macklin, of Newcastle-on-Tyne; 2nd. Mr. C. C. Errington, architect, of Newcastle-on-Tyne; 3rd. Mr. F. Doyle Jones, sculptor, of West Hartlepool. The first-named competitor is employed to carry out the work, and premiums of 20*l.* and 10*l.* have been awarded to the second and third named respectively.

At the Ordinary Meeting of the Institution of Civil Engineers on Tuesday, February 28, the paper to be submitted for discussion is "Surface-condensing Plants, and the Value of the Vacuum Produced," by Richard William Allen, Assoc. M. Inst. C.E.

The Architect, Feb. 24th 1905.





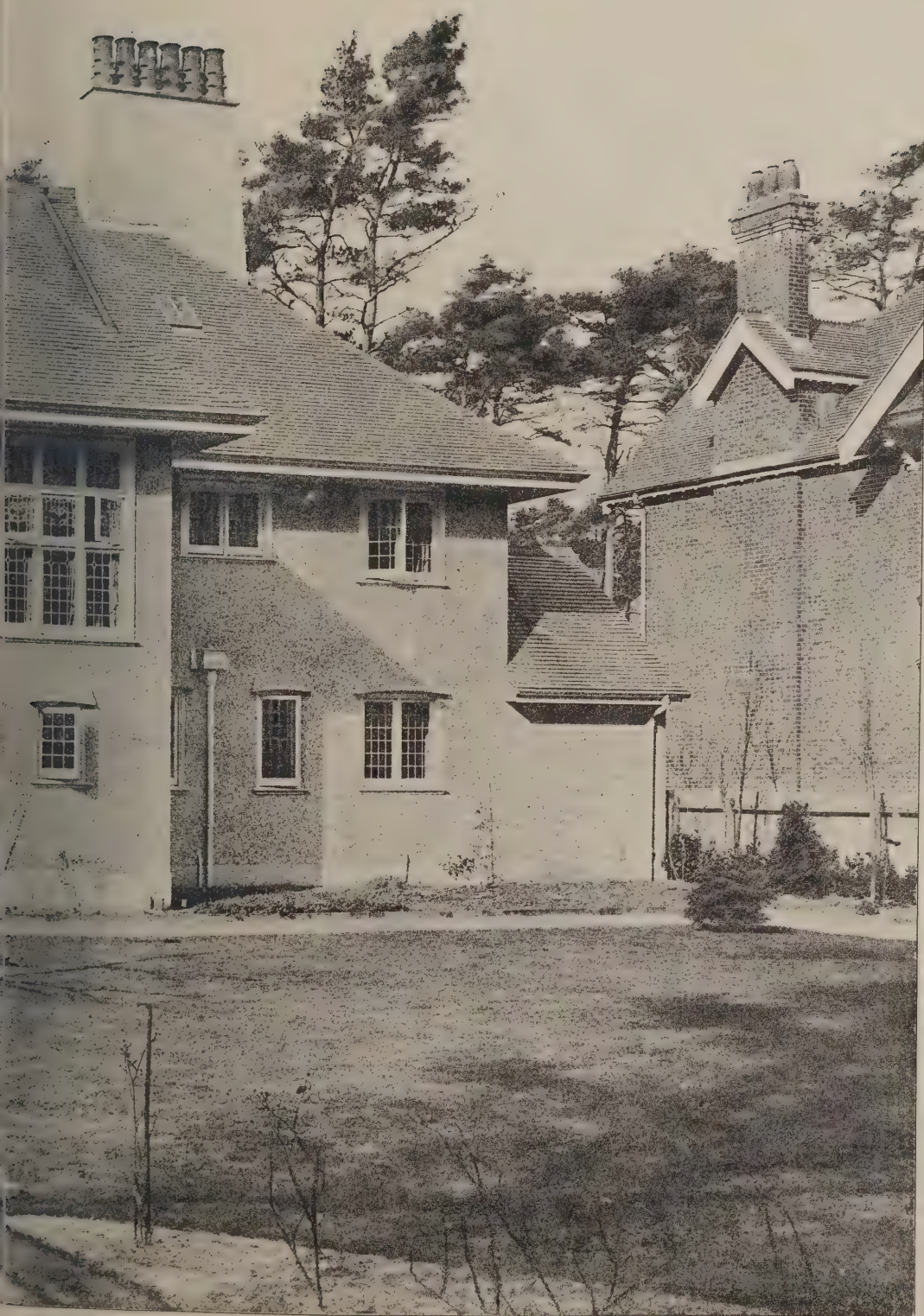
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"MOUNT STUART": ISLE OF BUTE, N.B.: THE CORRIDOR.

SIR R. ROWLAND ANDERSON, LL.D., Architect.



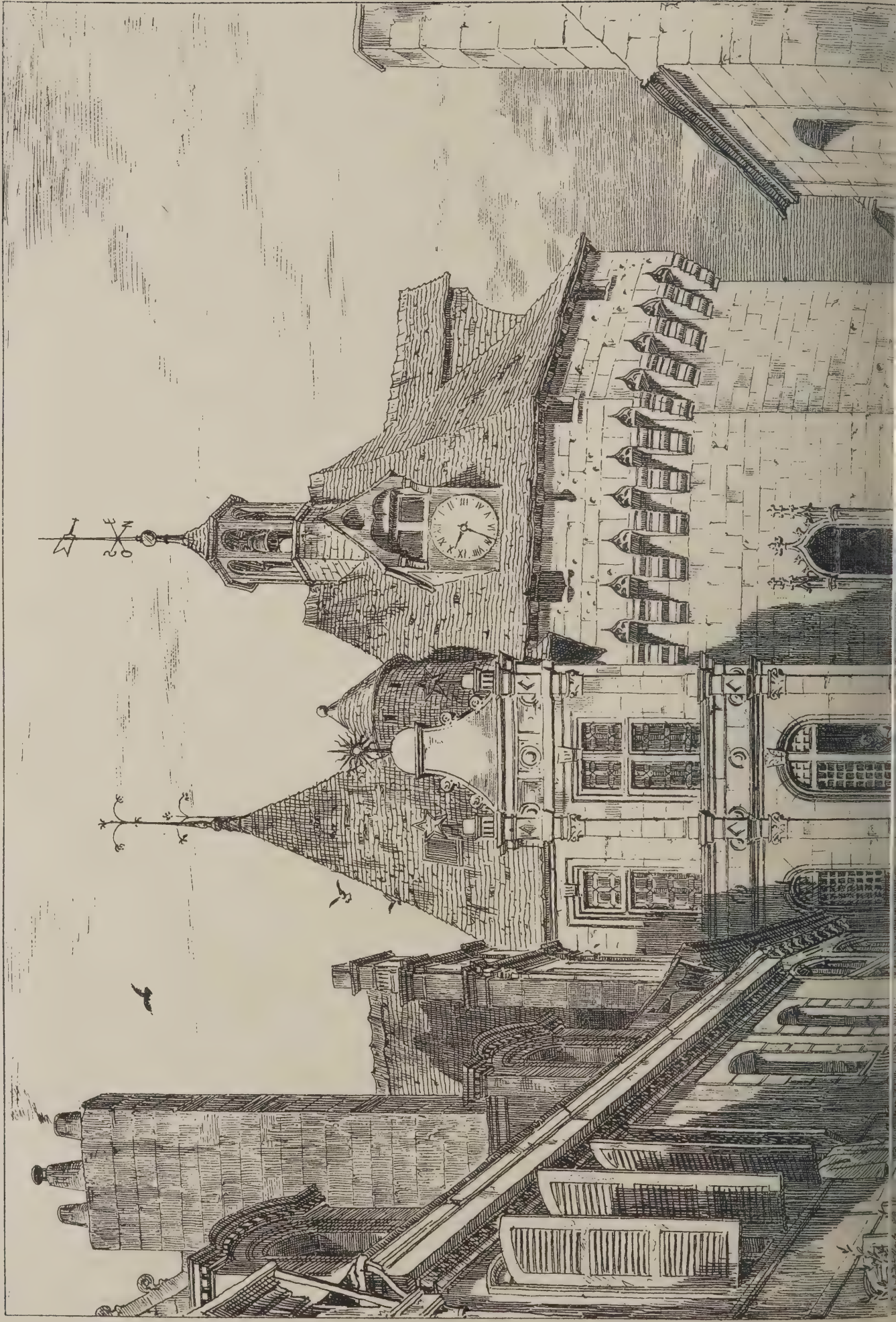
PHOTOGRAPHED BY S. B. BOLAS & CO. 68, OXFORD STREET, W.



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The Architect, Feb 24 1905





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Continental Sketches by A. F. Young

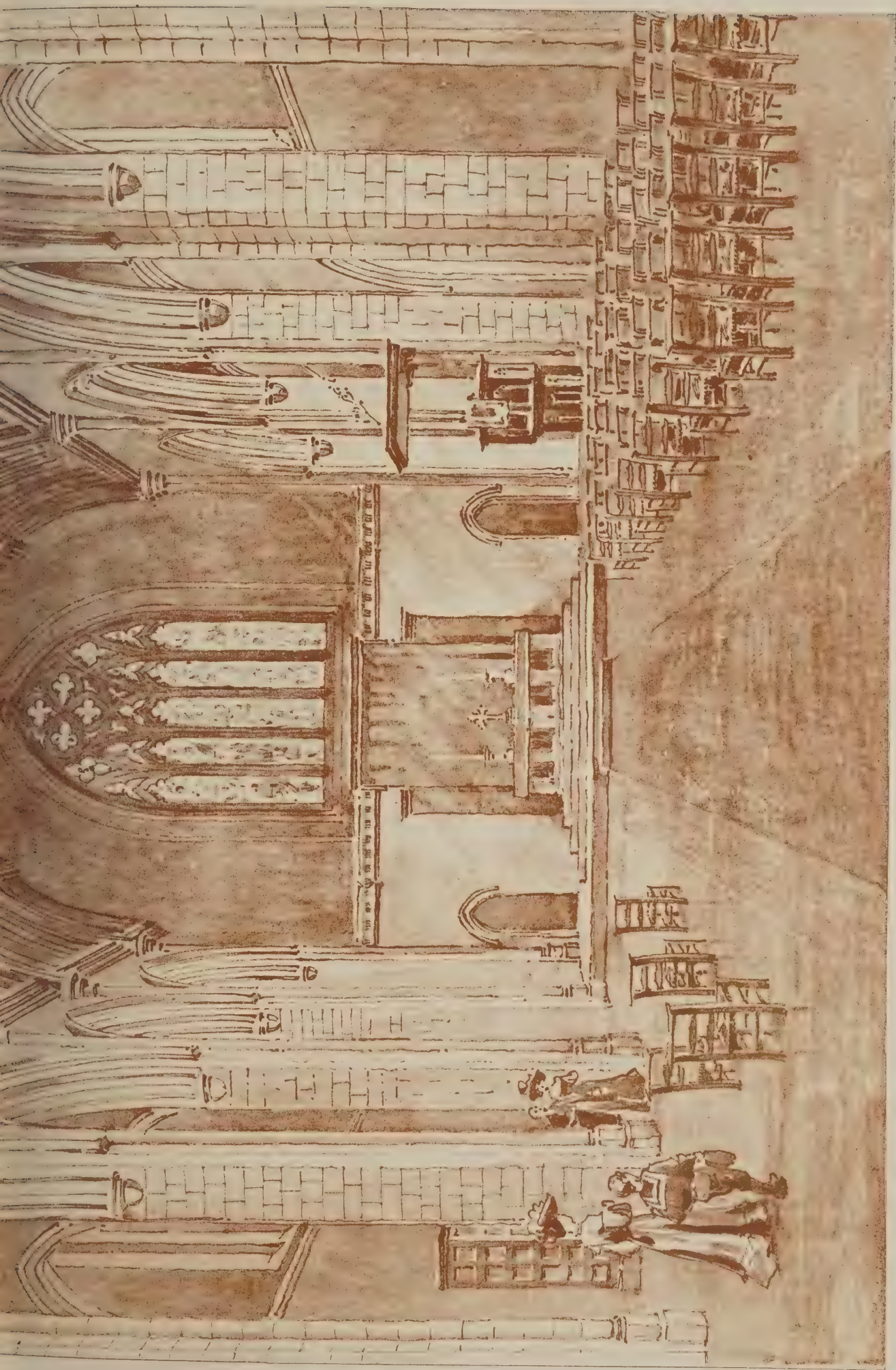
24. Road in Florence, 1890

The Architect, Feb. 24th 1905

THE CHURCH OF SAINT THOMAS THE APOSTLE.

CHARLES E. CLAYTON ARCHITECTS
ERNEST BLACK
30, QUEEN'S GATE, BRIGHTON S.W.





The Architect.

THE WEEK.

ON Monday Mr. R. PHENÉ SPIERS, F.S.A., was the principal guest at a dinner given by some architects and other artists in his honour. An illuminated address, expressing appreciation of his services to architectural education and in recognition of his aid to many students, was presented to Mr. SPIERS. It ran as follows:—"We, the undersigned architects, students of architecture and workers in the arts, desire to give expression to our regard for you, and to mark our appreciation of your scholarly attainments, and of the good work which you have done in forwarding the study of architecture during many years, in the course of which you have not only won distinction for yourself, but have done so much to help others. We also desire to record our acknowledgment of your labours in the cause of architectural education, and of the hearty aid which you have always been so ready to afford as a friend and counsellor. Many of us gratefully remember the kindness of your welcome, your constant sympathy and your interest in our student life and subsequent work." There was also presented a bronze plaque containing his portrait by Mr. LANTERI, which was inscribed as "A record of the esteem of his pupils, colleagues and friends." Reductions of it will form part of a prize which will be a memorial of Mr. SPIERS. An address and a large medal were presented by M. PASCAL, representing the Société Centrale des Architectes Français, as well as the "anciens élèves" of the atelier BLOUET-GILBERT-QUESTEL-PASCAL. M. BERLAGE and VAN STRAATEN attended as representatives of the architects of Holland. The committee have also undertaken the publication (through Mr. STAFFORD) of a volume of essays with illustrations on "Mahometan Architecture," "Sassanian Architecture," "The Influence of Greek Art on the Persian Order," and other subjects. There can be no question of the value of Mr. PHENÉ SPIERS' services to architects and architecture during more than thirty years, and which is to be hoped will be continued during a long period.

A STRIKE in the building trade of Dublin appears to be imminent. The cause of it is rather curious. The bricklayers of Dublin are willing to be paid by piecework or measurement by persons who are not regular builders. The consequence is that a good deal of building can be executed by traders who look upon building as only a part of their business. In Dublin, as in London, there are shopkeepers who are prepared to meet all demands of their customers, an arrangement which the importance of building is not recognised. The bricklayers, who under such circumstances regard piecework as perfectly legitimate, have declared that when a regular builder adopts the arrangement it becomes "an injustice to the general public, as it would establish a sweating system, and as a result bad workmanship, which, in the building trade, is a source of danger to public life and interest, in view of the attitude of the various public bodies consider it hostile to public reform." We are told that a man cannot serve two masters, for he will love one and hate the other, and the Dublin bricklayers undoubtedly exhibit such a variety of sentiment. The latter builders simply ask that regular employers should be treated in the same way as the people who are enabled to take contracts at prices far lower than those of the ordinary builders. If the strike cannot be prevented, there is no doubt the bricklayers' society must accept the responsibility.

WE have already mentioned the imbroglio in which the Corporation of Kroonstad have involved themselves in the project of a town hall. According to the latest

advice from the colony the affair has become more complicated, and is likely to give rise to several actions. As three Councils are implicated it will be difficult to assign the relative responsibility. In the first place, one Council selected a design from Messrs. J. H. & A. E. TILL, architects. Then it was rejected on the advice of the town engineer, who afterwards prepared plans for the building, which were, however, set aside. When a new Council came into office another competition was ordered, in which Messrs. LEECH & MACKEY, of Johannesburg, were successful. They were commissioned to prepare working drawings and specifications at 2½ per cent. The ratepayers had agreed to an outlay of 10,500*l.* But when an estimate was made out the amount was 14,500*l.* Thereupon the plans were rejected, but 218*l.* was paid for commission. Messrs. TILL had threatened a lawsuit in connection with their plans, and no doubt in consequence the Council resolved to adopt their plans. A week afterwards the resolution was rescinded, but subsequently another resolution was passed which was in favour of Messrs. TILL. Messrs. LEECH & MACKEY say they were not informed about the nature of the site, which was the cause of the excessive estimate, and they put in a claim to have their plans adopted. The engineer, it is said, has expressed his willingness to prepare plans without extra cost for a building which will not exceed the amount approved by the ratepayers. In spite of that inducement several members of the Council are in favour of Messrs. TILL's plans. There are consequently several RICHMONDS in the field, but what will be the issue of their rivalry remains unknown.

ACCORDING to STRUTT, in his "Manners and Customs of the English," the mystery plays were performed on three several platforms or stages, raised one above another. On the uppermost sat the *Pater Coelestis* surrounded by His Angels; on the second appeared the Holy Saints and glorified men; and the last and lowest was occupied by mere men who had not yet passed from this transitory life to the regions of eternity. On one side was a dark cavern which was supposed to be Hell. Professor MEDLEY, in a paper read before the Glasgow Archæological Society, is opposed to that view. It had been a popular idea, he said, that the miracle plays were represented on several platforms, one above another, ranging from three to nine, each stage representing different scenes or different worlds. This was not the case. In many of the plays the stage must have been on different levels, the mouth of Hell in some plays being represented on the same level as the spectators, and Paradise on a platform above the stage. There were no wings, and the whole of the action took place on one stage, the different scenes being indicated by wooden structures or scenes painted on cloth and placed upon the stage. In France the platforms were sometimes 100 feet long, and the spectators moved along from scene to scene. When plays were performed in church the different scenes were shown in the different aisles. For the pageants which were under the charge of the town guilds, large wooden platforms were constructed which moved on four or six wheels. These platforms were two storeys in height, the lower storey forming the green-room, the upper the stage. Sometimes the actors spoke from the ground; and another way by which the scene was enlarged was by cutting a square hole in the ground and filling it with water to represent the lakes and seas of Palestine or of any region that might appear in the play. Stow mentions that at Clerkenwell the parish clerks of London used to assemble yearly and to play some large history of Holy Scripture. At the Skinners' Well the performance once lasted eight days. Mr. ORDISH assumes that the people formed a circle round the well and that the scaffolds were outside them. He reproduces an old plan of the Coventry mysteries which supports his view.

THE QUANTITY SURVEYORS' ASSOCIATION.

THE most fitting ceremonial at the inauguration of any British institution for which success is desired is supposed to be a dinner of the supporters. On that account it may be believed that the Quantity Surveyors' Association came into existence last week at the repast in the Freemasons' Hall. It has, however, a history of a year or two which will have an important effect upon the future of the Association, for during that time the organisation was completed.

The necessity for such a society may not seem apparent to everyone associated with building. There is the important Surveyors' Institution with its Fellows, Professional Associates and Associates. There is also the Surveyors' Association of older date, and although consisting of few members, it is likewise influential. There are gentlemen who are best known as surveyors belonging to the Institution of Civil Engineers and the Royal Institute of British Architects. Having so many societies in which a quantity surveyor is eligible for membership, what advantage is gained by a special society?

We need not say that it is open to a few or many individuals to form themselves into a society. It is only when they interfere with the privileges of the members of other societies that opposition can be raised. Neither the Surveyors' Institution nor the Surveyors' Association would, we imagine, attempt to interfere with the incorporation of a society for quantity surveyors. Even if some members were drawn from the older bodies, it would have to be realised that the new society had a right to existence because of its definiteness, for that is the quality which is wanting in the other societies we have mentioned.

Indeed, it must be recognised that the English language displays its weakness in relation to surveying. What is a surveyor? JOHNSON could only define the word as an overseer or a measurer of land. But a great many successful surveyors in this country are not overseers or measurers. The Surveyors' Institution is undoubtedly one of the most successful professional societies in the world. If the annual income of the members could be calculated, it would probably be equal to that of the members of the Institution of Civil Engineers. But the variety of the occupations by which the money is gained is remarkable. Some are civil engineers, others are architects; there are several barristers who find it profitable to be entered on the list of associates. Districts in England could be named in which the most important resident is a member of the institution. He controls the land, and with it the population. Irish land agents are endeavouring at the present time to obtain remuneration from the Treasury on the grounds that they are professional members of the institution, and have lost their appointments through recent legislation. But if a lady is in search of lodgings in a country town or a seaside resort she is likely to have recourse to one of the fellows who, as part of his business, is ready to let houses or parts of houses. It is, further, not unusual to see announcements of auctions by fellows, and, in fact, the members follow a diversity of businesses, including the collection of rents, arrangement of mortgages, road-making, upholstery, valuing live and dead farming stock, &c. No objection can be raised about the respectability of all the different classes of work. They require skill, judgment and honesty, but it cannot be said they have much in common with the analytical work which is known as taking out quantities. Indeed, one can hardly imagine a successful land agent, auctioneer or valuer for probate going over plans with a scale, unless at a price which would amaze building owners and architects. It is, in fact, a case of general practitioners *v.* specialists, but in a new form, and the specialists having the smaller fees.

There is no doubt about members of the Surveyors' Institution having quantities taken out in their offices, and auctioneers, collectors and others would if a profitable opportunity arose make arrangements to

have the work done, and would employ assistants for that purpose. But under such conditions there exists a likelihood that the work will be performed in a manner which would differ from that followed by quantity surveyors who can claim to be experts. It should be understood that there is really only one proper way of taking out quantities, and that is by presenting all the varieties of work in detail. Some may say—and there may be builders to agree with them—that detail can be carried too far, and that a contractor who has experience will prefer to deal with the items in a more comprehensive way. In other words, guessing is preferable to exact measurement. But quantities would never have been needed if it were possible to lump a contract and at the same time to be just towards the building owner. It is not to be expected that a builder who only takes a summary view of what he has to do will be in different to his own interest and fail to provide for all possible contingencies, and especially his own under-estimating the work which will have to be performed. His calculation of cost will be liberal towards himself, and indeed in such cases no prudent man would err on the side of economy. When there is a bill of quantities guess-work is avoided, the client pays for the work which is executed, and the builder receives a profit on the materials he has supplied and the work he has carried out.

The fact that there is not uniformity in the method of taking out quantities throughout Great Britain is evidence of the complexity of the operations, and the difficulty of overcoming the old ways of estimating a random. It also suggests the difference when quantity taking is made a special occupation and when it is mixed up with several other duties. An assistant who after a few hours engaged in taking off, has to give his attention to making drawings or other office work cannot always be expected to be in the mood which correct measurement demands. It is, however, generally recognised that what is known as London practice is the most satisfactory. It may, therefore, be anticipated that with a society such as the Quantity Surveyors' Association, having only one aim, and as a result of bringing members together from all parts of the country, there would be in course of time uniformity of practice, and of its desirability there can be no question.

The Association would serve another purpose which now demands attention. Of late years, and as one of the results of a national system of education, there arises an aspiration among young men to seek occupations of a different kind from those followed by their fathers. It is believed not merely that wealth is more quickly acquired in that way, but that a comparatively exalted social position can be attained. Hence it is that there are so few genuine trade schools and so many technical schools, that are believed to give facilities for acquiring knowledge, which is reputed to confer professional status. Judging by the advertisements it would appear as if quantity surveying is one of the courses which is most in favour. It would be wrong to say a word against any kind of study which can be legitimately pursued. The students may be able to pass the examinations which are arranged by authorities, and to obtain certificates to that effect. But it is not supposed to be the business of authority to care whether the certificated students are capable of doing the work in a manner which would satisfy architects, builders and building owners. Nor is the examination by any of the older societies a sufficient test. The Quantity Surveyors' Association has a right to claim the support of all who are associated with building when it proposes that all the future members should demonstrate their capacity by undergoing practical training. When we consider the multifarious duties for which a member of the Institution of Surveyors is presumed to be equal it would be absurd to expect that he would be as skilled in the taking out and billing of quantities if his whole life was to be devoted to that class of work.

If the Association by examinations or other means can render surveyors efficient it will be a great advantage, and especially to builders. The case of *PRIESTLEY & GURNEY v. STONE* has demonstrated that the old belief about the responsibility of a surveyor for the accuracy of quantities is elusive, and can only be secured by an express stipulation in the contract deed.

There is another point with which the Association would like to deal, but which is still more difficult. Efforts are made to obtain work at much lower rates than those which are supposed to be normal. It is to be regretted that surveyors do not realise the consequences of lowering their fees, for every concession is likely to be followed by a demand for a still greater one. The economic law of supply and demand applies to quantities as to things of inferior value. When there are many surveyors and the work is restricted, the struggle for existence is witnessed in all its sternness and sacrifices have to follow. How it will end there is no foreseeing. But if it can be recognised that the preparation for performing a quantity surveyor's duties is no trivial task, aspirants may be less disposed to go through the ordeal, especially if they become aware of the conditions of the market which they have to face. There is no room in surveying for a great variety of ability. All must be equally accurate and equally careful. It is to be hoped the Association will be enabled to make arrangements to secure a uniformity which will remove at least some of the hesitation about making quantities a part of the contract, an arrangement of which the equity is beyond dispute.

ARCHITECTURAL VARIATIONS.*

IF the success of the "History of Architecture," by Messrs. FLETCHER, is without precedent, it must be admitted that great efforts have been made to render each new edition an improvement on its predecessor. Originally the volume consisted of 313 pages. In the fifth edition there are 738 of larger size, an increase of about 200 pages over the fourth edition. At first there were 115 plates; in the latest edition there are 199, but as many of them contain reproductions of several independent drawings the number of plates is an inadequate test, and it is more correct to say there are about 2,000. The additions are to be found in the most important sections. The part relating to Greek architecture is doubled; the Roman, Gothic and other sections are also enlarged. By the aid of photography general views are presented of the most important buildings which have survived, whilst other drawings are given containing plans and details. The plates, therefore, appeal to the understanding as well as to the eyes, and a glance over them will be sufficient to enable a novice to form some notion of the various styles of architecture, whilst on the other hand the earnest student will find that a long time will be required before he is able to exhaust all the characteristics which are brought under his notice.

It is an advantage to have all the varieties within the compass of one volume. Every geographer concedes it is indispensable to have a map of the world, whether in hemispheres or on a MERCATOR'S projection, in order to realise the relations of the different countries to one another. For a somewhat similar reason it is well to have the different styles of building brought together, for in that way we can perceive with difficulty the growth and decay of the successive variations by which man served his purposes or displayed his ostentation. As everyone knows, it is impossible to formulate many architectural theories, and having such plates as are found in Messrs.

FLETCHER'S History they can be easily tested. If, for instance, we suppose that the difficulty of covering or roofing an area was the principal factor in the determination of styles we can grasp without difficulty all that is signified by the statement. Or we can substitute lighting for roofing, and the plates will supply us with sufficient evidence. There is, in fact, so much systematised information crowded into the plates, we can well understand why enlargements of them should be prepared for the use of lecturers and other teachers. They certainly could easily be made auxiliaries in technical education. As diagrams they are deserving of unstinted praise.

The aim of the authors is to show that styles are due to the following influences: geographical, geological, climatic, religious, social and political, and historical. That, however, does not give sufficient importance to the artistic influence, and which probably was always of an individual character. We might add that in many cases it was nothing but improvising. In his "Ten o'clock Lecture" Mr. WHISTLER traced the origin of art to some lazy fellow in pre-historic times, who, instead of going hunting or warring with the other members of the tribe, remained in the cave and amused himself by scratching or burning lines on a gourd. The lines pleased the savages and were imitated. SEMPER'S theory did not differ much from WHISTLER'S, for he believed architectural ornament began with the lines formed by barbarian needlewomen. In treating a subject on the comparative method, it may seem as if some great cosmic forces were always at work. It is more likely that everything relating to form has had an origin with an individual. KANT says that "in man, as the sole rational creature upon earth, those tendencies which have the use of his reason for their object are destined to obtain their perfect development in the species only, and not in the individual." But how many cases can we find recorded of the invention by the species of any innovation either in construction or in form?

Take, for instance, the history of the dome. Some believe it was one of the earliest of all forms of construction, for with clay and wattles it was not difficult to undertake. Between the first attempt and the Pantheon there must have been innumerable attempts by individuals. The great Roman dome might be supposed to exemplify the knowledge of generations, which would be transmitted to posterity, enabling builders in later ages to excel the great work of HADRIAN'S time. But when ARNOLFO wished to cover the cathedral at Florence he appears to have started as if he had to deal with a problem that was hitherto unsolved. What is more remarkable, however, is that BRUNELLESCHI had also to attempt an independent solution, and so little general knowledge existed on the subject of domes, it was with much misgiving he was allowed to make the experiment. In fact geography, geology, climate, religion, politics and history were apparently of no avail. Our History says in treating of Florentine work:—"Having reached the period when the personality of the architect has increased in importance, the chief works of BRUNELLESCHI, ALBERTI and others, as being leaders of the Florentine school, will be briefly enumerated." We doubt if there was any difference between the artists of the new era and the old as regards invention. In both cases new ideas originated with individuals. But in Florence during the fifteenth century there were people who put on record what was done by individuals, whilst in an earlier time there was no provision of that kind, or it was not considered necessary.

Let us also take an example from construction. At the present time the great question is whether a metallic skeleton is to be adopted more generally for buildings. That beams and columns of wrought and cast iron and steel have been in use for several years everyone knows. But in America, where the skeleton system has been developed to a remarkable extent, it is generally agreed

A History of Architecture on the Comparative Method, for Student, Craftsman and Amateur. By the late Professor Banister Fletcher and Banister F. Fletcher. Fifth edition, revised and greatly enlarged by Banister F. Fletcher. London: C. Batsford.

that the credit must be given to Mr. JENNEY, of Chicago, who in 1883 persuaded clients to allow him to erect an office building of ten storeys. In spite of the immense power of companies recourse must still be had to individuals when designs are needed. The steel beam corresponds with the wrought-iron beam which was devised by WILLIAM FAIRBAIRN and patented by him. It might be imagined that the adoption of iron construction was, so to speak, in the air, but the risks had to be originally accepted by individuals. We believe all variations of details which are employed in architecture originated in a similar way. There might be, as in the Mediæval times, cities or districts which wished to possess a higher building or a more spacious one than their neighbours. But that signified their belief in a particular architect, and their resolve to have his design carried out in preference to any other. No doubt the personal factor was obscure during long ages, but apparently it will always exist, and is the most important of all influences. Co-operation has many advantages, and it is essential in great undertakings, but it has yet to be demonstrated that it has the power of designing.

The editions of "The History of Architecture" are not yet at an end, and in some future one we hope to see explained how close is the relation between successful works and individual designers. In our time there is a danger of confounding artistic efforts with the operations of nature, in which the agents are mechanical or chemical forces. Art has a character of its own, and although the artist will endeavour to please the society of which he is a member, his best work derives its interest from his own delight in it as its creator.

THE PUBLIC HEALTH ACTS, 1875 AND 1890.

WHEN is a sewer not a sewer? The answer to this conundrum, as given by Parliament in the Public Health Act of 1890, is, "When it is a single private drain," but this oracular utterance of the Legislature has occasioned many disputed cases before its application to the actual world of pipes and drains has been ascertained. The meaning of the sections of these two Acts which apply to this question is of the utmost importance to building owners of property. It will be most clearly seen if we look at the reasons which have given rise to their enactment, and at the cases which have at last, after much expenditure of judicial power, wrested from them the intelligible meaning which the Legislature did not apparently think it worth while to take the trouble to express.

Under the Public Health Act, 1875, a pipe used for the drainage of one building was and is a drain and repairable by the owner of the building, while a pipe used for the drainage of more than one building was for all purposes a sewer and repairable by the local authority. Under that Act the local authority could insist upon the owner of each building connecting his building with the sewer by a separate drain. This requirement was found to be inconvenient by building owners who were erecting several houses in close proximity to one another. To suit their views it was in many cases provided by local Acts, that the local authority should be able to come to an arrangement, whereby the building owner was authorised to make a single pipe for several buildings, conditionally upon his undertaking to be liable for its repair. This was a convenient arrangement and worked well so long as the buildings in question remained the property of the building owner who had entered into the arrangement. Difficulties arose when the building owner sold his houses to different purchasers. With a view to meet these difficulties the Public Health Act, 1890, provided (Section 19) that, "where two or more houses belonging to different owners are connected with a public sewer by a single private drain, an application may be made under Section 41 of the Public Health Act, 1875 (relating

to complaints as to nuisances from drains), and the local authority may recover any expenses incurred by them in executing any works under the powers conferred on them by that section from the owners of the houses in such shares and proportions as shall be settled by their surveyor, or (in case of dispute) by a court of summary jurisdiction. . . . For the purposes of this section the expression 'drain' includes a drain used for the drainage of more than one building."

No doubt this section was meant to deal with a case well known both to building owners and local authorities. No doubt it would carry a very intelligible meaning to persons who understood the circumstances and the special cases which it was meant to meet. But it wants a quality which all legal documents, and especially Acts of Parliaments, should possess, the quality, namely, of being clear to intelligent persons who either do not know these circumstances or who cannot take them into consideration. The judges who are obliged to interpret an Act of Parliament are not necessarily conversant with the modes in which building owners carry on their business, and, if they are, they cannot take such extraneous circumstances into consideration in interpreting the words of an Act of Parliament. Hence this section has given rise to many conflicting cases and a large expenditure of costs. The Public Health Act of 1875 had drawn a clear distinction between a drain and a sewer. It was a little puzzling to suddenly meet in an amending Act a *tertium quid* called a "single private drain," which was for some purposes a sewer, for others a drain. Thus we find one judge doubting whether the section applied at all to the case of a row of houses drained by a single pipe. Another very reasonably inquired why the section applied only to the case where two or more houses belonged to different owners, and not to the case where they belonged to one owner. As we have seen, a reason might have been given if it had been possible to go into the circumstances which called for the passing of the section; but the circumstances were neither described nor referred to in it. Again, the section left the procedure to be followed by the local authority, in cases contemplated by the section, very much in the dark.

Two cases recently decided in the Court of Appeal—*THOMPSON v. Eccles Corporation* and *HAEDICKE v. Friern Barnet Urban Council*—go far to settle the difficulties. These cases, following the decision in *BRADFORD v. Eastbourne Corporation*, decided in 1880, have made it clear that, when a pipe is originally constructed to connect the houses of several owners with the sewer, it is a single private drain, and is repairable by the owner and not by the local authority. Such a drain is distinguished from a sewer in that it is not a drain which any member of the public can use; and such a drain, though defined as a sewer for the purposes of other sections of the Public Health Acts, is a drain for the purposes of the section which regulates the liability to repair. These cases also clearly show that the procedure to be followed by the local authority is the procedure indicated in Section 41 of the Public Health Act, 1875. The section does not mean that on an application of any person alleging that a nuisance exists the local authority must do the work and recover the expenses. It means that the local authority can after a written notice to the occupier, or, in a case of emergency, without notice, enter the premises and examine the drain. If the drain is found in good condition the local authority must make good any damage caused. If the drain is found to be defective notice must be served on the occupier to do the necessary work. If he does not do it, penalties are imposed, and the local authority which does the work can recover its expenses. The drain may be defective either in one place or in several. And according to the locality of the defect or defects the local authority must give notice to either one occupier or several occupiers to do the necessary work. If the local authority is obliged to do the work itself it may apportion

expenses among the owners who should have abated the nuisance.

The law as thus ascertained by the good sense of the Court of Appeal is very reasonable. It is a pity, as we have said, that Parliament should, by ill-considered draftsmanship, have made it necessary to go to the Court of Appeal to arrive at this construction. But a learned judge has said that "the whole of our sanitary legislation is in a state which I hardly like to characterise in the language which naturally suggests itself." If the wording of these Acts produces in the minds of His MAJESTY'S Judges a desire to use language which they feel would not be altogether consonant with their dignity, we imagine that we should hardly dare to publish the language of the building owners at whose expense this wording has been elucidated.

SIR JOHN SOANE AND HIS MUSEUM.*

JOHN SOANE was born at Whitchurch, near Reading, on September 10, 1753. His father was a builder and mason, and sent him to a school in Reading kept by a Mr. Baker, where he received a good education. When Soane was fifteen years old, Mr. George Dance—who was architect to the City of London and Professor of Architecture at the Royal Academy—having seen the youth and found him possessed of much ability, gave him an engagement in his office. Subsequently, with the concurrence of Mr. Dance, he entered the office of Mr. Holland, and under these two distinguished architects acquired his taste for, and first knowledge of, architecture.

He became a student of the Royal Academy, gained the silver medal in 1772, and in the same year exhibited his first drawing at the Royal Academy. In 1776 he was awarded the gold medal for the best design of a triumphal bridge, a work showing great originality. Sir William Chambers was greatly struck with the talent evinced by the young architect, and brought him to the notice of the king, who nominated him for the travelling studentship of the Royal Academy. This he held for three years, receiving an allowance of 60*l.* per annum, with a like sum for travelling expenses. In March 1777, Mr. Soane left London for Italy, and during the three years of his study there he worked very assiduously, measuring and drawing the ancient buildings and producing many original designs. While there he made a second design for a triumphal bridge, and having sent it to the Academy of Fine Arts at Parma was, in June 1780, elected a member of that Society. He made many valuable acquaintances while in Italy, whose friendship he retained in later years, among them Mr. Thomas Pitt, afterwards Lord Camelford. He returned to London during 1780 and commenced practice on his own account, apparently with much success.

About eight years later he married Miss Smith, niece to Mr. Wyatt, a builder of considerable reputation, and shortly after succeeded to a considerable fortune, through his wife, upon his death.

He received on October 16, 1788, the important appointment of architect and surveyor to the Bank of England upon the death of Sir Robert Taylor. The Bank was at this time quite a small building, with a frontage of about 80 feet in Threadneedle Street, having the church of St. Christopher-le-Stocks abutting on the west, and on the other sides a number of dwelling-houses and three taverns. These were all pulled down, and Mr. Soane erected in their place the present structure, very little of the old Bank being retained. He took as his models for many parts of the building the Classic examples he had studied so well in Italy. The Lothbury Court was adapted partly from the beautiful Temple of Vesta at Tivoli, and the noble archway leading to the Bullion Court from the Arch of Constantine at Rome. The chief cashier's office was designed in the style of the Temple of the Sun and Moon at Rome, and the Three per Cent. Consols Office from the ancient Roman Baths. Great difficulties had to be encountered in the construction and arrangement of his plan, which were overcome by Mr. Soane with great skill and ingenuity. He held the appointment to the Bank for forty-five years.

In 1791 he was appointed clerk of the works to St.

James's Palace and the two Houses of Parliament. The committee of the House of Lords directed him in 1794 to consider and advise them what alterations could be made to render the offices and other rooms more commodious. He prepared designs, but they were not carried out. In 1795 he received the appointment of architect for new buildings and repairs in the royal parks, woods and forests. In the same year he was elected an Associate of the Royal Academy, and in 1802 a Royal Academician.

Upon the death of Mr. George Dance in 1806 Mr. Soane had the distinguished position of Professor of Architecture to the Royal Academy conferred upon him. His lectures were well attended, and he was able to make his influence considerably felt among his students. The lectures were at that time limited to a series of six, and he chose as his subject the Classic architecture of Ancient Greece and Rome and its revival in Italy as practised by Palladio and the architects of his school.

In 1815 Mr. Soane received the appointment of architect to the Office of Works, and amongst the buildings carried out by him during his occupancy of the post were the Law Courts by the side of Westminster Hall; the Scala Regia, Royal Gallery, library and additional committee-rooms in the House of Lords; the library and additional committee-rooms in the House of Commons; the offices of the Board of Trade and Privy Council Offices in Whitehall, and the new State Paper Office in Duke Street, Westminster, his last work.

He was a Fellow of the Society of Antiquaries, Fellow of the Royal Society and Grand Superintendent of Works to the United Fraternity of Freemasons.

On September 21, 1831, Mr. Soane received the honour of knighthood from His Majesty King William IV., and shortly afterwards relinquished his professional work and devoted himself to the completion of his house and the arrangement of his museum and library.

Sir John Soane probably commenced acquiring his collection of antique marbles and casts during his early days in Italy. They served as works of reference for himself, and later became of great value as illustrations for his pupils, in his time such examples being scarcely known in this country. He was always adding to it, and having fortunately the means, he spared no expense to make both his library and collection of antiques and works of art as complete as possible, and one that might prove of service to "amateurs and students in painting, sculpture and architecture."

He conceived the idea of leaving his collection to the nation for the benefit of future generations, and in 1833 he obtained an Act of Parliament, intitled "An Act for settling and preserving Sir John Soane's Museum, library and works of art in Lincoln's Inn Fields, for the benefit of the public, and for establishing a sufficient endowment for the due maintenance of the same."

Sir John Soane died at his residence, 13 Lincoln's Inn Fields, on January 20, 1837, and was laid to rest in the old burial-ground of the parish of St. Giles in the Fields, at St. Pancras.

Sir John was devotedly attached to his profession and fond of literary pursuits. In him we find an admirable example of an individual rising by his own talent and energy from a humble position in society to one of considerable wealth and influence.

The architects of England in 1835 had a medal struck in his honour, and presented him with impressions in gold, silver and bronze, to show their high appreciation of the great services he had rendered to architecture during his professional career.

Among the works carried out by Sir John Soane not already mentioned are the following:—Mansion for the Duke of Leeds in St. James's Square; Buckingham House, in Pall Mall; Praed's Bank, 189 Fleet Street; Grote, Prescott & Co.'s bank, Threadneedle Street; Trinity Church, Marylebone Road; the Gothic Library, Stowe House, Bucks; the picture gallery at Dulwich College; the National Debt Redemption and Life Annuities office in Old Jewry, and the Grand Masonic Hall in Great Queen Street.

The Soane Museum was built by Sir John in 1812 as his private residence, and it remains almost as he left it at his death. The collection is arranged in some twenty rooms, in a most ingenious manner; no space seems to have been lost, and wherever you look there is something of interest to be seen. In the picture-room, which measures only 13 feet 8 inches by 12 feet 4 inches, and 19 feet 6 inches in height, by an arrangement of movable planes or shutters, on the front and back of which and inside wall are fastened

* A paper read by Mr. Frank E. Spiers at the visit of the members of the Upper Norwood Athenæum to the Soane Museum, Lincoln's Inn Fields.

the pictures, the actual wall-space of a room 45 feet by 20 feet has been obtained. One room is fitted up as a "monk's parlour," and looks out on a yard in which Gothic fragments that were taken from the old House of Lords have been arranged to represent a cloister. It is not possible in this account to describe or enumerate more than a very few of the principal objects of interest in the collection, or to point out where they may be found; such information can be best obtained from the published handbook.

Undoubtedly of chief interest and value is the beautiful alabaster (arragonite) sarcophagus discovered by the explorer Belzoni, in 1817, in the Valley of the Tombs of the Kings, near Gournou, Thebes, and purchased for 2,000*l.* by Sir John Soane from Mr. Salt, Consul-General in Egypt, after having been offered to and refused by the British Museum.

Belzoni thus describes it:—"It is a sarcophagus of the finest alabaster, and is transparent when a light is placed inside it. It is minutely sculptured within and without with

"Remains of Kirkstall Abbey;" numerous drawings and designs by Sir John Soane; fifty-five folio volumes of original architectural drawings by Robert and James Adam; several portraits of Sir John Soane, Mrs. Soane and their two sons; portrait of Napoleon Bonaparte in his twenty-eighth year, by Francesco Goma, a Venetian artist; miniature portrait of the Emperor Napoleon by Isabey, painted at Elba in 1814; antique marble statues of Diana of the Ephesians and Esculapius; bust of Sir John Soane, by Sir Francis Chantrey, R.A.; Sir Thomas Lawrence, P.R.A., by R. W. Sievier; of Sir Christopher Wren, Inigo Jones, J. Flaxman, Sir William Chambers, George Dance; of William Pitt, by Flaxman; and of Shakespeare, from his monument in the church at Stratford-on-Avon. Models in plaster of the Board of Trade and Privy Council Offices, Whitehall, and of ancient buildings in Italy and Greece; models in cork of Stonehenge, Pompeii, Triumphal Arch of Constantine at Rome, and several Classic temples; carved and gilt ivory table and four chairs from Tippoo Sahib's



SIR JOHN SOANE'S MUSEUM.



A GROUP OF STATUARY.

several hundred figures, united with several emblems, &c. I cannot give an adequate idea of this beautiful and invaluable piece of antiquity, and can only say that nothing has been brought from Egypt that can be compared with it." It contained the remains of Seti I., of the nineteenth dynasty, who reigned about 1350 B.C., and was the father of Ramses II. (The Great).

Paintings by Hogarth (series of four), "The Election," purchased at Mr. Garrick's sale in 1823 for 1,650 guineas; (series of eight), "The Rake's Progress," purchased in 1802 for 570 guineas; paintings by Canaletto, "The Grand Canal, Venice," "The Piazza, San Marco, Venice," and view of "Venice with the Rialto;" portrait of Sir John Soane by Sir Thomas Lawrence (1829), one of his last works; "The Snake in the Grass," by Sir Joshua Reynolds, R.A.; "Admiral Tromp's Barge entering the Texel in 1645," by J. M. W. Turner, R.A.; "Oberon and Titania contending for the Indian Boy" and "Vision of Shakespeare," by Henry Howard, R.A.; also by the same artist the paintings on the ceilings of the library and dining-room, representing "Phœbus in his Car," "Pandora," "Epimetheus receiving Pandora," "The Opening of the Vase," "The Seasons" and "Night;" "Cave of Despair" from Spenser's "Faery Queene," by Sir Charles Eastlake, P.R.A.; drawings by J. M. W. Turner, R.A., of "The Valley of Aosta" and

Palace at Seringapatam; fine astronomical clock by Raingo of Paris; richly-mounted pistol taken by Peter the Great from the Commander of the Turkish Army at Azof in 1696; collection of gems, cameos, intaglios, &c.; medals, bronzes, pottery, antique vases, and treasures of all kinds. In the library, which contains upwards of 8,000 volumes, I will only mention the first three folio editions of Shakespeare's plays, 1623, 1632 and 1664, these formerly belonged to Kemble; Boydell's Shakespeare; and the extra illustrated copy of Pennant's London, formerly belonging to Henry Fauntleroy, and purchased by Sir John Soane for 650 guineas. Some valuable MSS. are also to be found here, among them a beautiful volume illuminated by Giulio Clovio (about 1540), a pupil of Michel Angelo and friend of Raphael; the second volume of a French translation of Josephus, fifteenth century, bearing the arms of Edward IV. (the first volume is in the Bibliothèque Nationale at Paris); and the original MS. of the "Gerusalemme Liberata," by Torquato Tasso, 1560-70.

Amongst the authorities consulted are:—Sir John Soane's description of the Museum, "Review of the Professional Life of Sir John Soane," by J. L. Donaldson 1837; "Old and New London," by Walter Thornbury 1837; "Old Humphrey's Walks in London," Bohn's "Handbook of London," and Murray's "Handbook of London."

THE NEW BERLIN CATHEDRAL.

ON Monday last the new cathedral in Berlin was dedicated. The cathedral, says the *Times*, stands upon the site of the humbler edifice which was erected between 1747 and 1750 by Frederick the Great and restored in 1820 by Frederick William III. The former church was the scene of many significant events in Prussian history, such as the thanksgiving services held after the Seven Years' War, the Napoleonic wars, and the Franco-German War of 1870. It was here that the body of the Emperor William I. lay in state from March 12 to 16, 1888, and hence, after a funeral service attended by representatives of all the Royal Houses of Europe, the remains were conveyed to the mausoleum at Charlottenburg. The vault under the old Dom contained the remains of at least nine rulers of Brandenburg and Prussia and their consorts, as well as of some eighty or ninety princes of the reigning house. Among the sarcophagi which have been transferred to the crypt of the new cathedral are those of the Great Elector of Brandenburg, King Frederick I. of Prussia, and King Frederick William II. It was only after the establishment of the Empire in 1871 that the idea of erecting a metropolitan cathedral worthy of Protestant Germany took practical shape in the minds of the Crown Prince and Crown Princess, afterwards the Emperor and Empress Frederick. The Crown Prince entrusted the preparation of the plans to the architect Geheimer Baurath Raschdorff, but the design, which was published in 1890, was officially described as the Emperor Frederick's own. The foundation-stone was laid by the present Emperor on June 17, 1894, so that the work has been executed in less than eleven years. The site, which is close to the eastern arm of the Spree, on the island which contains the Royal Castle and the great edifices of the Royal Museum and National Galleries, necessitated very elaborate foundations. These were obtained by driving piles into the sandy bed of the river, and, indeed, the east side of the cathedral rises straight out of the water.

The new edifice, a basilica, is built of Silesian grey sandstone in the style of the Italian Renaissance, covers an area of 6,370 square metres, and has a content of 250,500 cubic metres. The central cupola with the cross which surmounts it reaches a height of 114 metres (about 374 feet), or nearly 79 feet less than the height of the dome of St. Peter's in Rome and over 9 feet more than the height of St. Paul's in London. The total length of the building is 114 metres (over 374 feet), and its breadth 73 metres (nearly 80 feet). The chief façade and the main entrance on the west side are characterised by an elaborate arrangement of corniced pillars, which is repeated in the second storey supporting the central dome, and the dome itself is flanked by four minor cupolas surmounting open square towers, the cornices of which are also supported on pillars. Over the arch of the great portal is a colossal statue in bronze by Schaper representing Christ in the attitude of benediction. It is flanked at the corners of the minor towers and at the base of the second storey by the figures of the twelve Apostles, executed by well-known German sculptors. In front of the façade a broad flight of steps leads to a spacious entrance hall, connected by five doorways with the central portion of the church, known as the Predigt Kirche, which has the form of an irregular octagon. Facing the entrance is the semicircular apse containing the altar, at the back of which are three rectangular windows, the stained glass of which represents the Crucifixion, the Nativity and the Resurrection. The central portion of the church under the dome is that which will ordinarily be used for the divine service. In the north-eastern of four semicircular niches which are placed at diagonal points in this central edifice is the pulpit, and above the other three niches, supported by pillars of black Labrador marble, are stone balconies, which will respectively constitute pews for the Court, the Prussian Ministry and the choir. Above the last of these is the organ, a gift of Prince Henkel von Donnersmark. It was built by Sauer, of Frankfurt-on-the-Oder, has 114 stops and is the largest in Germany. The Royal pew has a separate entrance and staircase. Modern German glass mosaic has been lavishly employed in the decoration of the interior of the cupola and in other suitable portions of the building. In the cupola the mosaic-work illustrates the Beatitudes in groups designed by the painter Anton von Werner. The apse is especially rich in colour, and the altar, a plain table of white marble, supported by pillars of coloured marble, is surmounted by a shrine which exhibits gilt-bronze figures of the twelve Apostles after designs by Rauch. Over the eight giant pillars which support the central portion of the

edifice are the statues of the Reformers, Luther, Zwingli, Calvin and Melancthon, and of the four German Sovereigns who promoted the Reformation, Duke Albrecht of Prussia, the Elector Joachim II. of Brandenburg, the Elector Frederick the Wise of Saxony, and the Landgrave Philip the Magnanimous of Hesse.

To the south of the central area of the church and separated from it by folding doors are the portions of the edifice which are styled respectively the Church for Monuments (*Denkmalkirche*) and the Church for Baptisms and Marriages (*Tauf- und Trauungskirche*). From the former steps lead down to the crypt, which extends under the greater part of the building, and is lighted from without as well as by electric lamps. The so-called Church for Monuments is surrounded by five chapels, and is at present devoid of all ornament except the red marble columns which support the arched roof and the entrances to the chapels, the square pilasters of which are of yellow, red and green veined Mexican onyx-marble. The proportions of this part of the edifice are at present its most imposing feature. The side chapels will, however, contain a projected monument to Prince Bismarck and the existing sarcophagi of King Frederick I. and his Queen, and of the Elector Johann Cicero, as well as such other monuments as the Emperor William may ultimately ordain. The cathedral, which has been erected at a cost of 10,000,000 marks (500,000*l.*) voted by the Prussian Diet, represents the first Protestant Dom erected in modern Germany, and it is intended by the Emperor William to be the Metropolitan Protestant Church of the German Empire.

SKOPAS AND LYSIPPUS.

A LECTURE was given by Professor Ernest A. Gardner at University College on "Recent Discoveries in Greece," and dealt with new works of Skopas and Lysippus. Having referred to the well-known works of Skopas as architect of the temple at Tegea, in Arcadia, he pointed out as characteristic of Skopas's work the extreme mobility of the muscles round the eyes and the expression of passion. Newly discovered fragments of the Tegean pediment included a head of Herakles, in which the heavy mass of flesh over the brow, the half-open mouth and the intensity of expression were very noticeable. Illustrations were given of the recently discovered torso of Atalante and a separate head thought by some to be that of Hygieia, and Professor Gardner remarked that during his visit to this historic site in the spring of last year he was able to satisfy himself that the torso and the head, previously considered as in no way connected with each other, were really parts of the architectonic statue of Atalante for the pediment of the temple. It would appear that Skopas intentionally used the finer-grained Parian marble for Atalante, the heroine of the group, and the figure of her is much better preserved than the other parts of the pediment, and in every way tends to reveal a possible work of Skopas's own hand. Another recent discovery, a statuette of a Mænad, moving with an almost dancing step, now at Dresden, was a very Skopaic work. Dealing with the works of Lysippus he showed an illustration of the Apoxyomenos in the Vatican, which has hitherto generally been considered characteristic of the Sicyonian artist in bronze. He contrasted the sketchy, facile and all-round development of the muscles of the statue of the Pancratiast Agias found at Delphi with the sinewy, more anatomical, and more laboured work of the Apoxyomenos. The deductions that could most safely be made from this and other recent discoveries in Greece tended to show, said the lecturer, that the Delphi statues, among which the Agias is to be included, must be considered as a series of replicas in marble of bronze originals set up at Pharsalus, in Thessaly. It was reasonable to assume that Lysippus, who worked almost exclusively in bronze, employed pupils to turn out a set of copies in marble of the same bronze originals for Delphi. Discussing the very Lysippean portrait of Alexander the Great in the Ephesus room of the British Museum, and remarking on Alexander's upward intense gaze and other remarkable similarities in it and the Agias of Lysippus, he showed that in all probability both works are from the hand of the same Lysippus, who was, to all practical purposes, the Court statuary of Alexander.

Mr. Albert C. G. Jahn, at present headmaster of the Wolverhampton School of Art, has been appointed headmaster of the Sheffield Municipal Technical School of Art at a salary of 500*l.* per annum.

NOTES AND COMMENTS.

THE Manchester Corporation are eager to obtain possession of the site in Piccadilly occupied by the Infirmary. It is considered that as soon as the new Infirmary in Stanley Grove can accommodate 300 patients, the transfer of the existing Infirmary is to take place. The Board of Management of the Infirmary interpret the Act in another way. It is said that the scheme in contemplation of both parties at the time when the terms of the Act were settled was that the new Infirmary should afford twice the accommodation of the existing Infirmary, and it is only when an infirmary in accordance with the scheme is ready for the reception of the patients in the existing Infirmary that possession is to be given to the Corporation. The report from Messrs. E. T. HALL & JOHN BROOKE, the architects of the new building, states that with the exception of the laundry, east surgical block, and some subways, all the working drawings for the foundation contracts were in the hands of the quantity surveyor, and that it was hoped to have the last drawings finished in two or three weeks. The first bills of quantities would be sent to the competing contractors by the end of this month, and the architects expected that the whole of the bills of quantities would be in their hands by the end of March, and that the tenders would be in by the middle of April.

WHEN the falls at Foyers were proposed to be used for industrial purposes there was a little outcry among lovers of the picturesque, but it was not sufficient to prevent the cascade from being appropriated. In Italy industry has had to succumb to old associations. Arrangements were completed to make over the well-known falls at Tivoli to a company. But the Government appointed a commission, with the result that the company will have to look for a waterfall elsewhere, and to accept about 6,000*l.* in compensation. It is not to be supposed that so much water-power was allowed to remain up to the present ignored. There are several cascades about Tivoli, and those formed by the waters of the Anio were long used in connection with an iron foundry. The fall near the Temple of the Sibyl, which at one time descended into the Gulf of Neptune, does not now correspond with what is seen in old paintings. In 1826 there was a great flood, which destroyed over thirty houses. It was necessary to make many changes, but it is generally believed that the effect is inferior to that at the beginning of the nineteenth century.

THE old Egyptian gallery in the Louvre corresponded with the ideas which were generally accepted about the character of the ancient people at the time when BUONAPARTE invaded Egypt. Everything about them was supposed to be severe, cold, mechanical. All the works in granite or basalt were believed to be executed according to fixed rules. In the course of the century the early ideas were modified. It is only necessary to pass from the old Egyptian gallery to the salle which was opened last week in order to realise the change which has come over Egyptology. It might easily be imagined that the contents of the new salle were modern creations intended to correspond with modern theories. Instead of exhibiting detached objects from a tomb the French authorities have been able to transport a complete sepulchral chamber. The walls are adorned with bas-reliefs which reveal the ordinary life of a country gentleman 6,000 years ago. He had live stock to look after. He had crops to gather in, accounts to keep, servants who required control by a strong hand, and if he had time he could amuse himself with fishing, listening to music, or dancing. Evidently freedom was allowed to the artist, for the figures do not suggest that they were determined by the proportions which the priests ordered. There are already engravings and drawings of similar scenes, but the Louvre examples possess a character of their own and form a new attraction which visitors from all lands will admire.

ILLUSTRATIONS.

MOUNT STUART, ISLE OF BUTE, N.B.: THE CHAPEL, EAST END.

FOXWOLD, SOUTHBORNE.—THE LOUNGE.

CATHEDRAL SERIES.—ST. ASAPH: THE CHANCEL FROM NAVE.

SOUTH DOORWAY OF THE CHURCH OF ST. PHILIBERT, DIJON.

A SHORT distance to the south-east of the cathedral rises the ancient church of St. Philibert with a fine tower and spire, an interesting interior, and some good detail, for the most part of the twelfth and thirteenth centuries. Not the least interesting part of what Mr. HAIG was able to examine was, he says, the doorway illustrated, but doubtless the interior contains much that might have been even worthier of notice. The fact of the church having been transformed into probably the most sumptuous hay-barn in Dijon, and its being completely filled with that useful article, obliged him to be content with the doorway, which is much decayed, but perhaps on that account a tempting subject for the pencil. The street is almost deserted except by children from the neighbouring school, but these, the sketchers' friends and occasional mischief-makers, find in the sculptures fewer noses to knock off than in some other places, for the carving consists of pure conventional foliage with only the much-decayed figures of two angels in one of the capitals. The noses of these poor angels vanished long ago, and likewise the more delicate portions of the foliage, but enough remains to indicate the former excellence of the carving. Of the four shafts only the two of the eastern jamb remain, and the tympanum retains some faint traces of a painted Crucifixion. There is much in Dijon to employ the pencil, two or three of the churches and some secular buildings being very interesting; but many of the readers of this journal will probably, on examination, find that among the objects for which the town is famous, the much-praised monuments of PHILIPPE LE HARDI and his son, in the ancient palace of the Dukes of BURGUNDY, are somewhat overrated.

THE CHURCH OF ST. ETIENNE LE VIEUX, CAEN.

SITUATED fairly open to the view at the north-east corner of the chestnut-shaded "parc," St. Etienne le Vieux is seen to some advantage; but many will probably be sorry to find it so little taken care of by the town. The church is certainly a fine and interesting example of the Gothic of the fifteenth century, with some early Renaissance of the sixteenth, and might deserve a better fate than to have most of its windows either built up or else the glass smashed and the interior converted into a store for lumber of the most mixed and often ludicrous description. Of course, this desecration is better than the complete destruction to which the church was doomed in 1850, and from which it was fortunately saved by the Society of Antiquaries of Normandy. But the want of veneration shown in Caen, as well as in other French towns, for old ecclesiastical edifices of merit is deplorably exemplified in this church, which possesses both in mass and detail much that is highly suggestive. Of the earlier church that stood here little is left but the name, although the careful observer will discover here and there in fragments of sculpture—such as, for instance, the knight on horseback built in at the east gable, and some details of doors and windows, &c.—relics of a much older structure. The church has experienced curious vicissitudes, one of which is its having been exposed to the gunnery of the English in the early days of artillery warfare, as witness the numerous holes and fractures caused by the balls. In fact, there can be no doubt that the hand of man is chiefly responsible for the damage sustained by this interesting monument, but the reproach is merited less by foreign enemies than by the French themselves.

QUANTITY SURVEYORS' ASSOCIATION.

THE first annual dinner of this Association was held on Thursday evening in last week, at the Freemasons' Tavern, Great Queen Street; Mr. Walter Lawrance, F.S.I., president, was chairman.

The following gentlemen were among those present:—Messrs. A. J. Gate, F.S.I., vice-president, W. Hoffman Wood, vice-president, E. Guy Dawber, W. E. Riley, A. A. Hudson, F. B. Wade, L. Maton, A. Ritchie, J.P., C. H. Barnsley, president of the Institute of Builders, F. Higgs, president of the London Master Builders' Association, W. Hill, H. C. Smart, F. A. Powell, P. Lawrance, Aubrey Wade-Palmer, C. Franckeiss, S. P. Rees, Septimus Hill, J. Parsons, G. M. Swan, Rev. C. J. Hollis, Messrs. H. A. Heffer, J. M. Beveridge, J. Rose, A. W. S. Cross, F. Wallis, J. Aylott, W. W. Barber, H. P. Barber, J. Bartlett, C. W. Bowles, P. Bywaters, T. J. Carless, H. T. A. Chidgey, G. J. Clarke, A. G. Cross, H. C. W. Dodd, H. England, A. R. Evans, C. J. Ford, H. A. A. Gate, W. R. Hood, J. Jellis, C. A. Kennett, C. W. Latta, J. G. Mayhew, C. H. Mumby, E. D. Nixon, C. A. Ovitts, J. S. Parmenter, H. L. Pridmore, H. Raven, J. Rookwood, H. Smith, H. G. Tarrant, T. Thompson, H. J. West, T. F. Waggett, and F. B. Hollis, honorary secretary.

After the usual loyal toasts had been duly honoured, Mr. W. E. RILEY, architect to the London County Council, proposed "The Imperial Forces," to which Mr. A. WADE-PALMER briefly responded.

Mr. A. J. GATE proposed "The Quantity Surveyors' Association and its President." The toast, he said, had at least one charm, that of novelty, for it was the first occasion on which it had been proposed. Their worthy president would have the first attention in his speech, for he would not take so long to deal with as the Association. Their president was endeared to everybody by his geniality. He was also a skilful surveyor, upright and impartial in business, and in cases of litigation or dispute always just to the parties concerned. Turning to the objects of the Association, he said he wished to indicate what they were, because there had been a good deal of misconception in the matter. To do that in the best way he would begin by saying distinctly that the Association was not a rival to any other association or institution. He was compelled to say that because it was believed to be started in rivalry to another body. They had made a few enemies, but those enemies were for the most part confined to the black sheep of the profession, men whose business practices must be put down, and men who wished to join the Association but who were prevented from doing so because they were not qualified up to the extent the Council wished. It had been alleged that there was no need for the Association, but the speaker held that since the Surveyors' Institution had failed to fulfil its charter in the raising of the status of the quantity surveyors, there was need for a more active society to guard the interests of the profession. He went so far as to declare that it was impossible for the Surveyors' Institution under its present charter to remedy the difficulties which the Association proposed to deal with. He questioned how many men holding the letters F.S.I. after their names were competent to take out quantities, and suggested that nothing like 10 per cent. were in that position. There were many men who would go about canvassing for work in a manner that tradesmen ought to be ashamed of, and who begged for work at reduced fees. The Association proposed trying to put a stop to such practices, and to do it successfully they needed in their ranks the help of all respectable members of the profession. Members of this Association would become known as men competent to perform a quantity surveyor's duties. The Association could not guarantee that the members would do their work properly, but they could vouch for their competency, and their rules would enable the Council to remove from membership the names of those proved to be incompetent in practice. The Association was also desirous of fixing a minimum scale of charges for the work undertaken by quantity surveyors. The speaker next dealt with the duties of the quantity surveyor in relation to the builder, the building owner, his legal representative and the architect. His duty to the last named was the most difficult to fulfil, for he had to get behind the mind of the architect and ascertain what he wanted, and, added the speaker humorously, this was a difficult matter sometimes, because the architect often did not know that himself.

The PRESIDENT, in responding, thanked Mr. Gate for the kind words he had uttered and for the able manner in which he had set forth the objects of the Association. He,

as their president, had set his heart on attaining the end for which it was formed. The start was not made without trouble and difficulty, and as they had succeeded in getting incorporated, it remained for the members as a body to handle the ropes smartly and keep the ship moving. He appealed to the general body not to sit still and wait for the reform to come to them. In trying to attain the objects of the Association there was no doubt members would have to exercise a little unselfishness, and perhaps at times some self-sacrifice would be needed, especially in remaining loyal to their brethren by not accepting work below the minimum charge set forth by the Association. If quantity surveying was to continue on the basis of an honourable profession, and a living to be made out of it, they could not countenance the reduction of fees to the rates at which some men were offering to do quantity surveyors' work. The high standard of work could not be maintained with greatly reduced fees. They knew thoroughly well that work accepted at ridiculously low fees could only be produced by untrained, inexperienced and underpaid assistants. They must, therefore, do what they could to impress upon public bodies and committees that the preparation of quantities required skilled and experienced assistants, and below a certain minimum charge the work could not be done properly. All architects of experience knew the value of good work by the quantity surveyor, and appreciated the assistance which his care was to them in pointing out difficulties in details of construction which could not be noticed in the preparation of the drawings, and the anxiety and friction saved with the contractor during the carrying out of the work. As to contractors, there was nobody who appreciated more the value of really good bills of quantities than the experienced estimators, and it was a pity contractors could not return some of the rubbish which they received as quantities. The well-prepared bill of quantities was in the end the greater economy, and it enabled the estimator to calculate his prices to a nicety, thus giving satisfaction to the architects and their clients. Then there was the appointing of surveyors as arbitrators in disputes, more especially of measurements and quantities. The President said he was sure that in the majority of disputes in building cases the quantity surveyor was more competent to act in the capacity of arbitrator than the architect. It was also suggested that a universal mode of measurement was desirable. London quantities were accepted almost all over the country, and they might form a basis on the London practice. Continuing, he said it was a matter of congratulation to have such a representative gathering at the first dinner of the Association. In asking the secretary to state a few facts with regard to the Association, he expressed gratitude for the time and attention Mr. Hollis had given in its formation. In conclusion, he thanked the members for the honour they had done him in electing him their first president.

Mr. F. B. HOLLIS, in reply, said they had upwards of 300 applications for membership, out of which 130 had been elected. The first examination was to be held in May next, and they had already received 130 applications for papers. He believed the Association was doing good work, and suggested that at no distant time men practising outside its membership would not be recognised as quantity surveyors.

Mr. W. HOFFMAN WOOD, in submitting the next toast, "The Architects," said no one knew better than the quantity surveyors the ability that was required of architects for their work. Among the difficulties they encountered were the local by-laws and the whims and fancies of their clients, and yet their plans of buildings were so well conceived that, as the works neared completion, every detail and item fitted a place that would seem to have been specially arranged for it. He wondered why architecture should be missed out of the most learned professions, for to be proficient required as much of a man as law, physics and divinity.

Mr. E. GUY DAWBER, who responded to the toast, said it was really refreshing to hear a word of praise given to architects—as a rule people only said hard things about the profession. It gave him great pleasure, he said, to take that opportunity of expressing to the quantity surveyors the thanks and gratitude that architects, as a profession, owed to them for the assistance that was always so readily given. He assured them that architects did truly realise the value of that assistance, as they knew their buildings could not be carried out successfully without it. They did hear of architects in the North of England taking out their own quantities, but the speaker thought such a practice placed the architect in a wrong position, because then it was

doubtful if he could take an impartial view of the quantities. He congratulated the Association, and hoped it would flourish for many long years. They had heard that evening about the black sheep among the quantity surveyors, but he must say that it had been his privilege only to meet with strictly honourable and upright men in the profession, and he wished to regard it as composed only of men of that character.

Mr. W. R. HOOD proposed the toast of "The Contractors," and in a short speech suggested that it would be well if quantity surveyors spent part of their pupilage time on the staff of a first-class contractor, gaining thus an insight and experience that would be of material benefit when they practised their own profession. The Association should be supported by the contractors, because its object was to raise the status of the quantity surveyor and register him as competent to follow his profession.

Mr. C. H. BARNESLEY, replying, was proud to be a contractor, and was sure they agreed with him when he said that their craft was a very ancient one, and full of importance and responsibility. He regretted, however, that the old system of apprenticeship was dying out, more especially in the trades of bricklaying and plastering. The plasterers limited their apprenticeship to the sons and relatives of plasterers, so that if those youths were not desirous of continuing in that trade the difficulty contractors met with was apparent. It was hoped, therefore, the trades would see the folly of such rules, and allow others who were willing to serve an apprenticeship in the trade.

Mr. H. ENGLAND proposed "The Visitors," and this last toast was responded to by Mr. A. A. HUDSON and Mr. A. RITCHIE.

A musical programme was followed between the speeches, and contributed to the success of a very pleasant evening.

THE ARCHITECTURAL ASSOCIATION.

A MEETING of the Association was held on Friday evening last at Tufton Street, Westminster, Mr. E. GUY DAWBER, president, in the chair.

The following were elected as members:—Messrs. R. W. BURROWS, W. BONSER, F. C. B. DABBS, J. A. BESSANT, H. BERTON-BENJAMIN and R. F. ATKINSON.

Mr. F. J. OSBORNE SMITH read the following paper on

Country Houses and Accessory Buildings.

The invitation to prepare a paper upon this subject was accompanied by a suggestion that I should deal more particularly with the drainage of country houses and accessory buildings. Approaching the subject from the point of view of an architect anxious to produce healthy dwellings for men and animals, it will be necessary to refer somewhat in detail to items of work which are not usually discussed in the studio or the drawing office, but too often left to be dealt with, more or less effectively, in the clerk of works' office, or in the case of large buildings, by someone who has given special attention to them. My aim is to induce students to give more attention to what many will find to be a very interesting portion of their manifold duties. Architects should "design in beauty and build in truth," and there is no reason why the beauty of their design should be marred by truth taking the form of twisting pipes over the fronts and roofs of their buildings; careful arrangement in planning will obviate this by placing the sanitary fittings in such positions that their necessary pipes can be fixed practically out of view and yet be quite accessible in case of need. This is more easily effected in new buildings than in old ones, yet in the latter the unsightly lines referred to can usually be modified by judicious arrangement without in any way affecting the thoroughness and efficiency of the work. "Sanitation" or "hygiene"—the science of promoting health—has, under the conditions of our civilisation, the first claim for consideration when designing a healthy dwelling, and it is not prudent for architects to despise or neglect this important branch of knowledge. The limited portion of the subject which we are about to consider to-night will, I hope, promote an interesting discussion. The most suitable position our building is to occupy on the site; the nature of the soil, the quality of materials, positions and dimensions of rooms, windows, doors and fireplaces, and the material for roof, &c., all these affect the health of those who occupy the buildings, to say nothing of the drains, water supply and numerous fittings which are usually classed under the head of sanitation.

Sanitary engineers have such an idea of the importance of their pipes that they will place them in the most conspicuous positions possible, utterly regardless of the elevation they are spoiling, while inside one hundred and one minor items will be inappropriately arranged so as to clash with decorative or constructional features, to the annoyance and disgust of the architect.

Good plumbers are naturally proud of their work, and do not like to have it hidden away, but, if we make use of this pride on their part and take an interest in their work, they will make a very creditable show, which can be made to harmonise with the surroundings and be too good to be covered up. If the architect shows that he appreciates and takes an interest in their individual work, it will encourage good artificers to execute it with special care with the happiest results. This present craze for unduly hastening work along is responsible for much of the bad work frequently met with, which only disheartens the workers.

There is one other point I wish to call your attention to. Do not, as I am sorry to say many architects do, hand over drains and fittings to a merchant or manufacturer to carry out.

I propose now to refer to:—1. Water supply and fittings required for the effective working of the water-carriage system of drainage. 2. Soil and waste pipes. 3. Drainage for soil and rain-water. 4. Land drains. 5. Stables, cow-houses and dairies. 6. Disposal of sewage.

Water Supply, Cisterns, &c.

The source from which water is derived may be either from collecting ground on moors, hills, &c., or from artesian or deep wells, the latter being the most general. Great care must be exercised in selecting the wells which are to supply the drinking water. There are country towns where the water is supplied by a water company to many houses, while the remaining are still supplied by wells, and it is no rare occurrence to find the disused wells of the former turned into cesspools, with very serious results to wells of the latter; therefore, when later on we are considering our sewage problem, we must not forget the wells and that possible pollution may result unless great care be exercised in selecting a suitable site for the disposal of the sewage. The fall of the surface cannot always be taken as indicating the contour of the water-bearing strata. Having satisfied ourselves upon the purity and quantity of the water supply, our next consideration must be how to store it in a convenient manner for use free from risk of pollution. It may be stored in a reservoir or underground tank, which must be very carefully formed with sound brickwork upon a concrete bottom, and covered in by doming, arches or concrete and iron; the bottom should be formed with rounded angles to facilitate cleaning, and the whole of the inside surface rendered and smoothly trowelled in cement. There should also be clay puddling round the outside and over the top, while the opening for access must stand well above ground to prevent surface-water finding an entry. Frequently the situation will not allow of this form of main storage tank, when it may be necessary to build a water-tower and allow the water to supply the cisterns in the house, stables, laundry, &c., by gravitation, or otherwise pump direct to the storage cisterns in the buildings, which frequently means very heavy work for the pumps due to long horizontal pipes. Overflows, which should be as short as possible, must be provided to all tanks and cisterns, and not be connected to drains. Store cisterns inside the building may be of lead, galvanised iron or enamelled fireclay, and should always be provided with a movable cover and situated in a clean, accessible position.

Baths.

The bath-room should be large, light, and airy, with cross ventilation, and the walls and floors should be of impervious material, but if of wood it should be covered with lead. The fittings may include, beside the usual slipper bath, a single or double lavatory basin, a shower and spray bath, either combined with the slipper bath or independent. Other baths are sometimes used, such as a sitz bath, bidet, &c., but the combined slipper and spray meets most requirements. Perhaps the nearest attempt to an ideal bath is the latest pattern independent copper bath, which is made of strong copper with roll edge and strong supports or feet; the outlet is at the end, where it should be, and not in the centre, as is usual in copper baths, and has large pillar cocks and standing accessible overflow, quick waste and trap. At the end is a plate-glass screen on three sides, behind which are the various plated pipes

or shower, spray, wave, douche, &c. The next best is a first quality white enamelled cast-iron bath, with roll edge, quick, accessible waste and overflow combined, without casing, the outside being decorated in harmony with the room. Glazed fireclay is perhaps the most durable and sanitary material for baths, but, owing to its great thickness, a bath of this material is very heavy, and requires to be warmed with hot water when not in constant use. In public baths, where the demand for baths is constant, this kind is generally fixed. Some baths need an enclosure; these should be avoided, as the space within becomes a store for matter in the wrong place. It is most important that a bath should be fitted with a plentiful supply of hot water, large supply valves discharging above the water line of the bath, and also with a large, quick waste. The noise frequently experienced when the bath is emptying may be checked to a great extent by providing ventilation to the waste pipe, although this retards the velocity of the discharge. The lavatory basins may each be formed in one piece of pottery, or fixed beneath a marble top supported upon cantilevers, but without enclosures; the necessary pipes may be of plated brass or copper if desired, but, personally, I prefer lead, kept back of the way of injury.

While speaking of pipes, let me advocate the importance of fixing every pipe upon the surface of the walls, not buried in them, as is so often the case. Chases are sometimes advisable, but, if used, they should be regarded as recesses in the walls and be rendered in cement, or otherwise lined with impervious material to match the wall surfaces and covered with movable casing. The hot-water service pipes may be carried along one side of the room or to a radiator, in the form of a towel horse, which will be found very convenient. The linen cupboard might, with advantage, be formed somewhere near at hand, so that the hot-water pipes may, on their way to the bath, be used to keep the linen aired by passing through the cupboard.

Water-closets

These should not be in the bath-room, nor should access to them be from a bath-room, but from a ventilated lobby common to both. Neither is it advisable to have a lavatory basin in the water-closet. The walls and floors and ventilation described for bath-rooms equally apply here. Carpets ought never to be used, a loose mat being far preferable. The apparatus should be as simple as is consistent with efficiency. A pedestal closet should be of the wash-down type, not "wash out," in one piece of fireclay, or similar material, strong and neat in appearance, with accessible joints to soil pipe, and no recesses in which dirt may accumulate; the flush pipe from the cistern should discharge vertically into a socket provided at the back, without indiarubber cover, and, with two gallons of water, should thoroughly wash the inside of the pan and replace the whole of the contents of the trap with clean water. The larger the water area, the less liable is the pan to become foul, but beyond a certain point the contents cannot be efficiently removed except by syphonic action, as in the syphonic closet. There are various forms of type of closet, some better than others. Those without air pipes and puff pipes in the cisterns, but having a second trap, are to be preferred; the simpler the apparatus the better.

Various means for discharging flushing cisterns for wash-down closets have been devised. Besides the simple pull, there is the push valve, to release confined air and allow the syphon action to start, or to compress air and thus drive the water over the syphon to start it; there is also the plunger, the lifting valve, lifting drum, &c. The lifting valve to start the syphon is the simplest and generally most certain in action, and is passed by most water companies. The flushing cistern may be of cast iron, but should be galvanised to prevent rust; lead-lined or cast-lead cisterns are best when the water does not affect the lead, but are more costly. Porcelain is also a useful and ornamental material. The flush pipe of lead or copper should be as straight as possible, and securely connected to the arm of the pan. Indiarubber covers are not desirable for this joint. Valve closets are not so frequently used as formerly, owing to their complicated parts and liability to leaks, although they are sometimes preferred for ladies' use. They should be fixed within an enclosure which is easily accessible, floor lined with lead, and the walls and all inside the enclosure painted white. There should be a large supply valve, accessible overflow and a puff pipe to the open air from the valve box between the valve and the trap beneath. Slop tops, formed in one

piece with the pan, assist in making a draught-proof seat. Valve closets require a separate supply cistern containing about ten gallons. Overflow pipes from cisterns and floors should not have flaps on their external end as is so often advocated; they invariably become set fast, either open or shut, and are then useless. These and other small flushing cisterns can be cased or otherwise decorated to harmonise with the surroundings, and the pipes to and from them cased.

Urinals.

In a private house "avoid them entirely"; at best they are a constant nuisance and need every care and attention, with abundant flushing; even where necessary, as in clubs, factories, schools, &c., they should be as simple as possible, with waste and water pipes easily accessible. The outlet usually supplied with them is almost useless. I refer to those formed in one piece of fireclay. Never fix urinals on upper floors, as, unless careful attention is given to the fixing and the waste from them, they invariably leak and cause trouble below. The weak points are naturally the joints, therefore the fewer the better, the one joint to which particular attention should be given being the one between the urinal and the trap, which should always be formed with a large brass washer, fly-nut and union, having a dome grating with bayonet joint.

Housemaid's Sink, &c.

There should always be a small room with opening window on each bedroom floor fitted with a slop sink, which should be fitted as a water-closet, with flushing cistern, &c., connected to soil pipe, and also a sink for drawing hot and cold water. The waste from the latter should discharge into an iron (not lead) waste pipe. The combination of these two sinks in one set, so common in makers' catalogues and exhibitions, is often unsuitable for the intended purpose, because the hot and sometimes boiling water produces injurious expansion in the soil pipe with disastrous results. The space under these sinks should be kept free from enclosures and every facility given to minimise the difficulty of keeping these places clean. Above all things linoleum should never be fixed under sinks, one so frequently finds it there with always the same result—moisture and decay. The main water cistern should never be placed in this room, although, I regret to say, it is not an unusual position to find it in.

Kitchen and Scullery, Sinks, &c.

This department should have preferably a north aspect, lofty, well-lighted by windows reaching to near the ceiling. The walls and floors should be of impervious material, which may be readily cleaned. The sinks should consist of one or more for washing purposes, and may be of enamelled fireclay, with wire or teak grid-tinned copper or lead-lined wood sinks, each having their respective merits and defects. Fireclay sinks are cleaner than the others, but are easily damaged by saucepans, and are liable to break the crockery unless the grids are used. Copper and white-metal sinks are perhaps the best, but are expensive. While lead-lined are very general, they are dirty, and frequently need repair, but are less destructive to crockery. Vegetable sinks should also be provided for washing vegetables, and are best of the deep enamelled fireclay kind, fitted with plug, grating and overflow, being much more easily cleaned than others. All sinks should be supported upon cantilevers, and the spaces under should not be enclosed, although a guard rail will be necessary to protect the pipes and traps from injury. Teak sinks are sometimes used for washing-up purposes, but they need constant cleaning to remove grease, &c. Outlets from sinks should always be formed with large cobweb gratings. The trap below should be connected to the sink by a strong brass union, back-nut and lead washer, instead of the spigot and socket with stoneware pipe so frequently met with in the cheaper class of sink.

Larders

should have a northern aspect, with abundant cross ventilation and be near the kitchen, but not entered direct from it. Wire gauze (preferably of copper) should be fitted to the windows and secured to wood frames on hinges. Some larders are fitted with pickling troughs, with plug and waste; these, of course, must not be connected to a drain, neither should a gully be in the floor. If drainage from the floor is necessary it should be formed by connecting the floor to an outlet through the wall as short as possible and discharging upon the surface of the paving outside. Shelves should be of slate, supported upon cantilevers, the walls lined with

white glaze bricks or tiles and the floor of some impervious material. Personally, I prefer a slate table in the centre of the room, leaving the walls free. Larders should not be formed underground.

Pantry and Still-room.

The butler's and footmen's pantries and the still-room require sinks, which may be either of enamelled fireclay or lead lined; some butlers prefer the former, others the latter. These sinks are usually supplied with draining boards, preferably of beech, if not covered with lead. The space under the sinks is usually enclosed; when this is done the walls and wooden sides should be painted with white enamel and a lead safe formed on the floor, turned up all round at least 6 inches, having a 1-inch waste pipe discharging through the wall to the open air. This cupboard is generally used for a pail to receive pieces, tea-leaves, &c., and soon becomes in an insanitary condition if precautions be not taken to insure cleanliness. Enclosures under or around any sanitary fitting invariably become nuisances, and it is preferable, except in special instances, to omit them and everything that hinders the regular cleaning of the recesses. All these sinks should have drinking water laid on from the main supply pipe and labelled "Drinking water."

Having considered so far how clean water can be obtained and utilised inside a dwelling, I now propose to indicate how foul liquids can be got rid of.

Soil Pipes.

When considering soil pipes we must determine:—

- (1) The material of which it is to be made; (2) the size necessary under the conditions; (3) the position in which to fix it; (4) the surroundings such as rain-water pipes, &c., with which it should harmonise; and (5) method of fixing and jointing the pipe.

Soil pipes are usually made of cast iron or drawn lead—cast iron made in 6-foot lengths, either coated with Dr. Angus Smith's solution or galvanised; the latter is most suitable when the pipes are to be painted to match the rain-water pipes, because paint will not remain upon Dr. Angus Smith's solution. These pipes are cheaper than lead, less liable to damage, and more easily fixed and jointed, but they are more unsightly, and there is difficulty in obtaining a branch to suit exactly the position, and many branches mean many joints and much cutting of pipe. A cast-iron junction usually means at least three joints, while in lead pipe only one is necessary. Drawn lead soil pipe is made of thicknesses corresponding with those of sheet lead. The pipe whose thickness is equal to that of 8-lb. sheet lead is the strength most generally used, or for special purposes 10 lb. The inside surface of lead pipe is smooth, and, provided that the size is suitably small for the work, it will remain clean and free from corrosion. Rarely will it be necessary to exceed $3\frac{1}{2}$ inches internal diameter for any soil pipe, especially in country houses. Lofty buildings in towns may require 4 inches, while larger sizes are occasionally met with. I might mention that these larger pipes are almost invariably furred to a considerable thickness on the inside after being in use a long time, thereby reducing their internal diameter. I know of one case where the working diameter of a 4-inch pipe was thus reduced to $2\frac{1}{2}$ inches. A ventilating pipe is quite a different matter, 4 inches to 6 inches diameter may be often more suitable than $3\frac{1}{2}$ inches. If it be necessary to fix the soil pipe within a building, it should be of 8 lb. drawn lead at least, but must not be buried in the wall, and if in a chase, the walls should be treated as previously described for water pipes, and the casing in short lengths should be secured with brass cups and screws to framed grounds fixed to the walls. The most suitable place to fix a soil pipe is outside the building, in which case it should be arranged in such a manner as to be as unobtrusive as possible. The method usually adopted of fixing soil pipes in 10-foot lengths with three pairs of double cast-lead tacks is certainly efficient, but at the same time it is not elegant. Sometimes astragal joints or socket joints are used instead of the usual wiped joint, with disastrous results, there being insufficient solder to form a lasting connection, more especially if it be fixed with sheet-lead tacks fixed 6 feet apart. How can this be remedied? One way I have found very successful is to have strong pipe in, say, 6-foot lengths, to agree with the rain-water pipes, which may also be of lead, and fixed to walls with extra strong lead strips wiped on to the pipe at the joint and covered with ordinary sheet-lead ears, the joints being "wiped" in the usual way, with a small astragal attached to the pipe above and below the joint. By this means the pipe is securely jointed and fixed, and except to

the initiated, is similar in appearance to the rain-water pipes. We are told that an "anti-syphonage pipe" is necessary to preserve the seal of the closest trap. Quite so, but in the majority of country houses anti-syphonage pipes are not necessary, there being only two principal floors as a rule. Perhaps in one or two instances it might be necessary, but need not occur upon the principal elevations in a carefully planned building. Soil pipes now invariably discharge direct into the drain, and the upper part is continued to above the roof of the same to great diameter, with a simple open end protected by a stout copper-wire balloon. Cowls have been proved by experiment and practice to have few, if any, advantages over open ends, as these pipes frequently act as inlets as well as outlets. The less obstruction there is to check the current of air in either direction the better. Boiling water must be carefully excluded from lead soil pipes, otherwise the undue expansion will split or tear apart the lead at the junctions between the branches and the main pipe.

Waste Pipes

from baths, lavatories, sinks, &c., not being slop sinks should always discharge into gullies in the open air beneath the grating, but above the water. This is a very important point, as many by-laws require them to discharge into a channel 2 feet from the gully. A more objectionable arrangement it is difficult to imagine, and I hope before long to see the provincial authorities follow the example of the L.C.C. and eliminate this undesirable by-law. These waste pipes must be, if more than a few feet in length, of some material which is not easily damaged by hot water. Wrought iron with screwed joint or cast iron with caulked joints are most generally in use, although the short lengths referred to previously and short branches may be, and in fact are, preferably of lead. The expansion of iron pipe, if connected directly to a lavatory basin, &c., is very likely to damage the fitting. Lead pipes have, I might almost say, an ideal internal surface for conducting water and sewage from point to point, offering the minimum of resistance. They are, however, injuriously affected by various means—for instance, damage by violence, such as knocks, nails, bradawls, &c., when behind panelling or casings, &c.; chemical action when buried in walls producing decomposition; "creeping" buckling, and, finally, cracking or tearing when subject to great variation of temperature. The facility of bending lead pipes of small diameter is so great that its use is often preferred for this quality alone, which enables the pipe to be fitted with greater ease to the angles and curves. Wrought-iron pipes are expensive and more liable to rust than cast-iron, which is cheaper and stronger and allows a little play at the joints. The joints will probably in course of time need recaulking if the stack is very long and has very hot water frequently passing through it. There is another type of pipe which is referred to in one of the latest books upon this subject as the best for all purposes, viz. cast-iron pipe lined with lead. What better would be desired?—a strong exterior, with a smooth interior, of lengths corresponding with rain-water pipes, and the joints more easily made and fixed than in the case of lead pipes. Let us for a moment consider the condition of this ideal pipe after it has been in use as a waste pipe for a short period. Hot water has been frequently passing, and the lead lining has, in the same way as lead pipe, been expanding more than the iron outside, and consequently the two materials have become separated; the hot water still continues to flow intermittently through the pipe, the lead "creeps," and cannot bulge outwards because of the iron coating, therefore it is forced inwards, with the result that the pipe is practically choked. I will leave you to form your own opinion upon this ideal pipe.

Waste pipes generally may be considered similar to soil pipes as regards fixing, &c., but they must, as I said before, discharge into a gully near the foot, which in certain positions should have an air-tight cover and be ventilated at a convenient position away from windows, &c. The upper part should be carried above eaves and windows, and the traps of each fitting should be protected by a puff pipe, which is brought under the basin top to the face of wall outside. This puff pipe does double duty: besides protecting the trap under the fitting, it acts as an overflow in case the vertical pipe without heads is temporarily blocked, and thus saves a flood in the room below if a bath, for example, is discharged on an upper floor. I always prefer waste pipes with junctions instead of the various branches discharging into heads at each floor. The heads offer a large exposed surface for the accumulation of filth. The traps

should be of strong anti-D cast-lead type, with screw cap for cleaning, and a short length of lead connected to the iron pipe with brass tailpiece and caulked joint outside. Traps from lavatory basins should be $1\frac{1}{4}$ inch diameter, while those from the bath and sinks, except scullery sink, should be 2 inches diameter, and the scullery sink $3\frac{1}{2}$ inches to 2 inches—that is, $3\frac{1}{2}$ inches at inlet, to receive a large cobweb grating.

Drains, Gullies, Chambers, &c.

The term "drains" is generally understood to refer to the pipes underground conveying the sewage from the soil pipes and gullies to the sewer, cesspool or filter bed. These are formed of two different materials—heavy cast iron, protected by a coating of Dr. Angus Smith's solution, and glazed stoneware. The choice of these two is generally determined by the nature of the ground and surroundings and the relative positions of the house and drain. On a bad foundation, when passing under a building, or if the drains be near the surface, iron pipes, possessing greater strength and having fewer joints, are less liable to damage, but the inside is not so smooth, nor does it resist acids to the same extent that glazed stoneware does. A well-laid stoneware drain with clear bore bedded upon and protected by good cement concrete with carefully made cement joints is much more self-cleansing than an iron drain. The cost of drainage is practically the same whichever kind of pipe is used, less concrete being required for the iron pipes. Fall or inclination is an important factor in considering drains—1 in 30 (or 4 inches in 10 feet) is most suitable for a 4-inch drain, and 1 in 40 (or 3 inches in 10 feet) best for a 6-inch drain. We are not always able to obtain these falls, but they should be adhered to as closely as possible. Excess of fall is quite as unsatisfactory as too little.

Gullies.—All gullies should be bedded in cement concrete, fixed as near the surface of the ground as possible, and covered with a $3\frac{1}{2}$ -inch dished York stone to receive grating. When it is necessary to keep the gully low down a chamber 12 inches square, inside dimension, should be formed of 9-inch brickwork in cement, smoothly rendered and brought up to receive the dished cover stone at surface of ground. It is essential that these extensions, and, in fact, the whole system, should be watertight. Deep chambers over gullies are not desirable. Circular gullies (and square ones by the use of an adapter) are sometimes brought to the surface with 9-inch diameter stoneware pipes, in which case the pipes should be surrounded with concrete. It is advisable to have all ironwork, except iron drain-pipes, &c., galvanised to protect them from rust. It is sometimes held that the galvanising soon perishes; I must say I have not experienced any inconvenience in this respect, while constant trouble exists where iron is not galvanised. A flush tank, when connected to the scullery gully, is very useful for breaking up and driving the grease through long drains. Sometimes the bath waste is arranged to effect this object. Sand used for cleaning copper utensils is a great trouble in drains, for when mixed with the grease it becomes very hard and solid. The only remedy is prompt and frequent removal of grease, &c., by flushing with pails of hot soda-water or sweeping the drains, in addition to the flushing just mentioned. The gullies should be of the self-cleaning, deep-seal type, with 10-inch grating. Those used for surface drainage only should be made deep to retain the grit, &c. When a waste-pipe discharges some little distance from a gully it is often advisable to fix an access shoe at the foot and carry the drain to inlet of gully underground. This shoe should have a stone cover similar to those used for gullies, and galvanised iron plate let in instead of the grating to keep out leaves, stones, &c. So-called grease traps are ineffective as well as very offensive and dangerous contrivances.

Chambers—or manholes as they are frequently called—should be placed at intervals in the drainage system, at bends, junctions and at points of disconnection, also in straight runs of considerable length, at least over 60 feet, to facilitate sweeping, &c. The chambers should be formed upon a 6-inch bed of concrete with 9-inch brick walls, smoothly rendered inside to underside of cover, the bottoms formed of white glazed channel with three-quarter channel branches, and brick on edge placed vertically along the main channel and benched up to an angle of 30 degrees, to offer as little facility for lodgment in event of a temporary stoppage, and also to give a secure foothold which a steeper angle does not give. The portion not enclosed by the iron cover should have 3-inch York stone firmly bedded in cement. The size of these chambers depends upon their

depth. A shallow chamber—that is, up to 2 feet 6 inches deep—should be as nearly the size of the iron cover as is consistent with the number of branches it receives, while deeper ones should be about 2 feet 6 inches wide and at least 3 feet long to give a man room to work in them. It is obviously unnecessary to form chambers larger than required for the work they have to do, because in case of a stoppage they take a longer time to fill, and thus make their condition apparent. You will notice that I have not advocated iron chambers even when iron drains are used. I think it will be a long time before we are able to find anything better than the chamber of rendered brickwork and white glazed stoneware channels. Iron chambers are simply inspection bends or junctions; it is difficult to make the covers watertight, and they are difficult to open, especially when it is necessary to move an obstruction. They are sometimes useful inside a building at the top end of a branch where the drain is shallow. These iron chambers still require the brick chamber, which should be rendered, and iron cover for access, so that there is little or no advantage in using them.

Chamber covers are of various types; those with a condensation seal are undoubtedly the best, especially when inside a building. There are also covers formed to receive tiles, wood blocks and turf on gravel, which are less conspicuous than the chequered iron tops, only a rim of iron being visible. If necessary, any cover can be fixed just below paving level, the stone slabs bedded in sand effectively obscuring it from view. Locking covers, except in certain exposed positions, are not necessary. Let each cover have eyelets for hooks, instead of hand holes, and be strong and heavy. They will then be difficult enough for mischievous persons to open. Locks and bolts only become corroded, rusty or broken, and are then useless, and cause considerable waste of time when examining or testing. Hinged covers are always a trouble, and are going out of use. Ventilation of the system must not be forgotten. Soil pipes usually provide the necessary outlets, but they are not sufficient alone in all cases. The idea that two or more pipes taken from different branches to above the roof will secure efficient ventilation is erroneous. I will give you an example of this. A chamber was formed with five distinct branches, each with a V.P. taken above the roof. Surely this was sufficient ventilation. Yet upon raising the cover after the drains had been used a few months, the air in the chamber was found most offensive. After consideration, I decided to form an inlet of ground level some little distance away, with the result that the chamber is now as wholesome as could be desired. At the same time, I do not like the inlet in the front area just outside the kitchen window, as is so frequently the case in towns; but in country houses there should be no difficulty in keeping the inlet at a reasonable distance from the buildings. I call these "inlets," but, at certain times, they undoubtedly act as "outlets."

Rain-water Drains.

When the rain-water drain is treated separately from the soil drainage there should not be gullies at the feet of rain-water pipes, but instead stoneware or iron access shoes, with cover stone and plate to prevent surface-water or other undesirable matter finding its way to the rain-water storage tanks. Otherwise the drains should be constructed similar to soil drains. They are usually 6 inches diameter, with 4-inch branches to a single down pipe.

Rain-water Storage, &c.

Rain-water, especially when gathered in the country, is fairly clean, and if filtered and stored in suitable receptacles is a great acquisition, more particularly for washing purposes. It is best, whenever possible, to collect and store the rain-water as near the roof as practicable, thus saving expensive pumping machines and underground drains and tanks. Needless to say, a large overflow is essential to prevent flooding in time of heavy storms. Cisterns for storing rain-water above ground should be of galvanised wrought-iron or lead lined, with covers in sections made to lift off. These cisterns should be placed in easily accessible and well-lighted positions. When stored underground the tank or reservoir should be similar to that previously described when considering water-supply and storage, with the addition of a filtering chamber.

Purifying Rain-water.

There are two means generally adopted for removing many of the impurities, such as soot and roof washings, from rain-water. The separator, which allows the first portion of the water to run to waste and then, by a rocking motion,

passes the remainder to the storage tanks is effective, but of course there is waste of water, which in a dry season is a consideration; while a filter composed of broken bricks, ballast and sand is most useful, but needs occasional cleaning. Some favour a small settling chamber, divided from the filter by a brick wall built with half a dozen courses, dry at the bottom, giving upward filtration, thus avoiding to a great extent choking of the upper surface of the filter, as in the case of downward filtration. All the tanks must have an overflow, but this should not be connected to the soil drains. Some years ago, at a building which I now visit periodically, an underground rain-water tank had its overflow connected to the soil drains; during a temporary stoppage in the latter sewage entered the tank through the overflow and was pumped up to the laundry. The overflow was diverted to a suitable position without any difficulty, and such a disaster cannot occur again. For obvious reasons surface-water gullies and gullies at the feet of rain-water pipes should never be connected to these tanks; yet I have seen soap-suds floating on the surface of the water in the rain-water tanks, probably from foul water from a lavatory being discharged into a gully at the foot of a rain-water pipe.

Land Drains.

When the subsoil of the site is surcharged with water it is advisable to conduct it away from the building as much as possible; this is accomplished by means of agricultural drain pipes laid without joints a short distance apart in trenches, and covered with ballast or brushwood to within a foot or so of the surface, and covered with ordinary garden soil or mould. If there be a flow to underground water, and we are able by land drains to divert it from the site of the building, nothing more need trouble us except to see that the drains do not in course of time become blocked with roots, &c. The water is not always so easily disposed of. At best we may only be able to lower the level of the water, in which case we must maintain a free exit for the surplus and remove it as quickly as it accumulates, either by pumping or by discharging into a stream, ditch, or drain; in the last case, it will be necessary to take precautions to prevent a back flow in case of flood or temporary stoppage of the drain. A hinged flap is most frequently used, which closes upon a prepared seating and is fixed to the end of the discharge pipe; or a trap or gully in which a copper or rubber floating ball is placed, which, when water backs up into the outlet, effectively closes the inlet, thereby preventing the flood water finding its way into the land drains. It is convenient to form chambers of brickwork in cement at intervals upon the land drains, to give access and ready means of inspection to see that they are working satisfactorily. Rain-water or subsoil-water should be excluded from soil drains if the sewage is to be treated either by chemical or bacterial processes, otherwise unnecessary expense will be incurred by the increased volume to be dealt with.

Stables.

The floors of stables should be of hard, impervious material, with as few joints as possible, and currented to fall to a channel just outside the stall divisions, which discharges either through the wall into a gully or into an open end in the channel and thence to a gully outside. This open end is a small pit formed with a white glazed channel bottom and cement sides, the pit is made large enough to receive a galvanised cast-iron perforated bucket to catch straw, &c., and is covered with a heavy hinged cast-iron grating. It is often desirable, however, to provide a shallow channel with a cast-iron cover, let in flush with the paving, and with similar branches to the centre of most of the stalls, to prevent the straw becoming wet. Loose boxes usually have the open end before described in the centre continued to the gully outside. Every channel and drain in a stable must be easily accessible for cleansing and sweeping, and there should be no gullies inside the buildings. The manure pit should have hard, impervious walls and floor, the latter currented to an outlet pipe discharging through the wall into a gully. These gullies should be self-cleansing, but must contain a galvanised perforated bucket to catch straw, &c. Besides stalls and loose boxes for carriage-horses, hunters and cart-horses, there is usually a sick box. This should be quite apart from the others and have a separate drain from it. The washing space should have a deep yard gully to retain the grit from washings, &c. If there be a shoeing forge, as is sometimes the case, do not forget to provide a drain from where the horses stand. Drains from stables, cowyards, piggeries, &c., should always drain into a liquid manure tank carefully built in

brickwork in cement and rendered watertight, having a rounded bottom to facilitate removal of sediment. There should be a pipe from ground level to about 1 foot 6 inches from the bottom, into which can be dropped the suction pipe of a pump attached to a manure cart. The liquid manure can then be carted to the fields or gardens where required. These underground storage tanks should also be provided with an access hole in their crown and an overflow to carry off any excess which may accumulate in time of storm from surface-water gullies, &c., and may be connected to the main drain from the house to the filter-beds, &c. An ample supply of water is important for the stables, but it should be distinct from the house supply. A cistern in the loft or clock tower, to which the men can pump water, is a great convenience, and a hose can then be used for washing horses and carriages. One or two sinks are necessary in the harness-room or in a small room adjoining, with hot and cold water laid on to them. If a suitable grate with a boiler be fitted in the harness or mess-room, an ample supply of hot water can be provided for these sinks, which will be found very useful for various purposes. While speaking of hot water, I might remind you that the coach-house should be kept dry and at an even temperature. This is best arranged for by providing small hot-water apparatus with pipes in the coach-house, and, if possible, continued round the men's rooms. Sometimes a loose box is fitted up as a Turkish bath for the horses. This can be heated by the same apparatus.

Cowhouses.

Each division in a cowhouse accommodates two cows, and a wide trough is formed just outside the heel post. This channel and the dunging passage should be formed of an impervious material with grooves to prevent the cows slipping, and in the centre of each division should be an open end similar to those in the stables and conducted to a gully outside. The space where the cows stand should be level and formed of well-rammed chalk or clay. Calving boxes are treated like loose boxes, with an open end in centre discharging into a gully outside. Calf-pens usually have an open channel discharging over a gully. Pigsties should discharge through a pipe into a wide channel outside the sties, and be conducted to a gully with a basket before entering the drain.

Dairies

should be in a cool, sheltered position within easy distance of the cowsheds, and well ventilated. Near at hand should be the dairy scullery with sink, hot and cold water laid on, and paved floor currented to a pipe through the wall, discharging on to a gully not inside the building, as is frequently the case.

Disposal of Sewage.

The sewage when it arrives from the house and buildings may be treated in various ways, but time will not permit of a description of them all; they would provide sufficient material for a whole evening's discussion. One very simple and effective method which has proved quite satisfactory in dealing with this class of sewage may, however, be briefly described.

The sewage from a large country house with stabling for forty horses and accommodation for twenty cows, after leaving the disconnecting chamber, is first retained in a large water-tight settling tank, covered over similar to the old-fashioned cesspool, except that the inlet and overflow are turned down, thereby, among other reasons, preventing the scum finding its way into the drains. This tank is capable of holding at least one day's flow of sewage. The overflow is discharged upon the surface of a long, open-air filter situated in a meadow and composed of broken bricks, clinker, &c., finished with smaller local material on top. The sewage is distributed over the surface of the open-air filter by channels or a sprayer, and allowed to percolate through 4 feet to 5 feet of material, when it reaches a layer of land drain pipes at the bottom, which conduct the effluent to the end of the filter and thence to the land or ditch. The effluent is colourless and odourless.

The water in the ditch which receives it was foul and a nuisance before the introduction of this form of filter, but when I last saw it, after the filter had been in use about three years, it was quite sweet and wholesome.

Mr. ARNOLD MITCHELL, in proposing a vote of thanks to Mr. Smith, said they all felt that it was most difficult to write a paper which would be of practical use to architects. Mr. Smith had been successful in his effort, for the paper was practicable and full of hints that would help them in their work. He could not help thinking, however, that the

buildings referred to in the paper belonged to a class that many architects hoped to build, though few were ever given the opportunity. In a measure Mr. Smith had been talking a little above their heads, for notwithstanding the wrinkles and hints as to planning and draining, the tone of the paper showed a luxury in building which would not be allowed by many clients. Architects had to accept facts as they found them, for they had little or no choice in the arrangement of certain details. It was remarked in the paper that they should endeavour to conceal their external drain pipes. Architects knew this, but the difficulty was how to do it and build within the requirements imposed by local authorities. He supposed, therefore, Mr. Smith meant that they should go as far as they could to conceal external pipes. Then with regard to baths. It was suggested that the ideal bath was a copper one. The speaker agreed with this, but it was more expensive than porcelain. The value of copper baths consisted in the extreme thinness of the metal that could be used and the economy of the bath when used for hot water. The material, however, was so thin that the bath would not stand hard usage, and it was necessary to have it cased. The hot towel-rail was a good suggestion. A very economical way of introducing it was to run the hot-water pipes round two sides of the bath, bringing them out some inches from the walls.

Mr. S. Flint Clarkson, who seconded the vote of thanks, said that to his personal knowledge Mr. Smith had not merely a tepid regard for gulleys and wiped joints, but an ardent love for them. His paper might have been more aptly entitled, "Notes as to the Sanitation of Country Houses and accessory Buildings," but apparently both the larger title and the limited scope of the paper were suggested when Mr. Smith was invited to prepare it. Perhaps he would deal at a future time with the branches of the subject indicated, but not treated in detail. Mr. Clarkson then made suggestions as to the provision of sanitary blocks in large houses reached by cross-ventilated (but warmed) lobbies, containing cistern chambers at top, water-closets, some bath-rooms, lavatories, &c., below. If in a generally accepted position on the north side of the building and near the principal staircase they would be readily found when looked for, and awkward windows, suggestive pipes and ventilators on the garden fronts of pleasant buildings would be avoided. In a well-arranged water-closet the seat should not be under the window, but against a piece of the unoccupied wall, draughts and trouble in water supply being thus avoided, and the soil pipes, if there was a cross-ventilated lobby, could be in accessible but not prominent positions on the outside of the walls. The speaker touched briefly on some of the details referred to in the paper. (1) For hot-water supply have cylinder adjoining the kitchen range, with short but large flow and return pipes, and a stand pipe serving as supply to fittings carried up from the crown of the cylinder. (2) For pantry and still-room sinks use framed sinks of teak. They were easily kept clean, were not injured by hot or any water, and no metal linings were necessary to make them watertight; a very ordinary washtub, he said, was watertight. (3) Cregeen's trays, Duckett's channels, Albion slippers and other contrivances with useful ends. It was well to keep waste pipes from fittings well away from waterless traps of gulleys when the traps of fittings were also dry. Such appliances must be kept clean, but no appliances (w.c.'s, sinks, gulleys, traps or trays) should be allowed to take care of themselves for any length of time. Mr. Clarkson noticed the use of varied spelling and various plurals for gully, and suggested the uniform use by architects of "gully" and "gullies." The term "inspection pits," he said, was preferred to "manhole," since the latter conveyed wrong impressions. Easy bends should not be made awkward by little shortenings of the pits, and the use of a valve was advocated to open a special outlet from the ground surface when the ordinary outlet was choked. Underground tanks for rain-water should generally be preferred to cisterns inside buildings, which made architects the slaves of their roofs, especially in a building of good extent; freedom from such petty cares, the speaker said, was worth a good deal, and was not worthless in other cases. An underground tank was cool, and could be easily supplied and readily cleaned. The overflow, if no filtering chamber was provided, should be from a pump at the bottom of the tank, a pipe being carried under the bottom and up the side to the level of the top of the dome. The pipe should lead the overflowing water into rubble in touch with a fair area of permeable subsoil, connections with foul drains being wholly avoided. Flues in walls, lined it might be with pipes all round and otherwise carefully arranged, might be fre-

quently substituted with advantage for pipes as air inlets and outlets from drainage. An abundance of recognisable sanitary pipes on the exterior of a comely building seemed barbarous, and the speaker said a strong effort should be made to obtain public approval of unostentatious flues, well arranged and suitably terminated. In conclusion the speaker said Mr. Smith had given in his paper the results of much patient study and the experience of good practical work.

Mr. J. S. Gibson also supported the vote of thanks.

SHEFFIELD SCHOOL OF ART.

ON Friday Sir Charles Holroyd, Keeper of the National Gallery of British Art, distributed the prizes to students attending the Sheffield Technical School of Art.

The Lord Mayor, who presided, said the school was instituted in 1841 as a school of design for the instruction and training of students in the principles of pure and refined decorative art. Fortunately, at the very beginning, a great genius, Alfred Stevens, became associated with the school, and Godfrey Sykes and Young Mitchell were its early teachers, with the result that the whole work of the students of those early days was dominated by a grand style, which laid the foundation of after-years of renown and success. This traditional teaching was to-day a great power and asset in the school. The sterling value—the mere cost per ounce of some heavy piece of plate, might be reckoned according to the market price of silver, but the commercial value would depend upon its artistic beauty. Such considerations as these, in his opinion, justified the Corporation in granting generous support to the School of Art.

Sir Charles Holroyd said he had a peculiar pleasure in coming to Sheffield to distribute the prizes, because Sheffield assisted him to get a prize at the Slade School of Art, where he studied under Professor Legros. They seemed to have a number of subjects in hand, and some of their classes appeared to be sufficiently complicated. He knew it was not quite fair to judge a school by a syllabus, and he hoped they would excuse his criticisms if they were not just. He noticed under the heading of "courses of study in the various classes" that the word "copies" occurred thirteen times. Copies might be all right—little and good. But if copies were used to the extent of thirteen times in one page, so to speak, he said that copies were bad, however good they might be. What was necessary was to educate the eye—to learn to see. He had had a good deal of experience as a teacher, and the rule that he had made was that he would never allow his student to work from anything that was not a fine work of art—good and beautiful.

The art school, technical or otherwise, should be a place of beauty in all her manifestations. The Sheffield School of Art was well decorated. The criticism he had to offer was that there were too many things on view at once. He would like to see in all schools of art a reserve room, where some of the things might be carefully stored and only put up for view at certain times. They might take a few hints from the Japanese, who only had a few beautiful things on view in their rooms at one time, so that visitors might concentrate their attention upon them. A school of art should be the temple of taste, and its inhabitants, the masters and pupils, the priests and acolytes, the arbiters and devotees of taste in the town. In an ideal school of art why should not the more advanced students be allowed to decorate the fabric under the supervision of the headmaster? All the crafts might be employed for this purpose, and as a painter he felt that a student would gain enormously and would do better work if he was doing it for a set purpose.

He would say to the students, all forms of art were an expression of joy in work. If they were not enjoying their work they must be doing it badly. He did not mean that the final result must please them; on the contrary, no good artist was ever content with what he had done; but they must enjoy the doing of it. Let them carry out in their own workshop, whatever branch of art they followed, the ideas they gained in the school, and at once. Students were too apt to say, "I have a fine idea, but I do not know enough to do it properly yet; I will wait until I know more." He said, "Do it now"; when they knew more they would have other ideas, and they would not do it so well. Let them strike whilst the iron was hot. They might not make a master-work every time, but they would work better for having ideas behind them. Let their surroundings be as beautiful as they could make them. Let them begin by getting rid of all that was false and ugly, even if they had to do with one plate, and get up at dinner to wash it for the pudding. "I often wish I was a bull in

a china shop," added Sir Charles. "But they could at least get a plain white plate. Ewers and basins, too, how horrible they were, almost all of them. Let them cure it by refusing to buy them. The maker would soon learn at least what was ugly then. They must not neglect beauty in the mind, but cultivate their intelligence as much as they could by reading only the best works. Read them often, and read as little trash as was consistent with their duties as good citizens. He knew a man who read Shakespeare all through every year, and he was a first-rate fellow. Let them study the lives of the great masters of their craft. Some would tell them that they would lose their originality by studying an old master. That was not so. The originality that would be lost by such study was poor stuff. One book he would recommend to them all was Vasari's lives of the painters, sculptors, and architects.

The prizes were then distributed.

Sir Charles Holroyd, in replying to the vote of thanks, said he hoped to set apart a room for Stevens's works in the National Gallery for British art, and he should like to hear from those who possessed them. He wished to acquire them for the nation.

The proceedings concluded with a vote of thanks to the Lord Mayor, passed on the motion of Alderman Wheatley, seconded by the Master Cutler.

JEWISH ARCHITECTS.

EVERY metropolitan synagogue of importance erected in the last half century, says the *Jewish Chronicle*, has been built by Jewish members of the profession. The late David Mocatta, who held the important position of architect to the London, Brighton and South Coast Railway, designed the old Margaret Street Synagogue in 1849. That building was replaced in 1870 by the Berkeley Street Synagogue, which must rank as one of the noblest Jewish temples in the world. Nothing could be finer than its imposing interior, spoilt though it has lately been by the removal of its reading-desk to the front of the Ark. The designers of this splendid fabric were H. D. Davis and Barrow Emanuel, the architects of the City of London School on the Thames Embankment, of Salisbury House, and of the Portuguese Synagogue in Lauderdale Road. Of the brilliant life-work of Mr. Nathan Joseph, the doyen of living Jewish architects, to whose fertile brain we owe the handsome Central and Bayswater Synagogues, and whose work outside the community is represented by the buildings, among others, of the Guinness Trust, it would be superfluous to write at any length. His nephew, Mr. Delissa Joseph, has introduced, as architect of the Hammersmith, Hampstead, South Hackney, Finsbury Park and Cardiff Synagogues a practically new style of sacred design, which combines striking beauty with effective economy of space. Nor must we forget that veteran architect Mr. H. H. Collins, whose graceful designs are to be seen in the Borough, the North London, the St. John's Wood and the Southampton Synagogues. In conjunction with his son, Mr. M. H. Collins, he planned that magnificent Elizabethan structure in South Tottenham in which our incurables are palatially housed. Mr. Lewis Solomon, who has lately been appointed architect to the United Synagogue in succession to Mr. Nathan Joseph, designed the Stoke Newington Synagogue, the Hayes Industrial School and the Soup Kitchen. As a youth he gave indication of future distinction by gaining the silver medal for architecture at University College. Among Jewish architects who have come into more recent notice may be mentioned Mr. Frederick William Marks, who is responsible for the latest addition to metropolitan synagogues—that of Brondesbury. Educated at first in London, Mr. Marks comes from Sydney, where he was the founder of the Sydney Architectural Association. He was awarded a silver medal by the Royal Institute of British Architects for an illustrated essay on "Five Famous Domes."

The Royal Scottish Society of Painters in Water-Colours at their twenty-seventh annual assembly elected the following officers for the ensuing year:—President, Sir Francis Powell, LL.D.; vice-president, William M'Taggart, R.S.A.; treasurer, William Young. Council—Walter M'Adam, J. Whitelaw Hamilton, James G. Laing, Patrick Downie, R. M. G. Coventry, and C. J. Lauder, representing the West; and Mason Hunter, Charles H. Mackie, Ewan Geddes, G. N. Langlands, R. Gemmell Hutchison, and C. P. Ross, representing the East.

GENERAL.

The Islington Borough Council have commissioned Mr. H. T. Hare to prepare plans for the library in Manor Gardens, and Mr. M. E. Macartney for one in Essex Road.

M. Marqueste, the French sculptor, has obtained from the Minister of Public Instruction the atelier attached to the Institut which was occupied by the late M. Barrias. The other ateliers are assigned to MM. Chaplain and Rotz, medallists; MM. Fremiet, Thomas and Guillaume, sculptors; and M. Vaudremer, architect.

Mr. J. Horsley Palmer, a past master of the Mercers' Company, has presented a painting illustrating the foundation of St. Paul's School by Dean Colet in the reign of Henry VII. for the decoration of the ambulatory of the Royal Exchange. Mr. T. L. Devitt has presented a fresco entitled "Modern Commerce," and both pictures will be unveiled at an early date.

M. Eugene Guillaume, the sculptor, died in Rome on Wednesday. Of late years he was director of the French school at the Villa Medici. He was born in 1822. His works were admired for their refinement.

On Monday last Messrs. A. W. S. Cross, M.A., and George Hubbard, F.S.A., visited Bristol and read papers before the local allied Society on "Registration." After the papers a full discussion ensued, and a resolution was proposed, seconded, and carried unanimously, "That this Society having heard the respective papers of Professor Beresford Pite on one side, and of Messrs. Cross and Hubbard on the other, is distinctly in favour of the principle of the statutory qualification and registration of architects."

The Earl of Rosebery, K.G., as President of the London Topographical Society, will receive members and guests at the conversazione in Drapers' Hall on March 16 at 8.30 P.M.

The Annual General Meeting of the subscribers and donors of the Architects' Benevolent Society will be held in the rooms of the Royal Institute of British Architects on Thursday, March 9. The president, Mr. John Belcher, A.R.A., will take the chair at five o'clock.

An Etching of the "Interior of Burgos Cathedral," by Mr. A. H. Haig, was sold at Messrs. Christie's on Tuesday for 45*l.* 3*s.*

Mr. Alfred W. Rich will hold an exhibition of his water-colour drawings of English landscape at the hall of the Alpine Club, Mill Street, Conduit Street, W., from March 8 till 25 inclusive.

A Paper on "Lead Work" will be read by Mr. G. P. Bankhart at the meeting of the Liverpool Architectural Society on Monday next.

Mr. David G. Hogarth, speaking at the Royal Institution on archæology on Saturday, said that scientific men would not readily admit archæology as a science, being uncertain as to its aim and province. Archæology must prove itself a study, and must have some end in view. Its immediate function was to serve history as a handmaid; it was, in fact, an ancillary science. One of the advantages of a knowledge of ancient history was that it enabled us to study simpler civilisations, and was a guide to man's action in the present and the future. It had a most important bearing on the problems of modern life. As an instance of this, when the question of feeding indigent school-children was being discussed, a reference was made to ancient Greece. Again, the question of rural depopulation had been faced by the Romans. In olden times problems such as these did arise, and in complicated ways; they were attacked and to some extent solved.

Sir William B. Forwood at a recent meeting of the Liverpool Corporation library, museum and arts committee alluded to the proposed extension of the Walker Art Gallery. The idea is to add some half-dozen rooms for paintings and sculpture on to the first floor, and on the same level as the present structure, thereby carrying the extension over a piece of land which, owned by the Corporation, is utilised for the storage of carts and materials. A rough sketch of the projected addition was laid before the committee, and in due course the matter will come before the Council.

Mr. Edwin T. Hall has been unanimously elected deputy-chairman of the Board of Estates Governors of Dulwich College. Mr. Hall was also recently appointed a governor of James Alleyn's Girls' School, one of the group of schools administered under the Dulwich College scheme.

The Glasgow Institute of Architects have agreed to write the Royal Institute stating that the Institute would be glad if, by putting a clause in the schedule of professional practice as to charges or in some other way, all doubt as to the ownership of drawings could be removed.



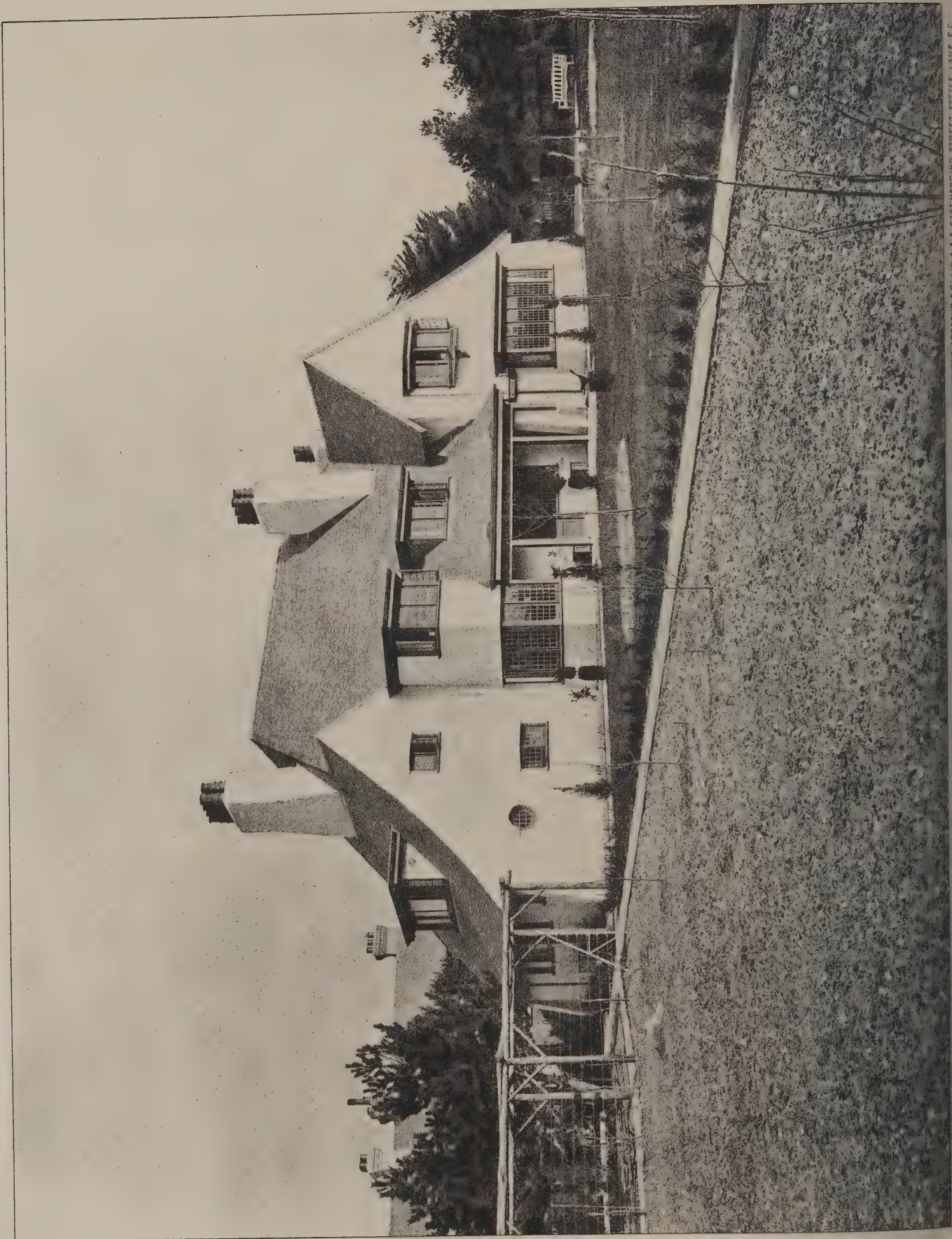
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*Continental Sketches by A. H. Haig.
The Church of St. Etienne Le Vieux, Caen.*



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Continental Sketches by A. H. Haig
South doorway of the Church of St. Philibert, Dijon





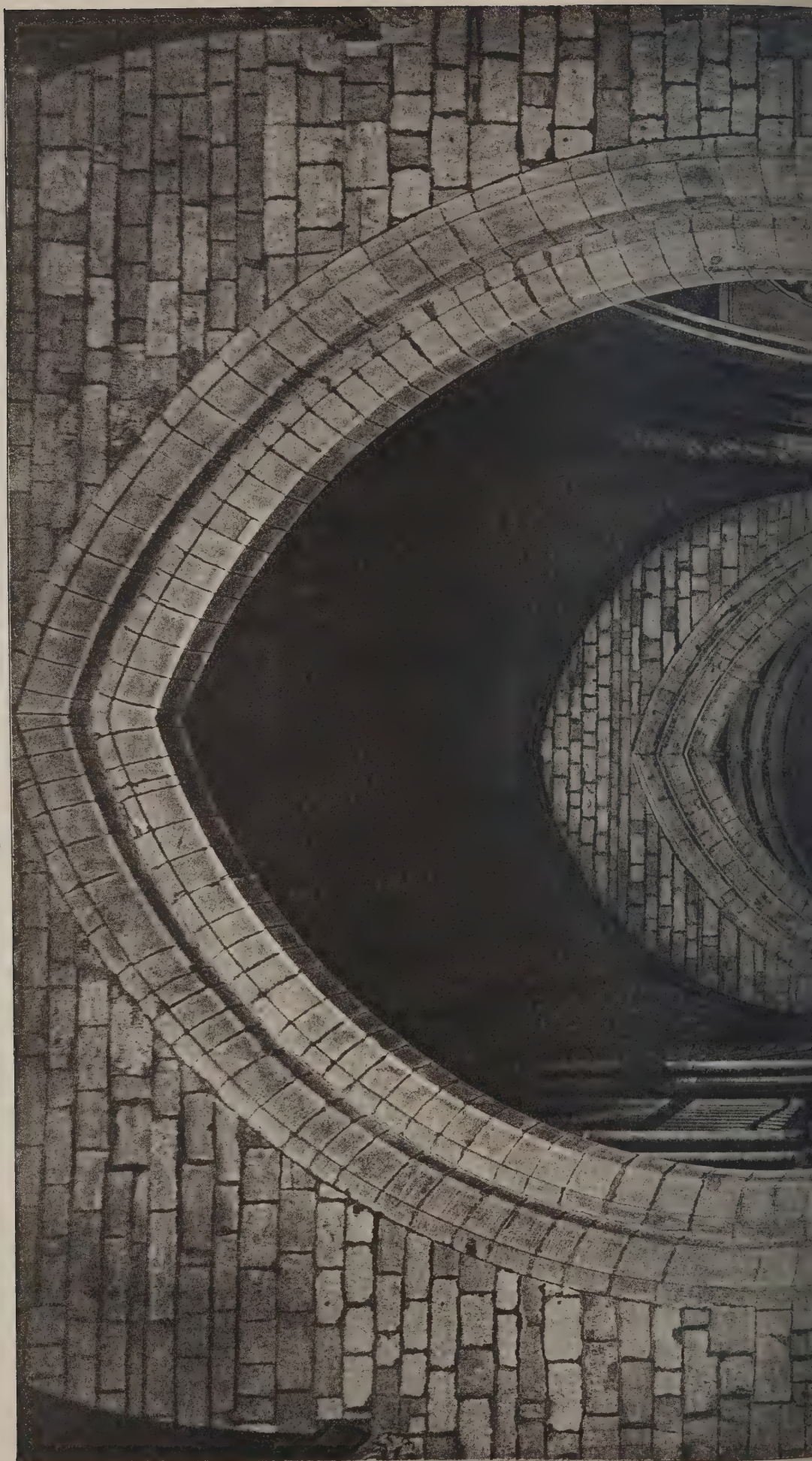
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"FOXWOLD," SOUTHBOURNE: THE LOUNGE

Messrs. BREWERTON & SHEPHERD, Architects.

Colic Architect, March 3rd 1905



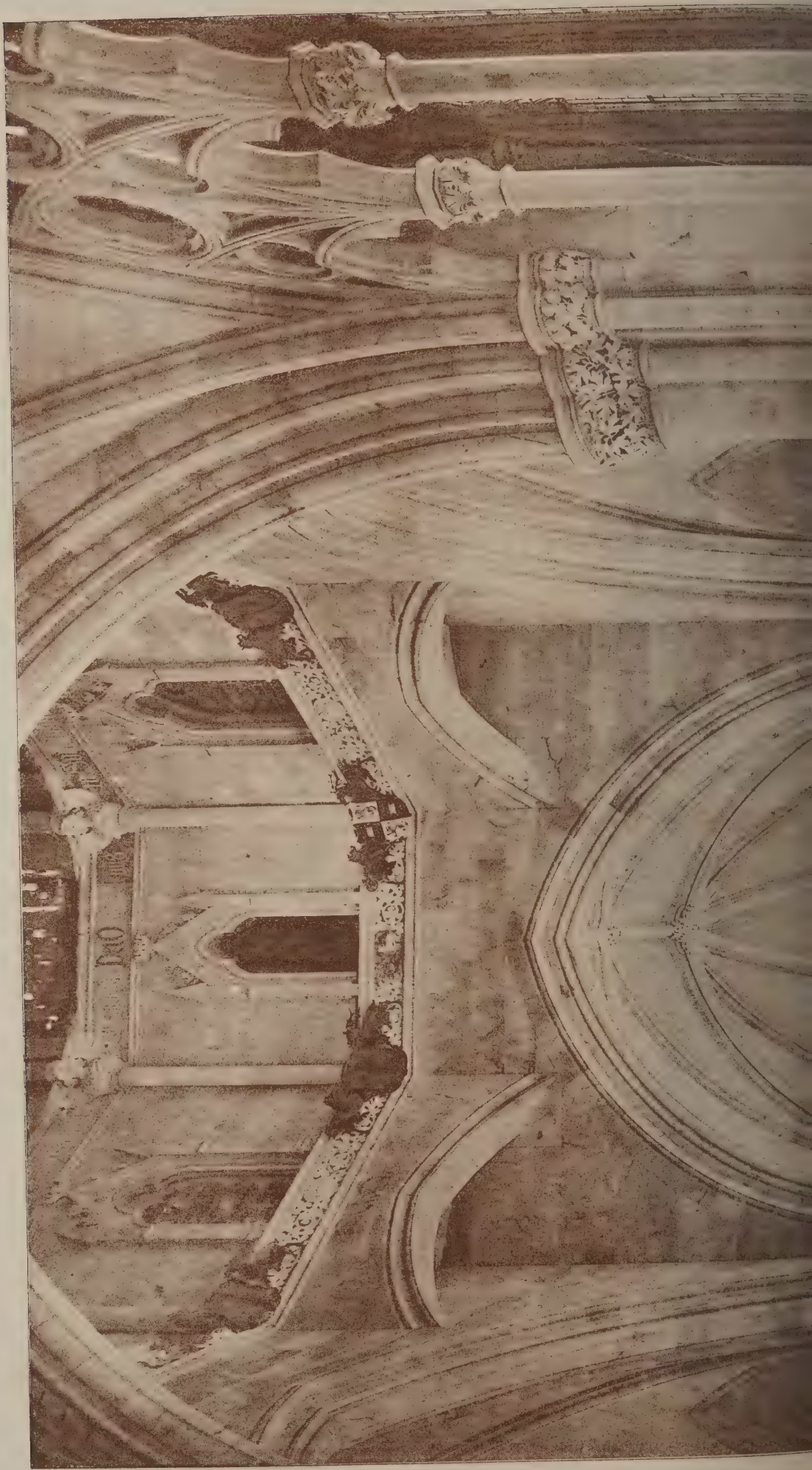


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CATHEDRAL SERIES, No. 521.—ST. ASAPH: THE CHANCEL FROM NAVE.

The Architect, March 3rd 1905





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"MOUNT STUART": ISLE OF BUTE, N.B.: THE CHAPEL, EAST END

SIR R. ROWLAND ANDERSON, LL.D., Architect.

The Architect.

THE WEEK.

THERE is some excuse when railway stations are found to be too restricted in area to meet the requirements of the present time, for the growth of traffic could not be anticipated. Municipal buildings are not under similar conditions, and it is never difficult to foresee the necessities of a future time. The work of the Corporation in Birmingham is hampered from the want of accommodation in the Council House. There have been additions, but the business seems to be growing. It is now proposed to utilise some land which was acquired by the Council. The subject has been under consideration for some time. In 1899 sketch plans were prepared by Sir ASTON WEBB providing accommodation for the health and other committees. At present the tramways, education and housing committees have made claims for additional space, and it is probable the water committee and the gas committee will also ask to be considered. Sir ASTON WEBB, it appears, has expressed his willingness to prepare sketch-plans which would suggest what is possible. But there is a general desire among the architects of Birmingham that the new building should be thrown open to competition. Mr. WHITTALL, who is a member of the Council, said on Tuesday if the architects were sure that would be done many of them would ascertain the best and latest designs in other places in order that they might be able to present drawings which would embody all the modern ideas. It was stated, in reply, that Sir ASTON WEBB had suggested the adoption of that course and would only act as assessor. The arrangement is satisfactory. The Birmingham architects have for some time believed that they were not treated fairly, for strangers were commissioned to erect buildings which were not always of a satisfactory character. They will soon have an opportunity to display their powers by making the competition memorable.

It is not difficult to understand why County Councils and other authorities should be in favour of centralisation and of having few officers to deal with. As they have also private duties they must desire that those which are of secondary importance, although in the service of the public, should be accomplished quickly. On that account many officials become pluralists. Occasionally we find there is rebellion against the arrangement, but it is quickly overcome. For instance, at the last meeting of the Horwich and Westhoughton education committee it was announced that the Lancashire County Council had decided to place the whole of the architectural and surveying work in the hands of the county architect, and that all work must be done through him. It was explained that an officer of the County Council, who held another office, had offered to do the whole of the architectural work for the county education committee for 300*l.* a year, with such staff as might be necessary, the total salaries not to exceed 1,800*l.* a year. Several local committees had protested against the arrangement and asked that delegates should be sent from Horwich and Westhoughton to a conference which is to be held in Manchester on the subject. There is a great difference between theoretical and practical economy, and it is to be hoped the delegates at Manchester will not be led astray by the specious statistics which are usually brought forward on such occasions, but which no honest architect or builder could endorse.

SOME years ago the late Mr. EWAN CHRISTIAN was annoyed at some remarks which appeared in *The Architect* about his conduct as an assessor in competitions. In one instance he was aware that the buildings could not be erected for the sum specified, and in another case he knew there was no money avail-

able. A large amount of labour was accordingly gone through without any advantage to competitors or projectors. There is no doubt that in all cases assessors should not regard themselves merely as severe and impartial judges of designs, but they should realise that by accepting their office they are guaranteeing the honesty and practicability of the transaction. The effect of acting resolutely in such a position has been exemplified by Mr. E. M. GIBBS, in Sheffield. He was invited by the health committee of the Corporation to serve as assessor in a competition of plans for houses which were to be erected by the City Council and to be let at a weekly rent of 5*s.* He considered the project of building houses under the conditions would not be profitable and the competitors' time would be wasted. Mr. GIBBS said he was willing to act if the conditions were modified so as to provide that he might award premiums to competitors whose plans showed the best attempts to successfully solve the question of cheap housing. The effect of Mr. GIBBS's resolution was that the committee reported that it was impracticable to proceed with the scheme. Afterwards Mr. GIBBS announced that he would agree to act as assessor. The Council at another meeting resolved that the question should be referred back to the committee so that they might try to modify the proposed conditions on consultation with the assessor.

WHEN Dr. PERCY was appointed to take charge of the sanitation of the Houses of Parliament, he was surprised and bewildered when he found there were no plans which indicated the drainage arrangements or the positions of the flues. That, no doubt, was caused by the divided authority which was allowed to exist when the great building was constructed. But the absence of the information embittered the struggle a few years afterwards between the Office of Works and E. M. BARRY. The authorities must have assumed that plans were prepared which contained such information as was desired by Dr. PERCY, but they were not given up because it was believed the representatives of the architect possessed a right to keep them. The question of ownership of plans is of course regarded differently by those who pay for the erection of a building and by those who prepare the designs. But it is not incumbent on the latter that they should preserve drawings, although occasions may arise when they would be very useful. A case of the kind has just occurred. The Liverpool Corporation have been able to acquire the architect's drawings for the Picton reading-room, the Rotunda lecture-hall, and the extension of the Walker Art Gallery, works which were executed between 1878 and 1882. The history of the adventures of the documents is not related, but the Corporation have obtained possession of them for five guineas. For reference they will be valuable. It appears extensions are contemplated, and by having them the preliminary work will be facilitated. When a case of that kind is brought before them, can we imagine that judges will conclude that the preservation of plans for public or private buildings should be left to chance?

WHILE M. DUJARDIN-BAUMETZ holds office, French artists assume that they will be treated with more consideration in their dealings with Government officials. One of the signs of the new condition of affairs is seen in the creation of a consultative committee, who will report on the works to be purchased from exhibitions. Among the painters appointed are MM. BONNAT, CARRIÈRE, COLLIN, CAROLUS DURAN, HENNER, LHERMITTE, and TONY-ROBERT FLEURY. There are also sculptors, medallists, engravers, &c. M. VAUDREMER, the architect, is also a member, and he will be able to judge whether paintings or statues are adapted for certain positions in public buildings. The following writers on subjects connected with the arts will also aid in the deliberations of the new tribunal:—MM. ARSÈNE ALEXANDRE, DE FOURCAUD, GUSTAVE GEFFROY, ROGER-MILÈS, and THIÉBAULT-SISSON.

EUGENE GUILLAUME.

TO an ordinary observer the late CLAUDE-JEAN-BAPTISTE-EUGÈNE GUILLAUME did not look like a man who was able to carve marble or to handle modelling clay on a winter's day. We speak of him as he appeared in the streets of Paris some five-and-twenty years ago, before he accepted the Directorship of the French Academy at Rome. He was born in 1822, and after he had passed his seventieth year he was only to be regarded as a very gentle but venerable patriarch. At the time to which we refer he would easily pass for an ecclesiastical dignitary, but one who had not to deal with turbulent subordinates; or he might be supposed to be a consulting physician, or a country gentleman who was the representative of an ancient family. He could be taken for an admirable adviser, but not as an initiator in any kind of business; he seemed unfitted to deal with opponents, for his own life was subjected to exact rule, and he could not understand why other people should not also follow a straight road.

All his life was suggestive of self-sacrifice. He was a native of the South of France, and he was intended for the profession of advocacy. As a relaxation to his courses of law in Dijon he amused himself with modelling. In a short time he imagined that he was better fitted to be a sculptor than a lawyer, and regardless of the sacrifice, he became a pupil of PRADIER. In the atelier and at the Ecole des Beaux-Arts he was a model pupil. If he were a novice of some religious order who had been sent into the world in order that he might learn how to model figures for churches, GUILLAUME could not have been more assiduous. It was inevitable that a student of that kind should be successful. In his nineteenth year GUILLAUME entered the Ecole des Beaux-Arts, and four years later, he gained the Prix de Rome on which he had set his heart.

His term of pupilage was in troubled times. In 1846 JEAN ALAUX, the painter, was appointed Director. He governed the school with tact during the revolutionary period of 1848 and 1849. But probably on that account, and because he did not perform some histrionic feats, his name is now forgotten. He, however, believed in mythology, and it is easy to imagine the kind of works which he desired the students to produce. He was faithful to the traditions of the school, and wished to see nature always idealised. When the Revolution broke out he passed through much anxiety, and in order that the students might not suffer he obtained permission that they should leave the city and travel to Florence, so that they could pursue their studies.

The confidence which GUILLAUME inspired, in spite of his youth, is revealed by his selection to act as diplomatist in the negotiations. The Triumvirs realised that the departure of the French students would be interpreted as an act of hostility to France and of their own incapacity to afford protection to strangers. GUILLAUME had to argue the case with MAZZINI and his coadjutors. He had also to persuade the War Department to lend him six horses and conveyances. At length he succeeded, and among those who left Rome were FELIX BARRIAS, the sculptor, who lately died; CABANEL, the painter; CHARLES GARNIER, the architect; EUGÈNE GUILLAUME, besides M. and Mme. ALAUX. When they reached Florence they had no resources, but the French Ambassador aided them; they rented a small house in a back street, and they resumed their studies in galleries and churches. When they were able to go back to Rome they found the gardens and the outer ateliers in ruins, but the palace was intact. In time they settled down to their duties, but the French Government and people gave no attention to what the Director and students had gone through.

On his return to Paris EUGÈNE GUILLAUME demonstrated his progress by his *Faucheur*, his *Anacreon* and his *Gracques*. He was not a companionable student, and no stories of good-fellowship had prepared the way

for him in Paris. The critics were severe upon him. MILLET had demonstrated about that time that a peasant when faithfully treated could be made an agreeable object. The *Faucheur*, which was a figure entirely nude, was by some considered absurd, and the *Anacreon* was declared to be too chilling a representation of the amorous and bibulous poet. In spite of adverse judgments the three works were acquired by the State.

EUGÈNE GUILLAUME apparently had what seemed to be an instinct for the principles of the union of the art which was the aim of the French Government to promote during two centuries. He recognised that architecture was entitled to the best skill of a sculptor, and he therefore made no objection to execute several figures and other decoration for the exterior of the Louvre, a kind of employment which laid him open to a sneer from EDMOND ABOUT. A more extraordinary proof of his abnegation in the same line was his undertaking a series of bas-reliefs representing scenes from the life of the patroness of the church of Sainte-Clotilde. That church, which was commenced by M. GAU and completed by M. BALLU, is an example of modern French Gothic. It was therefore necessary that he should adapt the Classic style, in which he had practised, to new conditions. As was to be expected, the reliefs are neither Classic nor Gothic, but they seemed to be less out of place than the sculpture by PRADIER, TOUSSAINT and DURET in the same building. We may, moreover, mention here that EUGÈNE GUILLAUME also produced some of the statues for the church of La Trinité. His *Instrumental Music* is one of the groups which adorn the lower part of the Paris Opera House.

There are very few of GUILLAUME's figures to be seen in Paris. His *Claude Bernard* is near the Collège de France. In the Luxembourg there is a bust by him of Archbishop DARBOY, who was executed by the Communists; it has some novelty, for the prelate wears a richly embroidered cope and has a mitre. In the Ecole de Beaux-Arts is a bust of INGRES, an artist who was somewhat like himself. GUILLAUME was not a pushing man, and many commissions for public works, which he could easily have obtained, were allowed to pass into hands that might be more forcible, but were less capable of producing refined sculpture. The proof of the esteem in which he was held is his membership of the Académie Française, as well as of the Académie des Beaux-Arts. For fifteen years he was Director of the Ecole des Beaux-Arts, then he became Director-General des Beaux-Arts. He was also professor of æsthetics and the history of art in the Collège de France. As Director of the French School in Rome he upheld the old traditions during several years, and he was allowed to retain the office although he passed his eightieth year. The Villa Medici was so dear to him that when he left the building he took up his lodgings in a neighbouring house. He had intended to have spent some weeks in Naples, but he succumbed last week to an attack of bronchitis.

EUGÈNE GUILLAUME, as an Academician and a man who believed in culture, could not approve of the old system by which artists were indifferent to all means of education except that of the atelier. The artist was, he maintained, entitled to take advantage of whatever existed which he could turn to account. He did not believe that art could live apart from history or archaeology, nor could the artist be indifferent to science. There was no necessity for him to exhibit himself as a pedant, but he should be regardless of any labour in studying if he could only make his work more truthful. Indeed, GUILLAUME considered that science was sure to aid the artist if it did nothing else than introduce order into his works, which was one of the conditions of beauty. There were some theorists who believed that art and science were antagonistic, that science was one day destined to usurp the whole region of sentiment, and then art would come to an end.

GUILLAUME agreed that the boundaries of science were to be enlarged, for that was a necessity of progress. But he asserted that profound emotions would arise whenever the human mind came in contact with nature, and there would be always poetry and art. To believe otherwise would be to suppose that art could suppress a part of human nature. In that faith he continued to the end, and we may thus regard EUGÈNE GUILLAUME not merely as a link with the past, but as one of the first representatives of the twentieth century and the future.

SPIERS TESTIMONIAL ESSAYS.*

WHILE the world lasts we suppose it will have the advantage of possessing men who, with ULYSSES, are impelled "to follow knowledge like a sinking star." What they accomplish is not always considered as profitable in the ordinary sense either to themselves or to others. But the instinct is able to surmount adverse criticism. Mr. PHENÈ SPIERS worthily deserves to be classed with those seekers after knowledge for its own sake. He has drawn and examined more buildings than any man known to be living, and he must be convinced that few among his subjects are adapted to be accepted as models for modern use.

Indeed, as regards construction, there is no advantage in ascertaining what was done by ancient builders. Materials can now be used as well as in the old days, and they can moreover be wrought into form with greater expedition. Mr. SPIERS, for instance, in speaking of stalactite domes, refers to OWEN JONES'S reproduction of the Hall of the Aberranges in the Crystal Palace. He says that "they are the most complicated arrangement I am acquainted with; something more is required before I shall be able to understand how he carried out the work." Now the whole of the work at Sydenham was executed by HENRY A. SMITH and his two sons, assisted by a very intelligent body of English workmen. "It is impossible," says OWEN JONES, "to praise too highly the zeal and intelligence of Mr. SMITH; by an endless variety of expedients for economising labour he has succeeded in clothing with ornament the 'Alhambra Court' in an incredibly short space of time." How HENRY SMITH and his associates surpassed the Moorish artists has been also described by OWEN JONES:—

In the Casa Real they [the stalactite arches] were built up brick by brick, and simply strengthened by pieces of lead, and no part of the palace is in a more perfect state of preservation. Our first desire was to construct these roofs and pendentives in the same way, bit by bit; but, on reflection, we thought that as the lesson it would teach could not be seen when completed, and could not be watched during its progress by the public, it was preferable to adopt a more economical and rapid process which modern invention had placed at our command. The invention of moulding in gelatine has been of essential service in aiding the rapid execution of the Alhambra Court, and in no case so signal as in the making of the stalactite arches and roofs. Instead of building them up on the spot the various combinations have been made on a table with the single stalactite bricks, and the combination moulded and fixed up in its place in one large single block; where combinations are many times repeated the saving in time has been very great. It is difficult to conceive to what extent the Moors would have been led by their vivid imaginations had they been acquainted with gelatine moulds. They do not seem to have been acquainted with piece-moulding or the use of wax or any elastic material, as there is no undercutting in any of their ornaments, and they could all be drawn out of a mould in a single piece. According to the Spanish historians this mould was of wood, and, if this be correct, the simple labour of casting the various patterns

from such an unyielding substance must have been very great.

THÉOPHILE GAUTIER considered the stalactites in the Alhambra to resemble the product of some fortuitous crystallisation rather than the work of human hands. He would probably undervalue the reproduction at Sydenham because it took a short time to complete and was produced at a low cost. But the case shows the difference between past and present and the superiority of the modern system of carrying out work. But if one of the workmen who were engaged in the court of the Crystal Palace were asked what was the meaning of such a mode of ornamentation and how it arose he would not be able to answer. It is doubtful if one of the Moors who worked under IBNU-L-AHMAR would be wiser. The origin of the stalactites is, however, one of the obscurities in architectural history which Mr. PHENÈ SPIERS has endeavoured to elucidate. It requires more research than is commonly supposed. FERGUSSON, who believed that a system of corbelling would overcome many modern difficulties in construction, and would make the adoption of concealed iron beams as lintels unnecessary, was of opinion that the stalactite or honeycomb decoration could be traced back to the Indian practice of bracketing with imitation of arches which was adopted in India by the Pathans. That view is not accepted by Mr. SPIERS, who believes that the mode of decoration was derived from Persia, where a somewhat similar class of work is still undertaken.

All the essays in Mr. SPIERS'S volume deal with subjects which are controversial. In "Mahometan Architecture" he endeavours to explain how it happened that while MAHOMET sought only extreme simplicity, his followers, wherever they went, erected mosques which still are admired for their beauty. He examines in detail the decorative features, viz. the entrance porch, the minaret, the open loggia and the dome. Describing the great porch at Fatehpur Sikri, of which FERGUSSON gives an illustration, he says:—"It contains the first principles which should be observed in all monumental design, and with which architects of all periods have constantly been struggling—first, to obtain grandeur by the introduction of large features; secondly, to give scale to these features by subordinate ones."

Another interesting subject is treated in "Sassanian Architecture." The dynasty of SASSAN, although lovers of art, made war almost on the scale of that now raging in the East, for at one great battle 100,000 Persians were slain. Several of the monarchs sought renown through architecture, and remains exist in which we see more than one influence. Although the Romans were defeated their conquerors appear to have taken instruction from them in the arts. On the other hand, Eastern inspiration appears to be no less evident. Mr. SPIERS believes that Sassanian work forms "a connecting link between Assyrian and Babylonian architecture on the one hand and Byzantine work on the other." The vaulting is curious from the preference given to elliptical contours which required little expense for centring. In the palace at Ctesiphon an arch has a width of 85 feet at the base, it is 105 feet high and the hall it covers is 163 feet in length. The ornament is generally of a florid kind, and the vine seems to have been a favourite pattern. Susa was one of the capitals of Persia, and was therefore under Sassanian rule. M. DIEULAFOY explored the site of the palace and there found the remarkable examples of decoration in pottery which are now to be seen in the Louvre. Mr. SPIERS objects to the explorer's restorations as shown in the engravings of his book. One important error is the introduction of antæ, for which there appears to be no surviving example in any remains of Persian architecture.

A paper which was read in 1893, on the influence of Byzantine Art in Italy from the fifth to the twelfth century, has also been reprinted. The information is derived mainly from DE DARTEIN'S and CATTANEO'S books.

* *Architecture, East and West.* A Collection of Essays written at various times during the last sixteen years. By R. PHENÈ SPIERS, F.S.A., F.R.I.B.A. Now first brought together and issued with further illustrations as part of a testimonial to the author. (Published for the Committee of the Spiers Testimonial by B. T. Batsford.)

The reason given by the author for preferring Italy to Byzantium is thus stated:—"For our immediate purpose as revivalists of principle in architectural design the unconscious adaptation by a nation of a foreign style may possibly teach us lessons which the study of the originals would at first fail to impart to us." But throughout the essay there is reference to the differences between the originals and the adaptations, as in the following extract:—

In the Byzantine capital animals or birds are rarely carved; the eagle, the lion, the lamb and the ram's head occasionally take the place of the volute, and support the angles of the abacus, but are probably not found in more examples than from 3 to 5 per cent. In the Italo-Byzantine capital it is almost the reverse. Animals and monsters and figures of all kinds decorate their capitals, relieved with interlaced work of various patterns. Though bold and vigorous, the carving of these animals is very barbaric, and it is only when they reproduce those animals or bird forms which occur occasionally in Byzantine capitals that the treatment is properly conventionalised and good. In fact, the finest capitals of the eleventh and twelfth centuries are those in which the artists have felt the influence of Eastern work and tried to reproduce it.

The church of St. Front, Perigueux, is a building which is always likely to receive attention in proportion to the care given to the study of architectural history. Apparently no document which can be relied on has been discovered which gives the date of the foundation of the building. It is therefore impossible to say whether the church was built in imitation of St. Mark's in Venice, and whether it is not the oldest church of its class in the South of France. Mr. PHENÉ SPIERS relies on the character of the masonry, and especially the vaulting, as affording a clue to its origin. His conclusion is that the masonry is of a more perfect kind than is found in buildings erected in the twelfth century; that there is no Byzantine feeling in the capitals, which are of an advanced Romanesque character. Finally, although the plan and general design may recall St. Mark's, the domes are of a form that is peculiarly French. There is a short essay on Jerusalem churches, and one on the great mosque at Damascus which was partly destroyed by fire in 1893, but has been restored. Finally, there is an essay on the influence of Greek art on the Persian order.

The essays relate to a large part of the earth and to a long period of building. But if we take the dome as the leading principle, it will be found there is unity in the volume. Much of the information given in the pages is either derived from observation, or is tested by it. The essays are, therefore, supplemental to the histories generally used. But, apart from the information, they have interest as a memorial of Mr. PHENÉ SPIERS's long and consistent efforts to elevate architecture without any thought of his own interest. He is the one Englishman who is recognised by American, Colonial and foreign architects as the honorary representative of the art to whom they can have recourse whenever advice is needed. His book may also be considered as having an international character, for who is without interest in subjects connected with Greece, Italy, Egypt, India, Persia and France?

The Civil Service Estimates for the year ending March 31, 1906, show that under Class 4, "Education, Science and Art, United Kingdom, and England, Scotland and Ireland," there is a net increase of 533,409*l.*, the amount for 1905-6 being 16,328,947*l.* The details for the United Kingdom and England include:—British Museum, 170,501*l.*; National Gallery, 19,014*l.*; National Portrait Gallery, 5,619*l.*; Wallace Collection, 6,593*l.*; the National Gallery for Scotland, 5,405*l.*; and the Irish National Gallery, 3,096*l.* The Public Works and Buildings estimates require a grant of 2,697,710*l.*, of which amount 62,500*l.* is required for the royal palace, 105,400*l.* for the royal parks and pleasure gardens, 56,700*l.* for the Houses of Parliament, 633,700*l.* for revenue buildings, and 464,000*l.* for public buildings in Great Britain; 32,000*l.* is to be voted for Peterhead Harbour, and 59,632*l.* for railways in Ireland.

THE CATHEDRAL, BIRMINGHAM.

ON the 2nd inst. the Right Rev. Charles Gore was enthroned in the cathedral church of St. Philip and St. James, Birmingham. In the *Birmingham Daily Post* two large views of the building were given with a description, from which the following is taken:—

Standing on the highest eminence in the city, and surrounded by a picturesque churchyard, St. Philip's Church is admittedly a good example of the Italian style of architecture, has always been a place of interest to the sight-seeker and visitor to Birmingham. The church is built in stone, and is about 140 feet in extreme length and 75 feet in extreme breadth. At the western end, between the two entrances is a square projection. Above rises an elegant tower with Corinthian pilasters, carried upwards by a series of carved figures (now almost defaced), within which are enclosed the four dials of the clock. A well-proportioned dome, with lantern cupola and ball and vane, surmounts the tower. The picturesqueness of the building is enhanced by a number of urns which adorn the parapet. Large and well-proportioned windows are enclosed in a range of lofty Doric pilasters. The church was designed by Mr. Thomas Archer, who was one of the Commissioners appointed to superintend its erection. He was the son of the member for Warwick, and in the reign of Queen Anne was a Gentleman of the Bedchamber. Mr. Archer was a pupil of Sir John Vanbrugh, and as a young man was, it is generally thought, on friendly terms with Sir Christopher Wren, the designer of St. Paul's Cathedral. To the Wren churches St. Philip's has many points of resemblance. Hutton, the Birmingham historian, goes so far as to suggest that the steeple was erected after the model of St. Paul's, and the historian then adds:—"Though without its weight, it does honour to the age that raised it and to the place that contains it. Perhaps the eye of the critic cannot point out a fault which the hand of the artist can mend; perhaps, too, the attentive eye cannot survey this pile of building without communicating to the mind a small degree of pleasure. If the materials are not proof against time it is rather a misfortune to be lamented rather than an error to be complained of, the country producing no better."

Unfortunately the stone used in the erection of the church was of a flaky nature, and in the middle of the last century yielded so rapidly to the combined operations of time and weather as to threaten the speedy defacement, if not destruction, of every jutting angle or ornament of the exterior. The question of restoration had to be considered and in 1864 the south-west portion was generously rebuilt at the cost of a member of the congregation. A few years later the work of restoration was continued by the generosity of the members of the congregation and their friends. The last portion of the body of the church was finished in 1869. The tower remaining in its original condition, the impression might be given that the church belongs to two epochs. One historical writer aptly observes that to the casual visitor the curious problem will be presented as to how a structure so much older in appearance found its way to the top of a comparatively new-looking church. A range of fluted Doric columns runs along each side of the nave. They bear semicircular arches and support the galleries overhanging the side aisles. Seating accommodation was provided for about 1,100 persons. Rather more than twenty years ago effect was given to a further scheme of restoration. The chancel, which is one of the chief architectural beauties of the church, was added. The fine Corinthian columns and pilasters harmonise well with the other portions of the church. The chancel floor was laid with black and white marble, and new choir and clergy stalls were erected. On the appointment of the late Dr. Bowlby as the Suffragan Bishop of Coventry a bishop's seat was also added. The organ, with its fine oak case, which for many years stood in the west gallery, was removed to its present position in the north side of the chancel. The gallery was taken down and the space beneath the tower thrown open, forming a handsome baptistery. The roof of the church was also extensively renovated. Exclusive of the chancel the cost of the alterations and repairs carried out in 1883 and 1884 amounted to 5,000*l.* In July of the latter year the edifice was reopened by the then Bishop of Worcester.

One of the chief glories of St. Philip's is the beautiful stained-glass windows, designed by Sir Edward Burne-Jones, distinguished citizen and Old Edwardian, and executed by William Morris. They are four in number and depict (the three in the chancel) "The Nativity," "The Ascension," "The Crucifixion," and "The Last Judgment."

in the baptistery window—a fitting memorial to Bishop Bowlby, an esteemed former rector. All the windows are characteristic of Burne-Jones's most artistic religious work. The Bowlby memorial window, which was unveiled only eight years ago, is generally regarded as the most striking.

Although the work of building the edifice was commenced in 1711, evidence is not wanting to show that the designer had his plans prepared long before that date. It may be that the merit and beauty of his drawings influenced the movement. At any rate, it is recorded that on May ye 23rd, 1709, the Commissioners, sitting at the Old Swan Inn (a famous coaching-house then situate in High Street), decided to go on with all expedition with the building of ye church, and to lay ye foundation-stone this summer." At the same time the Commissioners also resolved "to contract with workmen, to lay in materials, and to appoint overseers of the borough to collect one-half of the money, such money to be paid into the hands of Mr. Christopher Vaughton." The Commissioners present at this particular meeting were William Lord Digby, Sir Charles Holt, Bart., Sir John Bridgeman, Bart., Cleobury Holt, Arden Adderley, William Dugdale, William Binckes, Doctor of Divinity, and Henry Holden, Doctor of Physic. Many of these names will be readily recognised by old Birmingham residents. The new chancellor of the Birmingham diocese (Mr. J. S. Dugdale, K.C.) is a descendant of Mr. Dugdale, one of the Commissioners, and the venerable Lord Norton, who is one of the vice chairmen of the bishopric committee, is the head of the Adderley family.

The site, the gift of Mr. and Mrs. Robert Phillips, who were connected with the Inge family, was at the time quite outside the town. It was formerly part of a farm belonging to the Augustinian Friars of Bull Street), and bore the name of the Horse Close, afterwards the Barley Close. The nearest buildings were those of Bull Street, and during the year of the consecration of the church a narrow passage was made to it from that thoroughfare. That was known first as "Tory Row," and subsequently by "Temple Row"—its name to-day. The immediate neighbourhood was agricultural land. There was a cherry orchard on the spot now occupied by Cherry Street. For many years afterwards corn flourished in Bennett's Hill; this circumstance was within the recollection of the parents of many citizens of to-day. It strikingly demonstrates the extraordinary modernity of the city. At the time the site of the church was valued at rather more than 100*l.*, and there is a minute in the book of the Commissioners which states that on "July 18, 1709, Mr. Christopher Vaughton was to pay Mrs. Phillips 2*l.* 10*s.* for a half-year's rent of the Horse Close." In 1798 the latter leased for 120 years three fields reaching to New Street, at a small agricultural rent. In dedicating the church to St. Philip (which took place in 1715, four years before the completion), Hutton points out that the memory of the donor was thus perpetuated by being put in partnership with that of a saint." Though this practice of perpetuating the surname is somewhat unusual, there is another instance of the practice in Birmingham—St. Mary's Church, Whittall Street, named in honour of Mary Weaman, who gave the site.

The church was built by subscriptions, a large part of the money being collected by the overseers. Substantial donations to the building fund were also received from many towns in the Midlands. The building work was entrusted to a number of small contractors. One of these contracts, which was signed by John Cash, Richard Pinley and John Willinger, reads thus:—"We do promise and agree with the said Commissioners, that having bricks delivered in the Horse Close at 8*s.* per 1,000, and sand gotten and water allowed, we will well and substantially lay ye said bricks, and find lime and all other materials belonging to a bricklayer, and build ye said church according to ye draft now agreed on by 3*l.* per rod; and that we have a hundred of boards to make mortar tubbes, and that ye work is begun to go on with all convenient speed we can."

The minutes of the various meetings of the Commissioners are brief and to the point. At the August meeting resolution reads, "That Mr. Charles Blackum do contract with Darby for forty fother of lead at ye best advantage he can for ye use of ye said church." A large quantity of the stone required for the edifice was obtained from the quarries at Rowington, near Stratford-on-Avon. The contractor was a William Shakspear, who gave the following undertaking:—"I, William Shakspear, of Rowington, in the county of Warwick, do promise and agree with ye Com-

missioners to deliver at ye pit in Rowington Quarry ready for loading two hundred loads of stone at 4*s.* a load, each load containing 20 feet broken according to scantlings of Mr. Smith." (He was the clerk of works.) The wording of many of the contracts, no doubt well understood by the Commissioners, is by no means clear. It is quite impossible to gather from the entries the exact extent of the work agreed upon, or, in some instances, even of its character. This will be seen from an agreement, typical of others, which reads as follows:—"I, Joseph Pedley, do promise and agree to do ye plain of ye stone-work for 2½*d.* per foot, and ye mouldings at 7*d.* per foot, but if ye Commissioners find 7*d.* per foot for moulding not enough they to give something more." The Commissioners appear to have been well disposed to all who assisted in any way in the building of the church, and although at the present time much is being said against the system of "tipping," some such practice seems to have been carried out in those days. For instance, there is one minute which orders that 5*l.* shall be paid to a workman for his "paines about ye new church," while there is another resolution which stipulates that on the great festival of May Day 1710, which at that time was one of the greatest pleasure festivals of the year, a gratuity of "ye sum of 4*l.* 10*s.* 9*d.* shall be distributed by ye Commissioners among the workmen and labourers at ye church as they in their discretion shall think fit." The man Joseph Pedley had evidently taken a prominent part in regard to the negotiations for the supply of stone required for the church, and he is awarded "six-and-thirty pounds in consideration of his hard bargain made for the Commissioners."

SPECIALISTS AND ARCHITECTS.*

IN attempting to discuss the relations of specialists to architects, a difficulty at once presents itself in the varying factors of the professional equipment of the architect, the personal qualifications of both the architect and the specialist, as well as in the particular work which the specialist is called upon to do.

An architect of large and constant practice can afford to have complete or approximately complete provisions in his own office for every department of work covered by his practice. This is necessarily an expensive service to maintain, but the conditions are ideal for the execution of the best work. In such a case the controlling head employs only such specialists as assistants as will do his bidding in their relatively subordinate places, or whose independent work can be relied upon to conform to the known traditions of the office. It is possible also that the designers in the more purely architectural departments should be given a general oversight of the allied departments. Offices of this importance, however, are extremely few.

There is a second and larger class of offices, in which the conditions of American practice warrant the maintenance of a construction department, equal to handling the special as well as ordinary problems of steel-skeleton construction and heavy building, in addition to the necessary departments of design. The constructive engineer is generally capable of dealing with the mechanical problems of heating and ventilation, power plants and electrical installations.

By far the largest class is obliged to have not only the problems of special construction and mechanical engineering solved by specialists employed temporarily, but, in common with the second class, also problems of sanitation, landscaping, interior decoration, models of ornament, and such other work as general practice implies. In this class, the smaller the practice, the greater is the difficulty of securing the assent of the client to the extra fee which the employment of the specialist necessitates, and, it may be added, the greater the difficulty of the architect in securing a satisfactory specialist.

With the growing importance of the specialist, the acknowledgment that he has come to be a necessity, emphasised by such statements as that in the "Schedule," which provides that his services are to be paid for "by the owner" in addition to the fee paid the architect, contains a germ of harm to the best interests of the architect, in so far as it encourages too great independence on the part of the specialist. For the prime requisite toward the ultimate success of any building is that the architect, either in person or by a responsible deputy, shall

* A paper by Mr. Edgar V. Seeler, read at the annual convention of the American Institute of Architects.

be in full control of every individual item which goes to make his building a complete whole.

It may be generally admitted that the engineering specialists are much more tractable as associates than those specialists whose work requires a more definite artistic sense. Capable engineers are numerous, and they have no sentiment of hurt pride in admitting that they know little of art.

It is also probably true, on the other hand, that the artist's distaste for engineering makes it easier for the engineer to accomplish his purpose, so that in designing, the architect is more willing to make concessions to the engineer, or to meet him half way, than if the engineer presumed beyond his true sphere. The architect comes to know after very little experience that heat-flues, steam-pipes, electric-conduits, plumbing lines, demand space for their proper operation, and he allows for them, even though vaguely.

Again, it must be remembered that the engineering expert, whatever his particular branch, is not always capable of determining just what is meant by plans, nor of seizing at once the particular object which the architect wishes to accomplish. If the engineer is lazy or set in his ways, he is prone not to devote any more time to such work than is actually necessary to accomplish his own results, irrespective of their artistic merits.

The architect, therefore (and it cannot be urged too strongly), must in self-defence exercise a close supervision over the work of the engineering expert. He will require tact and persistency, in order to get the most out of the ingenuity which the engineering expert frequently possesses. He must, in every case, have it definitely understood that no work in those departments is to be finally determined without reference to him for its ultimate effect in the sum total of his building.

The landscape architect, the interior decorator, the glass designer, being men in whom the artistic sense is indispensable, are perhaps the most difficult of all to control; the more so that their functions are in many ways as important as that of the architect himself. Fortunately, these experts are much less fractious now than they were ten years ago; but the lack in each is usually due to a misapprehension of the relation which his work should bear to the building of which it is an adjunct.

It is a pity to have to admit that many architects do not consider the setting of their buildings or the treatment of interiors as an integral part of their design. It is a greater pity that many architects are not qualified to determine such questions. For such architects little respect can be expected from the specialist. The architect is of no help to him and is not sensitive enough to appreciate the work of the specialist. The incentive to the best effort is absent.

On the other hand, where an architect has mastered, if only in a general way, the principles of good design, where he has a clear conception of his completed work, he should have no difficulty in modestly but firmly impressing his convictions upon the specialist.

The term "landscape architect" is an anomaly. The chief service of the landscape artist—since it seems to be the only term available—is to apply his knowledge of planting, of the growth, form and colour of vegetable life, to the details of the general scheme of grounds or setting which has been correlated to the building and developed in its architectural work by the architect himself. The landscape architect should not be called upon to determine whether gardens shall be sunken or raised; whether walls, balustrades, dials and such accessories shall be of one mass and design or another, of one material or another; whether the formal garden shall be on this axis or that, or off axis altogether: to determine these things is the duty of the architect. The service of the landscape architect should mean advice in the choice of plants, in the relative value of trees, shrubbery and vines, in the planting of lawns and hedges, and in those items which are the result of special nature study and intimate living with nature.

Regarding the interior decorator, there is no possible slaughter worse than that he can accomplish, and usually does accomplish, with an otherwise harmless if not entirely wholesome architectural interior. And with the interior decorator may almost be classed, in ruthless disregard of architectural principles, the artist of eminence to whom is entrusted the picture panels. Puvis de Chavannes is almost the only modern who has realised the dignity of his work, and it is an open question whether, in the one or two examples of his work which we have the good fortune to

possess in America, he would not have changed his colour scheme could he have seen its surroundings in advance.

Of designers in glass and mosaic, how many can be trusted undirected with a work of importance, without the risk of their introducing an irrelevant style or an inharmonious colour note?

The only guaranty of the perfect working out of the various parts in the make-up of a building lies, first, in the education of the architect, whereby he himself is competent to conceive, to express and to execute, or to select from around him those who can do so; and, second, in the untiring supervision of his executants.

An interesting side of all this is that the intelligent specialist, whatever his work, is usually willing and desirous that general lines shall be laid down for him. He knows that his work gains in dignity, grows more interesting in variety, and helps more in the accomplishment of a unified result than would be possible under any other circumstances.

There is no reason in the world, other than deficiency of some sort on the part of the architect, why the architect and the specialist should not work side by side in entire harmony under the acknowledged leadership of the architect and the willing acquiescence of the specialist.

INDIAN MONUMENTS.

THE beautiful palaces and tombs, the mosques, the temples and the forts which still adorn India, whether in their perfection or in their decay, are, says the *Times*, but the survivals from the successive waves of destruction which have broken over the country. Innumerable others have vanished, leaving gaps in the continuity of the historic record of twenty-two centuries, the comparatively short period which has elapsed since the erection of the oldest building at present known to us.

As Brahmanism regained its ascendancy over Buddhism in India, many of the architectural records of the disappearing religion were ruthlessly destroyed or left to decay, cities and temples were buried under heaps of rubbish, overgrown by forest. But if the Brahman destroyed neglected the relics of Buddhism, he at least filled the place by temples and palaces of his own. The Mogul, in turn wrought havoc amongst religious buildings which, to him, represented nothing but a hateful and wicked idolatry. The fanaticism of a religion still in its early fervour urged him to iconoclasm, just as Cromwell's soldiers were impelled to mutilate and destroy what, to them, represented the survival of idolatry. The Mogul conqueror ruthlessly destroyed the palaces and buildings of the conquered; yet, like the Brahman, he atoned to some extent for his vandalism by works as beautiful as those which he demolished, working in harmonising with his own religious and artistic ideas. He built into his mosques or his palaces the materials of buildings which his fury, or his frenzy, had impelled him to raze. So again, Ranjit Sing adorned his Golden Temple at Amritsar with the spoil of mosque and tomb. In some cases, the caprices or the jealousies of successive rulers resulted in destruction or abandonment of the works of their predecessors even of the same dynasty, witness the ruins or incomplete buildings of Delhi and Fatehpur Sikri. Of all the invaders earlier than the British, the Maharrattas and Nadir Shah were among the few whose mission was solely destructive. The Moguls marched as a complete nation to seek a new home, bringing with them, besides their armies, their culture and that architecture which reached its highest development in the Alhambra and the mosque at Cordova in the west, in the Taj and the palaces of Agra and Delhi in the east.

With the English it was different, for they came at first as peaceful traders, though the force of circumstances compelled their development into soldiers and empire builders. No fanaticism urged them to destroy the monuments of the great religions which they encountered. They were tolerant by inclination as by policy; they had no wish to efface the memory of their predecessors. But if they were not active destroyers, they were equally not constructors of beautiful buildings. They brought no artists or architects. When they found a building suitable to their purpose they occupied it, or adapted it by alterations or additions in which harmony and beauty were alike sacrificed to convenience and utility. When they had to construct new buildings the same considerations prevailed. Private houses, public offices, churches, all bore the mark of men who built for utility not for beauty. They even added terrors to death by

expressible hideousness of the monuments which are to be found in every old Anglo-Indian cemetery, even almost under the shadow of the most perfect examples of Mahomedan tombs. As for the relics of the past, the East India Company had neither money, nor leisure, nor inclination for their preservation or repair. It recognised its duty in this respect. How could it be expected to do so when it was only after many years that it even awoke to its obligations in the making of roads and the construction of public works? As time went on a few exceptional men drew attention to the interest of the history of the past as recorded in the ancient languages and inscriptions of the country. It was not till nearly the middle of last century that Fergusson and Cunningham gave an impulse to the study of Indian architecture as an art or as a record of history. To them is due the rise of a continuous effort to preserve the monuments of the past. Here and there Governors-General had ordered a few repairs or researches, but their spasmodic efforts were more than neutralised by the vandalism of men who contemplated the sale of the Mahal for the value of its materials, or actually put up at auction Shah Jehan's marble bath, torn from his palace at Agra.

At last, Lord Canning, in 1860, showed his recognition of the duty incumbent on Government to preserve and study the monuments of the past by constituting the Archaeological Survey of Northern India under General Cunningham. The Viceroy saw that such work could not be left in India to private persons or local bodies. His views spread but slowly through the official hierarchy. Local administrations had more urgent demands on their limited resources; it was only governors of the stamp of John Strachey who saw their way to real work in the preservation or restoration of the magnificent remains in their charge. Now and again a district officer of taste and culture would do something in the way of conservation, or would seek generally in vain to inspire his local engineer with some rudimentary æsthetic sentiment. Elsewhere there were misguided men who prided themselves on having persuaded the custodians of a tomb or a mosque to decorate it with a coating of whitewash. Others could regard with indifference the intrusion into an emperor's marble audience hall of a soldiers' canteen or of brick partitions and glazed doors.

Lord Northbrook followed in Lord Canning's footsteps. Lord Lytton, a man of artistic tastes and Imperial ideas, gave liberal grants for repairs, and proposed the appointment of a Curator of Ancient Monuments, an office which was worthily filled for a few years by Major Cole, who did some good work. But, to speak generally, archæological work gained little popularity beyond the limits of the department. When Dr. Burgess, the successor of General Cunningham, retired in 1889 from the directorship of the Archaeological Survey, the appointment was allowed, on grounds of economy, to fall into abeyance. Provincial surveyors were left, but they had no controlling adviser and little progress was made. In 1898 Lord Elgin once more took up the question of reorganisation of the department, which Lord Curzon completed. India, including Burma, was divided into five circles, each under its own surveyor. Over them a trained archæologist, Mr. J. H. Marshall, was appointed to supervise operations, to initiate plans of repair or restoration, to prepare lists of existing monuments, to advise generally, and to carry out himself all works of great urgency. Local administrations have been urged to spare whatever is possible for the work, and have been helped by grants in aid from a central fund when local resources were overtaken.

The first report drawn up by Mr. Marshall shows at once the difficulties he has had to contend against, and how much he has already done in organising and in preparing a well-considered programme. Much material for records has already been collected, but not yet published. Until this has been worked up, this branch of work must give place to the more urgent calls of repairs and restoration, and to the checking of vandalism or the disastrous interference of uninstructed persons, which are still far from common; vulgar sightseers continue to disfigure walls with their signatures, wealthy custodians of a temple are anxious to cover its inscriptions with whitewash. The beautiful Tower of Fame at Chitor was rescued, only just in time, from demolition preparatory to rebuilding. The work had already been begun, under the advice of a railway engineer, when a timely report enabled the Viceroy to stop what was certainly an unnecessary, probably fatal operation.

It is affirmed that very substantial progress has been made in conservation, for which thanks are due to local administrations for funds provided, as well as for increased interest displayed. But, above all, success is mainly due to the interest of the Viceroy in the operations, and to his unstinted support of the Director-General of Archaeology. When, in the course of his tours, Lord Curzon's sense of artistic propriety is offended by the profanations of local officials or of the engineer's paint-pot and bricks, he refuses to rest till he is satisfied that the scandal has been removed. Where the Viceroy leads others will follow. Already there are signs of the passing of the age of neglect, and grounds for hope that English official buildings of the future, even outside the Presidency towns, will no longer be the eyesores they have hitherto been to every lover of the beautiful.

BRITISH EMBASSY, PARIS.

THE fine building of the British Embassy in the Faubourg St. Honoré, at Paris, which during the past six months has been in the hands of workmen engaged on the important work of repairs and restoration under the direction of Mr. Arthur Vye-Parminster, the official architect at Paris, is nearly ready for re-occupation, the house being now in the hands of the upholsterers. The history of this building is interesting on account of the many illustrious persons who have dwelt within its walls, and the rich interior decoration reminiscent of the various styles from Louis XIV. to the later days of Louis Philippe and the tastes of the guests of each epoch. The "hôtel" was built towards 1717 for the Duc de Charost, and its exterior architecture is of the style of Louis XIV. Franklin inhabited the building for some time, and it is stated that he installed on the roof of this house the first lightning-rod seen in France. The interior decoration underwent considerable modification and improvement under the influence of Pauline Bonaparte Borghese, sister of Napoleon, who occupied the building under the Empire and lavishly added to the decoration of the fine and lofty rooms in the rich but severe style of that epoch. A more personal souvenir of her sojourn remains in the beautiful Empire furniture, decorated with finely chiselled bronze, which filled her bed-chamber, and was purchased by the British Government with the house and property in 1816. This furniture and bronze is being restored by specialists in the chiselled bronze of that epoch. The decoration also underwent some modification and additions under Louis Philippe, when the fine ball-room was richly redecorated. All the drawing-rooms of the ground and first-floor suites look out over the beautiful garden, which extends as far as the Champs-Élysées. The new decoration of the fine *escalier d'honneur* is in an appropriately severe Louis XIV. style, with large moulded stone wall-panels, relieved by many high marble pilasters. The fine old Louis XIV. wrought-iron balustrade has been repaired and regilt. A convenient lift has been installed near the grand staircase for access to the first and second floors on a hydraulic principle controlled by compressed air. The electric lighting has been improved and added to, and some new lanterns and electroliers of suitable style added to the old and valuable ones existing. The sanitary arrangements have been entirely overhauled and renovated, and the kitchen and servants' annexe on the courtyard and street front improved and connected more conveniently with the main building. The private dining-room, which is being decorated with carved oak panels of Louis XIV. style, forming a suitable framework for several large old tapestries by Leynier, after Teniers, which have been carefully restored by the Manufacture des Gobelins, will form an interesting feature of the first-floor suite and a charming change from the severe white and gold or silk-hung walls of the reception-rooms. The British Embassy when complete will be one of the finest of foreign embassy houses at Paris. The present work will cost about 23,000*l*.

Jewish Architects.—The list of Jewish architects who have designed synagogues and other communal institutions, taken from the *Jewish Chronicle*, did not include the name of Mr. Percy L. Marks, as he does not come within this category. But Mr. Marks holds high position as an architect, both from the practising and the literary standpoint. His contributions to architectural literature are well known and appreciated. Recently there has been issued a second edition of Mr. Marks's work, "The Principles of Planning," the first edition of which was sold out in what may be considered as record time for a book of its class.

NOTES AND COMMENTS.

THE thirty-third annual meeting of the London Master Builders' Association was held under the presidency of Mr. JAMES CARMICHAEL. The report of the executive council, the accounts and balance-sheet for the past year were adopted. The general meeting gave instructions and powers to the Council to confer with the trade unions with a view to improve the present working hours arrangements. A warm vote of thanks was given to Mr. J. CARMICHAEL for the able and successful manner in which he discharged his presidential duties during the past year. The following officers were elected:—President, Mr. FREDK. HIGGS (Messrs. F. & H. F. HIGGS); senior vice-president, Mr. J. W. LORDEN (Messrs. W. H. LORDEN & SON); junior vice-president, Mr. WM. HIGGS (Messrs. HIGGS & HILL, LTD.); treasurer, Mr. F. L. DOVE (Messrs. DOVE BROTHERS); hon. auditor, Mr. A. B. H. COLLS (Messrs. COLLS & SONS). Executive Council.—The following were re-elected:—Messrs. C. ANSELL, G. APPLETON, F. S. BYWATERS, G. BIRD GODSON, F. MAITLAND MAY, HOWELL J. WILLIAMS, L.C.C., A. W. TURNBULL. The following were elected:—Messrs. F. P. RIDER, F. RUDDLE, H. J. SHELBOURNE.

OUT of England there is no part of the world in which SHAKESPEARE'S works secure so much attention as in Germany. Plays which are never produced on the English stage are performed in the theatres, and it is sometimes possible in the course of a week to see half a dozen of them in one of the great cities. There are several translations, and so great is the popularity the publishers have found it advantageous to bring out editions which cost not more than one penny a play. Indeed, it might be inferred after reading the books of some of the commentators that SHAKESPEARE was a German who accidentally was born in an English town. Owing to the general interest in him it is easy to understand the indignation which now prevails at Weimar because of an insult to his memory. Last year a Shakespeare Memorial was erected in that cultured little capital, where the plays were often performed under the direction of GOETHE and SCHILLER. A few days back a miscreant threw black acid on the work which quickly disfigured it. The authorities have offered a reward for his detection. Some suppose the act was done as a testimony to the belief that the memorial was unworthy of SHAKESPEARE. But condemnation could easily be expressed in another way.

THEODOR MOMMSEN, the historian, died in 1903, and there was no man of the nineteenth century who was better acquainted with ancient Rome and its institutions. He was a man of great independence, and at one time lost his professorship on account of his political opinions. But it would be very difficult to assign his position among the German parties. It has at length been decided that about 3,000*l.* is to be expended upon a statue of MOMMSEN, which is to be placed in the garden of Berlin University. The committee have arranged that the great scholar is to be represented as seated, and that no subordinate allegoric figures are to be introduced. It has been decided that seven of the most prominent German sculptors are to be invited to take part in the competition. Each of them will receive a fee of 1,800 marks. The height of the figure as modelled will be half a metre apart from the pedestal. The models are to be sent in by July 1. No special jury will be appointed, as the committee consider they are capable of selecting the most eligible model.

IRELAND is commonly supposed to have a more abundant rainfall than either England or Scotland. The reservoir at Roundwood, which contains the supply on which Dublin depends, is, however, found to be between 2 and 3 feet below the average depth; that indicates a water famine unless there is a long period

of constant rain. Rathmines, a suburb of Dublin, which at one time was expected to rely on the city for its supply, contrived to obtain possession of an independent source, and in a similar emergency offered a copious supply of pure filtered water. But it was proved that the generosity could not be long continued. At the present time, therefore, Dublin is without a neighbor that could help. It is said that the reservoir in December last contained 600,000,000 gallons less than at the present time, but owing to a bounteous fall of rain the difficulty was got over. The Corporation acquired 500 acres of land to enable a new reservoir to be constructed, but the city was not in a condition to undertake an expense of about 70,000*l.* Whatever the cost, the work will now have to be entered upon.

ILLUSTRATIONS.

WESTMINSTER CATHEDRAL.—ALTAR IN CHAPEL OF SS. GREGORY AND AUGUSTINE.

MOUNT STUART, ISLE OF BUTE, N.B.—THE CHAPEL, WEST END.
NEW CENTRAL HALL PREMISES, DONCASTER.

ST. PETER'S CHURCH, HORNSEY.

THE first portion of this church, consisting of nave and aisles, was erected in 1897 at a cost of about 6,000*l.* The work now in hand comprises the chancel, chapel, organ chamber and vestries. It has been found necessary in this portion of the work to modify the original design to a considerable extent so that the funds available should not be exceeded. The church when completed will accommodate 900. The walls are of red brick with dressings of Ancaster stone outside. In the interior the masonry is of Monk's Park stone. The roofs are covered with small green slates. The cost of the present work is 4,000*l.* The contractor is Mr. W. PARMENTER, of Braintree. The architects are Messrs. JAS. BROOKS, SON & GODSELL.

A CORNER IN LISIEUX.

ALTHOUGH much modernised, Lisieux still retains many of those quaint old half-timbered houses which seem to threaten to tumble on your head at every moment, and yet are likely to add a century or two more to an existence which has already lasted several hundred years. These houses were put together at a time when the speculating builder was as yet of unknown power, or at any rate when the men could devote more time and care to the selection of materials and to construction, unhampered by social and sanitary laws as we understand them. Much there is in the half-timbered houses of Normandy which we may consider somewhat rude, especially as regards the figure subjects; but however ill-proportioned and coarse the figures may be when seen near, at a little distance they are effective, and moreover greatly redeemed by the excellent carving of architectural forms. The subject of the accompanying sketch Mr. HAIG has been somewhat altered from time to time, and retains here and there some ornamental features, but is in this respect much behind some other houses in the town, especially one in the Rue aux Fèvres and some others—so much worn, however, that it requires close scrutiny to become aware of the almost complete covering of the timberwork with ornament which a hundred years ago must have given a very rich appearance to these houses. Lisieux is especially rich in good dormer windows of bold projection, so that the skyline of almost every street or view of houses is anything but tame. It is a tempting place for both painter and architect.

CHATEAU D'AZAY-LE-RIDEAU, INDRE-ET-LOIRE.

WE publish this week one view of the chateau attached to the small town of Azay-le-Rideau which is considered to be one of the most characteristic examples of its class in France. It dates from the time of FRANCIS I., and was erected for GILLES BERTHELOT. The sculpture is supposed to have been executed by JEAN GOUJON. The river Indre almost surrounds the chateau.

BRITISH ART AT THE ST. LOUIS EXHIBITION.*

THE walls of the United States Galleries were decorated with red or pale green jute, while the friezes by Charles S. Holloway, representing seated female figures with garlands of flowers containing the names of the prominent American artists, harmonised with the decoration of the walls.

The French Section contained the largest collection of pictures and sculpture that has ever been sent from that country, and was fairly representative, although it appeared that many of the most distinguished artists were not represented by their best works.

The scheme of colouring dominating their section was a neutral red, and the frieze was from a design by Besnard, consisted of a conventional figure closely repeated; the colours employed being a deep golden brown, blues and red.

The large space allotted to Germany was chiefly occupied with enormous historical canvases from the public galleries that had been painted by Imperial order. They are said to have been interesting historically, but from the artistic standpoint of less importance than many works that might have been included with greater advantage.

The chief gallery assigned to German art exhibits, as in Paris, was decorated with a somewhat monumental treatment of the walls, but the general effect is said to have been dignified and serious.

Holland sent a good collection of works by her best artists, and the decoration of her section was made up of broken greens and greys, with a frieze in which dull purple and dark green harmonised well with the walls.

The scheme of colouring in the rooms of the Belgian section was of russet and gold, and in their frieze the names of the great masters of the Flemish school were introduced. Belgium's art exhibit, I understand, was stronger in sculpture than in painting.

The Italian Section was again disappointing. It is unfortunate that Italy has failed to make a favourable impression in modern art at recent international exhibitions. The decoration of their walls and their frieze, however, were good and original, and were embroidered in harmonious colours.

Japan had a large exhibit of noted examples of their old school of art, as well as paintings by younger artists in the European style. She also sent a large collection of sculpture in ivory, wood and bronze which greatly enhanced the success of her section. The decoration of the Japanese rooms consisted of a general scheme of colours of positive reds, green and blue predominating, and the frieze was by Japanese artists, who worked it direct on to the walls.

And now I will ask you to accompany me through our galleries, following them in their order on the plan. The first room approached from the German Section is No. 70, which was devoted exclusively to black-and-white work—drawings in pen, pencil and chalk, etchings and engravings, many I fear to show to advantage in the limited space; we were anxious to have the collection as complete as possible, and few, if any, of our most important men were absent. Not only were our etchings both good and representative, but we had no reason to be ashamed of the examples of our characteristically English art of mezzotint played. Here we were able to show upwards of twenty fine drawings by Burne-Jones, a dozen by Leighton, several by Sir Seymour Haden, and ninety other eminent artists exhibited in this section.

Room 71 is the first of those devoted to oil-paintings. In the centre is Orchardson's portrait of "Sir David Watt, late Provost of Aberdeen." Without in any way diminishing the work, I ought to tell you that this superb picture produced an immense impression at St. Louis. On the right are:—(1) "The Pilot," by Napier Hemy, A.R.A.; (2) "The Portrait of Professor Kennedy," by Hugh Hemy; and (3) "Evening's Twilight," by J. E. Grace, A.R.A. Above is John Lorimer's "Idyll Autumn." On the left—(1) "Wet Sands," by William McTaggart, R.S.A.; (2) "Portrait of Admiral Fisher," by A. S. Cope, A.R.A.; (3) Ernest Parton's "In the Tangled Wild Wood." Above is Fred Appleyard's "Easter Time." The room contained many other well-known pictures—"Brown and Blue," by Alfred Parsons, A.R.A. The picture was painted on the upper Thames above the point where its junction with the Severn Canal makes the river navigable

From the paper by Mr. Isidore Spielmann, F.S.A., read at the Society of Arts on March 1.

for barges. "God rest ye, merry gentlemen," by Seymour Lucas, R.A., one of those delightful Christmas carols of the seventeenth century; "Portrait of Mrs. Reynolds and Daughter," by Luke Fildes, R.A.; "The Flowing Tide," by Moffat Lindner, N.E.A.C.; "The Storm," by Julius Olsson; "The Fracture," by William Orpen, N.E.A.C. A point of great interest in this picture is that the room represented is that in which Thackeray lived in Soho and wrote "The Newcomes." The artist's intention is an exercise in the rendering of light. "La Belle Dame sans Merci," by Frank Dicksee, R.A. The idea is taken from Keats's ballad, and depicts the passage:—

I set her on my pacing steed,
And nothing else saw all day long,
For sidelong would she bend and sing
A faery's song.

La Belle Dame, in a gown of rose-colour and silver; her red floating hair shadows the knight as she bends over him. He is held by the magic of her thrall; an ecstasy of wonder and devotion possesses him. Under this spell he is taken to her grotto to be lulled asleep, to dream dreams and to meet the fate awaiting him.

Room 72 contained a large number of important works, many by Scottish artists. In the centre was Sir John Millais's "Chill October," one of his best-known and finest works, lent by Lord Armstrong, which you will see again presently; above it, "On the Threshold," by Ernest Normand. On the right—(1) Millais's "Portrait of Cardinal Newman;" (2) the President's picture, "The Catapult;" (3) "The Lilypond," by G. D. Leslie, R.A.; (4) "Scene from Enoch Arden," by J. Sant, R.A. On the left—(1) Sir John Millais's "Portrait of Sir James Paget;" (2) the President's "Greek Dance;" (3) a sea-piece by J. C. Hook, R.A. In this room were also Lord Leighton's "Perseus and Pegasus with the head of Medusa;" "Portrait of Cardinal Manning," by W. Oules, R.A.; "The Dream of Launcelot," by Burne-Jones; "Portrait of Lord Charles Beresford," by Charles Furse, A.R.A.; and pictures by Peter Graham, R.A.; W. F. Yeames, R.A.; Briton Riviere, R.A.; the late Val Prinsep, R.A.; Ogilvie Reid, R.S.A.; Byam Shaw, and T. B. Kennington; and the "Portrait of Sir Walter Gilbey" and "The Borgia," by W. Q. Orchardson, R.A.

"Chill October," by the late Sir J. E. Millais, R.A. Pasted on the stretcher at the back of this picture is a sheet of paper, on which the painter has written the following note:—

"Chill October' was painted from a back-water of the Tay just below Kinfauns, near Perth. The scene, simple as it is, had impressed me years before I painted it. The traveller between Perth and Dundee passes the spot where I stood. Danger on either side—the tide which once carried away my platform and the trains which threatened to blow my work into the river. I chose the subject for the sentiment it always conveyed to my mind, and I am happy to think that the transcript touched the public in a like manner, although many of my friends at the time were at a loss to understand what I saw to paint in such a scene. I made no sketch for it, but painted every touch from nature, on the canvas itself, under irritating trials of wind and rain."

"Fantasie en Folie," by Robert Brough, A.R.S.A., the able young artist whose life was so sadly cut off by the terrible accident which recently occurred on the Midland Railway. This picture attracted great attention when it was exhibited at the Royal Academy, and still more at St. Louis. It represents a lady in black, seated in profile, contemplating a Chinese idol.

"The Portrait of J. C. Hook, R.A.," by Sir John Millais, is generally considered, with the possible exception of his "Sir Gilbert Greenall," the finest and most brilliant portrait he ever painted of a man.

One can hardly look at a fine portrait like this without recalling Ruskin's famous saying that, "The highest thing that art can do is to set before you the true image of the presence of a noble human being. It has never done more than this and it might not do less."

"The Avenue," by D. Y. Cameron. This picture was greatly appreciated at St. Louis, quite as much as at the Brussels Exhibition, and was considered a good typical example of the Scottish school. The prevailing notes of colour are rich olive, brown, gold and rose.

"The Auld House," by J. Macaulay Stevenson, is a picture which in feeling, of course, reminds one of Corot. The house is really a very inconsiderable item. The lake and its reflections of trees with undergrowth and atmosphere charged with moisture are characteristic of the painter's work.

"Portrait of W. W. Robertson, Esq., Master of the Merchant Company of Edinburgh," is considered an excellent specimen of the work of Sir George Reid, late president of the Royal Scottish Academy. Sir George also sent a "Portrait of Tom Morris," the celebrated golfer.

"The Borgia," by W. Q. Orchardson, R.A. Cæsar Borgia is best remembered for the remorselessness with which he rid himself of those who stood in his way. He generally did so by inviting his intended victim to a banquet, at which he would challenge him to drink wine, served to the doomed man in a poisoned cup, the other guests stealing away, for "to drink with the Borgia" was an honour which became synonymous with death. Mr. Orchardson's other works at St. Louis were his portraits of Sir Walter Gilbey and Sir David Stewart.

In Room 72, "The Image Finder," bronze statue by W. R. Colton, A.R.A. A work of much originality and strength and interesting in motive.

"A Wounded Leopard"—in bronze, by J. M. Swan, A.R.A. This bronze is a fine specimen of casting by the *cire perdue* process. It represents an East African leopard pierced through the shoulder and fore-arm by an arrow; the head of the arrow is bitten off and fallen, and the animal is biting and tearing at the remainder. It is a life-size work about 3 feet square at base and 3 feet high, and was begun and executed for Mr. George Jay Gould, of New York, by whom it was lent. The finished bronze has never been exhibited here, only an early sketch of the work in plaster.

Room 73 contained Mouat Loudon's "Alas! that Spring should vanish with the Rose;" David Murray's "Braes of Yarrow;" J. Young Hunter's "Forest Lovers;" Sir Wyke Bayliss's "The Sanctuary in the Certosa, Pavia;" Leighton's "Clytemnestra;" W. Hatherell's "River Picnic;" Perugini's "The World Forgetting."

On the opposite walls were, amongst others, Solomon J. Solomon's "Portrait of Mr. J. H. Levy;" Marcus Stone's "Soldier's Return;" John Collier's "Prodigal Daughter;" Arthur Hacker's "Leaf Drift;" and H. von Herkomer's well-known and widely exhibited picture, "Makers of My House," which represents his father and his two uncles. "The Doll's House," by William Rothenstein, N.E.A.C. When I asked the artist to describe this picture he replied that he had wanted to paint a man and a woman suggesting something of a mystery which underlies all life, and something of the dramatic possibilities of every situation. The title was only thought of when the picture was first exhibited in Paris. It was suggested partly by the room and partly because there seemed to be something akin to the lack of finality in Ibsen's semi-tragic plays. The only pieces of sculpture in this room were "Robert Burns," a statuette, by W. Hampton, and "Cock and Snake," bronze group, by J. H. Furse.

In Room 74 was Leighton's "Perseus and Andromeda;" Henry Moore, R.A., the greatest marine painter of his day, "Storm Brewing" and "St. Alban's Race;" Arthur Nowell's "Portraits of his Sons;" "The Sawing Horse" and "Tucking the Rick," by H. H. La Thangue, A.R.A.; J. E. Christie's "Pied Piper of Hamelin;" "The Duck Pond," by Fred Hall.

In the same room were "Washing the Beggars' Feet," by Sir James Linton, R.I., and works by Edward Stott and George Haité, and three by Sir Laurence Alma-Tadema, R.A. The well-known "Shrine of Venus" is one of the three Sir Laurence sent to St. Louis. It represents a hair-dresser's shop, classically imagined. The shop is in the middle plane, through which the clients have to pass. On entering the inner room they deposit a small offering, lay the usual marigold or a rose on the table before the shrine, in which is a statue of Venus. This picture now finds a home in America, where so many works by this artist now are. It changed hands during the Exhibition. "The Rainbow," by P. Wilson Steer, N.E.A.C., was painted at Bridgnorth, near the town through which the river Severn flows. It was the object of the artist, like so often that of Constable, to give the sparkle on foliage while a shower is falling, the effect being late afternoon towards autumn. "Cave of the Storm Nymphs," by Sir E. J. Poynter, P.R.A. The picture is intended to suggest the indifference of nature to destruction, and the worthlessness of the prizes of life in the face of the elements. In the presence of the artist it could hardly be becoming in me to dilate upon its beauties. "The Quartette," by the late Albert Moore, one of the most charming of that artist's works. It is quite remarkable for the grace of its artistic drapery and its exquisite colouring.

"Hylas and the Nymphs," by J. W. Waterhouse, R.A. The story, you will recollect, is that Hylas, a Greek youth who was sent to fetch water from a certain pond situated

amongst some hills, was carried down by the water nymphs. This is one of Mr. Waterhouse's best pictures, and was kindly lent by the Corporation of Manchester. "The Ricard Yard," by George Clausen, A.R.A., was also in this room, but this picture, like so many others, would not photograph well.

In Room 75 the centres were occupied by—(1) "The End of a Glorious Reign: the Funeral of Queen Victoria," by John Charlton; (2) "The Homage-giving, Westminster Abbey: Coronation of Edward VII.," by J. H. Bacon, A.R.A.; (3) "Washington's Farewell to the Army," by A. C. Gow, R.A. We also had in this room:—"The Dressing Room," by Mrs. Stanhope Forbes, A.R.W.S.; "Bolton Abbey," by David Murray, R.A.; "Alpine Scenery," by J. MacWhirter, R.A.; "A Sea Maiden," by Herbert Draper, R.A.; and "Warkworth Castle," by Sir Ernest Waterlow, R.A., the ancient stronghold of the Percys in Northumberland. It is picturesquely situated two miles from the sea, and was painted in Sir Ernest's happiest and most dignified manner.

Room 76.—Here we had "Shrimpers," by R. McGregor, R.S.A.; "A Highland Solitude," by A. K. Brown, A.R.S.A.; "Portrait of Tom Morris, the Golf Player," by Sir George Reid, R.S.A.; "Drowsie Cronies," by R. Alexander, R.S.A.; "In the Highlands," by Peter Graham, R.A.; "Serenade," by T. B. Kennington; "Across the Snow they Travel," by Joseph Farquharson, A.R.A. On the other wall, "British Wild Cattle," by H. W. B. Davis, R.A., and a "Portrait of Mrs. Denny," by W. W. Oules, R.A. I regret that a few of these and many others besides did not photograph sufficiently well to allow of slides being made of them.

"Boulter's Lock," by E. J. Gregory, R.A. This picture represents the most characteristically crowded part of the Londoner's playground. The time is about 5 o'clock on a Sunday afternoon, rather late in the season, when the dew is on the grass, and the lock with its struggling occupants is full to the brim with shadow, but still girt by a sunlit landscape, into which the children strive to emerge. The artist is himself afloat, in two different boats. When this picture was shown at the Brussels Exhibition, there was, in the French Section, another rendering of the same subject; it was curious to compare Mr. Gregory's version seemed to wipe the Frenchman's of artistic existence.

Room 76.—"King Edward I.," bronze equestrian statue by Hamo Thornycroft, R.A. It represents the great monarch and law-giver mounted on horseback, with a Plantagenet shield slung at his back, and holding in his right hand the famous statute of Winchester. This was originally designed for the great competition for the decoration of Blackfriars Bridge twenty years ago. Having got this fine model from Mr. Thornycroft, the sewers committee of the City of London took fright and decided not to venture any further action—beyond the consideration of its sewers. At least nothing has since been done.

"Castles in the Air," a statuette and pedestal in marble and inlays, by W. Reynold-Stephens. This is an attempt to embody a child's profound realisation of a wonder-story. A little girl of about two years leans back in a chair of enchantment, which stands upon a pedestal, the design of which is based upon fairy-castle forms. Flowers and fancy decorate the chair, which is capped by a woman's castle in mother of pearl.

Here in Room 77 we had "Surrey's Pleasant Hills," by B. W. Leader, R.A.; "The Return from the Ride," by the late Charles Furse, A.R.A., N.E.A.C. The portraits are by Mr. and Mrs. Aubrey Waterhouse—then Miss Lena Gordon. This was one of the most noted pictures in the Royal Academy in 1903, and was praised by all the critics as being finely designed, ably drawn, good and original in colour, and altogether a strong and remarkable achievement. Unhappily, as you know, Charles Furse died last year. "Shrimpers off the Coast of Brittany," by R. McGregor, R.S.A. The exquisite golden tone of the sunburnt faces and hands against the silvery grey of the sea and sky was the artist's chief motive in painting this picture. On the opposite wall were:—"Portrait of Lady Hickman," by A. Cope, A.R.A.; John R. Reid's "Rival Grandfathers," an old picture; the late M. Ridley Corbet's "Sunrise."

"The Cider Press," by Frank Brangwyn, A.R.A. which we have one of those compositions, founded apparently on a simple natural scene, which yet contains so much more than we ever realise at one time. Though the "Cider Press" gives the title to the picture, we feel that the artist's mind has been occupied with the enduring conditions of natural human labour, perhaps even more with the perennial beauty of sunlight, and, above all, of noble design.

"Venus and Anchises," by Sir William Richmond, R.A., deals with a theme as old as human nature—the association of love with the renewed life in springtime: This is one of Sir William's most successful pictures, and was lent by the Walker Art Gallery at Liverpool.

"The Edge of the Somme," by Alfred East, A.R.A., is a decorative picture. Its colour scheme consists of a series of yellow greys and ivory white. The sentiment it expresses is the quiet of an early morning. It was painted in London from sketches and studies made in the beautiful valley of Flanders. In the immediate foreground, the cool white colour of the swans forms a pleasing note in relation to the warm white of the sky.

Room 80.—This room was devoted to small oil-paintings and to water-colour drawings, but they are on too small a scale for you to see much of them. Here were "The Javelin," bronze statue by W. R. Colton, A.R.A., representing a girl playing with the water that trickles over the rock. It attracted great admiration among the visitors. "The Habit does not Make the Monk," a small oil-painting by the late G. F. Watts, R.A., is one of that playful character which Mr. Watts affected more and more as age came on him. The "May Morning on Magdalen Tower, Oxford," by W. Holman Hunt, is the finished study for the large picture. On the 1st of May at sunrise, for many generations, the choristers of St. Mary Magdalen College, Oxford, ascend with a band of music to the top of the tower belonging to their seminary and sing the Hymnus Eucharisticus. "St. Theophilus and the Angel" is an important water-colour by the late Sir E. Burne-Jones. After the death of Dorothea, as St. Theophilus was returning to the courts of Law, there met him on the threshold an angel bringing a basket of fruit and flowers, who, saying, "My dear Dorothea sends these to thee from the place where she now is," vanished. Theophilus, pondering all this, came at last to the true belief, and in it died. "The Princess's Tale," also by Sir E. Burne-Jones. This, as you will remember, was the last work completed by the artist.

We now come to the water-colours. To them Room 81 is devoted exclusively. This collection came under close observation and criticism, in view of our claim that water-colour painting is our national art. "The Battle of the Standard," by the late Sir John Gilbert, P.R.W.S., so-called the remarkable standard which was set up by the English at Northallerton during the war between King Stephen and King David I. of Scotland in 1138, an exceedingly powerful drawing. "Cumberland Moors," by the late John Collier, R.I., is an excellent example of his admirable work. Tom Collier was essentially a water-colour painter of the first rank, and by his untimely death in 1891 English landscape art lost an artist whose work rivalled that of J. M. W. Turner in quality. "The Battle of Flowers," by R. B. Bell, R.W.S., shows a silvery grey hall, in which a furious battle is going on between two parties of girls in flowing garments. Everything is in movement, for movement is the *motif* of the drawing, the wide loose masses swirling out from the girls, or here and there pressed close to their form, as the action varies. In "Andromeda," by Arthur Rackham, A.R.W.S., the subject chosen is a moment when the great sea-monster is approaching to devour his victim. He is grey-scaled and slimy like a fish, with webbed feet, and comes from the gloom of a cavern, crawling over the rock at the foot of which is Andromeda chained. The colour is rather grey and subdued; the drawing of the monster, wonderful. Mr. Rackham is a specialist in dragons. "Melisande," by Mrs. Adrian Stokes. Melisande is seated on a rock in a weird forest, gazing dreamily in the water where her crown lies. The story does not tell what crown it is, or where Melisande came from, but she hates the crown and does not wish ever to wear it again. There is no other note in the picture than black or white. "The Thorny Path of Knowledge," by Walter West, R.W.S.—a dainty little picture of a Quaker mother teaching her child to read—is a small work by one of the most brilliant of the younger associates of the R.W.S. "A Valkyrie," by Edward R. Hughes, R.W.S. This Valkyrie leaves her Valhalla, is soaring above a city formerly the scene of peace and heroism, but now at rest from warfare and sleep in the moonlight. The artist intends her to seem passing into the depths from the back of her winged horse, as though she had a great longing to live with the gods in their beautiful city, through whose heart flows a life-giving river. Sir Francis Powell, P.R.S.W., Fulleylove, R.I., the late Charles Green, R.I., Dudley, R.I., and Yeend King, V.P.R.I., as well as the presi-

dents of the water-colour societies, were all represented in this room.

The sculpture exhibited here included:—"Hymn to Demeter," in bronze, by Horace Montford, representing a girl marching in procession as she sings her hymn. She fits her steps to the music, the measure ever varying, her body bending and swaying to the same rhythm. "Love and the Mermaid," a bronze group by Charles J. Allen, is supposed to represent Cupid, love-god of the earth and air, who has wandered on to an outlying ledge of rock, and encountered a rival power in the witchery and charms of a Mermaid instinct with love and the sea. He stands bewildered and fascinated, and likely to fall a half-willing prey to the wiles of the fair captor. "Boy with Top," a bronze by E. Roscoe Mullins, is a fine rendering of nature.

Gallery J and K was devoted to architecture. Here 200 works represented seventy of our leading architects. It is impossible to read so long a list of names, but I think I can safely say that very few eminent men in that profession were unrepresented. British architecture, as is universally admitted, has made great headway of late, and the carefully selected works sent to America for this section must have convinced the public that we have able architects as well as painters and sculptors.

Room 79 connected the Fine Art with the Arts and Crafts Section, which you see through the columns. The pictures here:—"The Brook," by Leslie Thomson, R.I.; "Saving the Colours by the Guards at Inkermann," by Robert Gibb, R.S.A.

Room 79A.—The main collection of sculpture, although small, was representative, only one or two eminent sculptors being absent. Many of the busts and groups were placed round the walls of Gallery 79, where they showed to great advantage and added largely to the general effect. Some of the smaller bronzes, as you have seen, were grouped upon pedestals in Gallery 72 and round the Water-colour Gallery 81.

The short passage leading from Gallery 79 to Galleries 73 and 75 was well lighted from the side, and afforded good positions for a few bas-reliefs. The following were among the chief sculpture exhibits:—"Eve," a bronze statuette by Thomas Brock, R.A., represents the Universal Mother standing with her head bent forward, her left hand on her breast and her long hair falling down her back and over her shoulders; the serpent coils round the base, which is circular in general form on a square plinth. "The Sluggard," a masterpiece, if not the masterpiece, in sculpture by the late Lord Leighton is too well known and appreciated to need praise. The sluggard presses a laurel wreath under the heel of his right foot, a touch of morality, unlike Leighton's usual practice, being introduced. "Teucer," in bronze, by Hamo Thornycroft, R.A., was, you will remember, the Homeric bowman famous at the Siege of Troy. "The Kiss," by A. G. Walker, is a work which was carved direct in the marble; no preliminary clay model having been made, but merely a shaded drawing on the marble slab. "Snowdrift," by the late E. Onslow Ford, R.A., is a recumbent female nude figure in white marble on a plinth of Mexican onyx. This charming statue is one of the artist's last works, and was exhibited in the Royal Academy in 1902. It is about 4 feet long. "Mother and Child," the beautiful bronze bust by George Frampton, R.A., includes the portraits of Mrs. Frampton and the artist's son; the group is life-size. "The Spirit of Contemplation," a life-size bronze figure of a girl reclining in a neo-classic seat decorated with small figures of Courage, Philosophy, Life, Love, and the like. The work is by Albert Toft. "Psyche," bronze ideal head, by F. Lynn Jenkins. In it the sculptor, who is perhaps best known as a decorative worker, has aimed not merely at reproducing beautiful form from nature, but also at expressing the less tangible beauty of the soul underlying. "Age of Innocence," bronze bust by Alfred Drury, A.R.A. An ideal bust of a child, in which the sculptor endeavoured to portray the innocence, simplicity and *naïveté*, and, above all, the young flesh of childhood. "The Breton Peasant," by Professor Lanteri. The original of this bust in bronze is at the Musée de Luxembourg, and also at the Tate Gallery (each claims to have it). It was modelled as a practical demonstration before some French sculpture students in the North of France. "The Last Song," by H. Pegram, A.R.A. The idea is that of an old soldier dying, to whom a maiden comes and sings of his past deeds and future reward.

Room 83, with the two small rooms, 78 and 82, contained our arts and crafts exhibits, or, as the Americans termed them, original objects of art workmanship. For the

first time in the history of international exhibitions these were shown on a large scale side by side with the fine arts. A similar course was attempted at Chicago, but the response was then but meagre. Our American friends decided that at St. Louis the line which has hitherto separated applied art from the fine arts should be obliterated, and that, under the broader classification, any work, whether on canvas or in marble, plaster, wood, metal, glass, or in textiles, is equally deserving of recognition from the standpoint of conception and technique. The unity of art, therefore, which lay at the root of William Morris's teaching, was fully recognised at St. Louis. As you are probably aware, these artists, or groups of artists, work co-operatively, and both design and execute the works they produce. The United States exhibited nearly 1,000 original objects of art workmanship. Great Britain came next with over 400—the largest collection of its kind we have ever contributed to any exhibition. France followed with nearly 200 objects, and the other countries were far behind. In the selection of their exhibits, the arts and crafts sub-committee, presided over by Mr. Walter Crane, R.W.S., had a completely free hand, and Mr. Halsey Ricardo went to St. Louis to arrange them.

Room 83A.—Testimony should here be borne to the very great beauty of the bookbindings that were sent, besides the artistic pottery, dainty and elegant glass, refined jewellery, brilliant enamels and illuminations, which completed this interesting collection, and I am only sorry that time does not permit of my selecting individual objects for your closer inspection.

These were some of the chief features of this display of British art which has now been dispersed; but I must repeat that amongst the remainder were numerous works of equal interest. Some of them I hope to include in the illustrated souvenir which I am preparing for the Royal Commission.

It is a matter of some interest that our section was the first to be dismantled and packed up, and that we were the first to get away. In this we were not assisted by the United States Customs and other administrations, and we found that it is even more difficult to get things out of the country than into it. They evidently parted with us with great reluctance.

The United States duty upon paintings in oil and water-colour is 20 per cent. *ad valorem*, upon black-and-white drawings it is 25 per cent. *ad valorem*, whilst the duty upon pictures imported into the United States from France, Germany, Italy, &c., is but 15 per cent. It is difficult to suggest a reason for this preferential tariff in favour of non-British countries, but the cause is probably to be sought in the fact that they are able to offer some corresponding advantage to the United States. The artists of Great Britain are selected as the victims—though not the only victims of the open door which Great Britain throws wide to all comers—and they are consequently compelled to pay considerably higher duty than their foreign rivals. The duty upon bronzes is 45 per cent. A picture, as I have said, has to pay 20 per cent. of its value, but the duty upon its frame is 35 per cent. of its value, and 45 per cent. if covered with gold leaf. The duty upon groups made from composite materials may be anything from 20 per cent. to 60 per cent., according to the predominating material of which it is composed, and this is left to the Customs' officials to determine. All these are restrictions to business, but it is nevertheless gratifying to note that the sales from the British Art Section were considerably larger than those effected in any other foreign section. This, no doubt, was entirely due to the excellence of our section, and had it not been for the heavy duty a larger number of sales might have been completed. It is to be hoped that the claims of British artists to fair treatment will not be overlooked, if, as is alleged, modifications in the United States tariff are now in contemplation.

With reference to sales, there is something I would like to say with respect to the amounts which some of our artists ask for their works in comparison with those asked by artists competing in the other sections. From my experience gained at several international exhibitions, I cannot help thinking that many of them stand in their own light by fixing prices which are unlikely to encourage purchasers. Foreign artists of the first rank fix the values of their pictures at these exhibitions at prices which more readily command sales. Their failure at St. Louis is quite an exceptional experience for them. Following the example of France we also withheld our art section from competition for awards, and in this decision we had the hearty support of the arts and crafts committee. I may add that other

sections of the Royal Commission, notably the education section, also withheld their exhibits from competition.

A loss to the British art section was the absence of the works of many eminent artists who were prevented from exhibiting with this country by virtue of their American nationality, and many of them sent their works to the American Section. The list includes John S. Sargeant, R.A.; E. A. Abbey, R.A.; the late G. H. Boughton, R.A.; J. J. Shannon, A.R.A.; George Wetherbee, R.S.; McClure Hamilton; Daniel Wehrschmidt; Mark Fisher; F. Derwent Wood; W. J. Hennessey; and F. D. Miller.

The question is often asked whether these vast international exhibitions can really be successful, and whether the results they achieve are commensurate with the expenditure of time and money which they entail, and whether they are even appreciated as they should be. Those who ask whether the St. Louis Exhibition has been successful I would reply that you cannot gauge the success of any exhibition merely by the amount of money taken at the turnstiles. Its success can only be measured later, at all. The new reputations made, the number of orders booked, the fresh business opened up, the money brought into the country, and, above all, the new seed that has been sown, and the lessons that have been taught and learnt, these are factors that have to be taken into account.

There are many reasons why British artists should participate in these international exhibitions, quite apart from the question of the sale of their works. International exhibitions are international competitions. It is a matter of country *versus* country. The success of any one section adds prestige to the country it represents, and this is every patriotic Englishman should endeavour to assist in scoring a success at such exhibitions for the honour of the country. Apart from this, the names of artists who elude to be represented are kept alive, whilst those whose names are not to be found in the catalogue place themselves at a disadvantage in the public recollection and in the record of history.

The impression produced by our section was distinctly favourable, and the Press both of this country and of the United States was alike cordial and just in its appreciation of it.

In a still more official manner was our success brought to the notice of the public by the letter of our Ambassador to the United States, Sir Mortimer Durand, who thus wrote to the Foreign Office from Washington on November 18:

"The British Art Section is generally regarded as containing the best collection of pictures in the Exposition."

For this satisfactory result thanks are due to the private owners, societies and provincial corporations who came forward and lent their valuable works for the honour of the nation. The co-operation of our artists must be included in our tribute, for their zeal did much to insure our success.

Our work will have served its purpose if it has raised the prestige of British art abroad and helped to encourage our artists at home.

OPTICAL REFINEMENTS IN MEDIAEVAL BUILDINGS.

THE Museum of the Brooklyn Institute of Arts and Sciences has been invited by the Architects' Society of Rome to make an exhibit in Rome, under the auspices of the Society, of the photographs of Mediaeval architectural refinements which represent the observations of William H. Goodyear, curator of fine arts in the Brooklyn Museum. One hundred and fifty feet of linear hanging space have been assigned for this Roman exhibition, which will open on March 15 and continue until April 15. An invitation has been accepted, and duplicates have accordingly been made of sixty-eight of the large photographs which are on public exhibition in the Brooklyn Museum. The photographs were shipped from Boston on February 1 by the White star steamer *Canopic*. Forty-four of the pictures have a dimension of 2 feet by 3 feet (margins included), and twenty-four have a dimension of 18 by 12 inches.

Forty of the subjects represent Italian Mediaeval cathedrals, including fourteen for St. Mark's at Venice and eight for the Pisa Cathedral. Five subjects represent Eastern Byzantine churches at Constantinople and twenty-two subjects represent French Gothic cathedrals, including one for Notre-Dame at Paris. Fifty-six of the negative originals of these pictures were personally made by Mr. William Goodyear and the remaining twelve were taken under

rection. The exhibit also includes photographs of eight plans and elevations of the Pisa Cathedral in the original form of the cartoons of survey (some 36 inches in length), which were made under Mr. Goodyear's directions in 1895. Aside from an exhibition which was made by the Brooklyn Institute at the Liverpool meeting of the British Science Association in 1896, this will be the first occasion on which photographs of architectural refinements have ever been shown in Europe. The Boston public library made an exhibit last April of the Brooklyn museum series of the French cathedrals.

WORDSWORTH'S HOUSE AT PENRITH.

THE public who care for architecture, and believe that it is the duty of municipal bodies and private people to preserve for the use of future generations as much of local history, will be troubled beyond measure, says a correspondent of the *Manchester Guardian*, to hear that the Urban District Council of Penrith, into whose hands a few months ago there came a rare example of Robert Adam's work, have determined, against all argument, to proceed with the work of destruction, and to replace the interesting façade of Wordsworth's house and its loveliness of proportion with a brand-new elevation which has been prepared for them by their sanitary surveyor and engineer, and which is entirely out of keeping with Robert Adam's architecture. Nothing could well have been more short-sighted. The ratepayers are called upon to pay £100 to destroy hopelessly what was one of the most interesting buildings in their town and of its kind in the county of Cumberland—a building which would have, as years went by, been more and more sought as an example of the work of a master architect. The Urban Council, by a decision of eight votes to five, have not only decided to run in opposition to the wishes of many of the inhabitants of the town, but have virtually gone right in the face of all educated public opinion throughout the land. The city fathers have done this with their eyes open. It was not known a few weeks ago that any attempt would be made to replace the façade of Wordsworth's house, although it was known that it was intended to alter the interior of the building for municipal purposes. As soon, however, as it was found that the contract for alteration included the abolition of the façade, townsmen wrote protesting. The Society for the Protection of Ancient Buildings, the National Trust, and Professor Baldwin Brown, of Edinburgh University, took the matter up, and urged that for the sake of preserving so interesting an example of Robert Adam's work for future ages the Urban Council should pause. It was due that the contract was let, the scaffolding was already on the staircases had been cut down in the interior, and a large portion of the exterior cornice had been removed, but the Council determined to wait pending a conference with a local representative of the National Trust, and after this conference they decided to send the plans to the Society for the Protection of Ancient Buildings, and to ask their advice.

Their advice was lucidly given. They strongly urged that, if possible, all the interior of the house should be retained, but, failing this, they were unanimous in their opinion that the present façade should remain absolutely untouched, with the exception of forming a doorway, and they believed that the architect could retain the whole of the present building with the least possible alteration, and could find no difficulty in adapting it and retaining both the interior stairways.

Meanwhile the people in the town petitioned in the same direction, and Professor Baldwin Brown's letter and letters both from the National Trust and the Society for the Protection of Ancient Buildings were published in the Press. But, deaf to all entreaties, the urban authority by a majority vote determined to proceed, and though they gave a fair name of Penrith for ever in the dust by such an act of vandalism as only Philistia could be glad of, they set to work with a will to improve the work of Robert Adam, the master architect of his century, from off the face of the earth and to replace this invaluable specimen of eighteenth-century architecture by the modern and more pretentious work of their sanitary engineer.

Of course it is only fair to say that it is probable that if the city fathers had known the worth to the town of having a specimen of Robert Adam's work and the distinction that would have accrued to themselves from being able to show on municipal work in a building by him they would

never have attempted so ruthlessly to destroy a work of art in their midst. It is only just to realise that, having blundered into the alteration and let the contracts, they were in a very difficult position. But had they been firm when they found out their mistake, and determined to adapt the interior to their purposes and left the façade alone, they would have earned the congratulations of all thoughtful men of to-day and the thanks of all posterity in their native town.

LADY STAIR'S HOUSE, EDINBURGH.

DOWN one of the closes on the north side of the Lawnmarket of Edinburgh is the old mansion known as Lady Stair's House, which, by permission of the proprietor, Lord Rosebery, is to be occupied by the new University Settlement. Lady Stair, after whom the close is known, was Lord Rosebery's collateral ancestress, Viscountess Primrose, to whom occurred the event recorded in the story of "Aunt Margaret's Mirror," by Sir Walter Scott.

As may be seen from monograms on the entrance door lintel, the house was erected in 1622 by Sir William Gray of Pittendrum and his wife, daughter of Provost Sir John Smith of Groat Hall, an estate about two miles north-west of Edinburgh. The monograms are accompanied by one of the Scripture texts with the quaint spelling so common on old Edinburgh houses—"Feare the Lord, and Depart from Evil."

Some time after the year 1727 four rooms were added to the house by taking in part of a wing in James Court, to the west. It was in James Court that Lord Monboddo lived, and the house to which Boswell welcomed Dr. Johnson on his visit to Edinburgh adjoins two of the four rooms referred to.

In the course of its history the old mansion has been occupied by many people of high degree, but in the beginning of the nineteenth century it was tenanted by a firm of brushmakers, who carried on business in a shop on the north side of the house, which faced a street leading to the Earthen Mound, a thoroughfare begun as an approach to the New Town in 1782.

The door with the inscribed lintel enters on to a turnpike stair, which gives access to three floors above and one floor below, the close sloping down from the house northwards. Two tall windows on the east front light a two-storeyed hall, which has a gallery round two sides of it. A screen separates this hall from an ante-room to the north, which has its windows illustrated by heraldic glass relating to Lord Rosebery's ancestry. The two ancient stone jambs of the large hall mantel were happily *in situ*, and the fireplace has been completed by surrounding them with a stone-hooded lintel.

The house, which has been restored so that it might be a fitting town residence for his Lordship, has, besides the hall and ante-room referred to, a drawing-room and library and eight bedrooms, with the usual accessories of a modern mansion.

Two original narrow stairs which had been destroyed in later years have been reinstated, and three excellent "Adam" mantelpieces replaced after having their accumulated coats of paint removed. One of them is a very fine specimen of solid carved pear or lime-tree wood. Dutch tiles from a Lawnmarket house have been introduced into some of the fireplaces with advantage.

On the east side of the house had been affixed a lead tablet issued by the "Friendly Insurance Society of Edinburgh," established in 1720, and the first Scottish insurance office. It had the number 10 upon it, which must have indicated the policy as the tenth in order of issue. This tablet suggested a device, which has been executed in stone on the south front, of clasped hands uniting the dates of erection and restoration—1622 and 1896. On the east side is a panel with the Rosebery and Stair arms carved thereon.

The architect for the restoration was Mr. G. S. Aitken, Edinburgh.

The Brighton Education Committee have adopted a scheme for the extension and co-ordination of art teaching in the town and more complete organisation on the lines of Birmingham, Leicester and other towns, of the work of the various schools under the control of the education committee. A director of art studies is to be appointed, charged with the supervision of art teaching in the whole of the schools under the education committee, but to keep this position distinct from that of headmaster of the Municipal School of Art.

ROYAL INSTITUTE OF BRITISH ARCHITECTS.

A SPECIAL general meeting was held on Monday last, Mr. T. E. Collcutt, vice-president, being in the chair. The Chairman, having announced that the meeting was convened pursuant to by-law for the purpose of electing the Royal Gold Medallist for the current year, moved, in accordance with notice, that Sir Aston Webb, R.A., be elected for the honour. Whereupon it was resolved, *nem. con.*, that, subject to His Majesty's gracious sanction, the Royal Gold Medal for the promotion of architecture be awarded this year to Sir Aston Webb, R.A., for his executed works as an architect.

The following candidates were elected:—

As Fellows (16).—Frederick Edward Fellows Bailey, Harold Bailey, William Bevan (Pretoria), Charles Belfield Bone, M.A. Oxon, John Campbell (Wellington, N.Z.), William Edward Vernon Crompton, Charles Burrows Flockton, John Francis Groves, Arthur Jessop Hardwick, Arthur George Leighton, Henry Hill McConnell, Temple Moore, Archibald Neill (Leeds), Edward Turner Powell, William Gilmour Wilson, Edmund Walter Wimperis.

As Associates (31).—Thomas Ford Amery, Douglas Anderson, Edwin George Goodson Bax, William Somerville Beaumont, Martin Shaw Briggs, John Sydney Brocklesby, Charles Fry Callow, Charles Pitwood Carter, George Rowland Ellis, John Alfred Fletcher, Horace Charles Fread, Willie Josiah Freeman, Charles Lovett Gill, Herbert Haylock Golding, Percy Archibald Hinchliffe, Percy Aspden Horrocks, Arthur Benison Hubback, David Barnes Jenkinson, George Alfred Johnson, James Miller, Charles Nicholas, Herbert Luck North, B.A. Cantab, Claude Paterson, Albert Reginald Powys, Edgar Quiggin, Gerald Sanville Salomons, Henry Richard George Strong Smallman, Neil Campbell Smith, Ernest George William Souster, Charles Joseph Thompson, John Norman Randall Vining.

A paper was read on the "Exhibition Building, St. Louis," by Mr. Herbert Phillips Fletcher, of which an abstract will appear next week.

SCOTTISH PARISH CHURCHES.

AN address was recently given by the Rev. Professor Cooper, of Glasgow, to the members of the Edinburgh Architectural Association, entitled "A Minister's Thoughts in regard to the Arrangement and Furnishing of a Scottish Parish Church." Dr. Cooper acknowledged the achievements of other churches, but said he could advise only as to what might be admitted in his own, though he added that the time had come for the National Church to think of more than parish churches, and to consider how to make full use of the restored cathedrals which were being given to her. Adverting to the prospect of a restoration of Kirkwall Cathedral, he said it did not follow that the whole of the large sum of money now happily available for that should be spent at once, and he looked to the Association he had the honour to address to study that venerable minster and then come forward and tell the public, with the emphasis of real knowledge, what was needful to be done and what must on no account be done. Dr. Cooper proceeded to speak of the orientation of churches, the value of the spire, the church porch, the chancel, the side chapel for worship on week days, the vestry and the halls, which, he thought, in these days were receiving rather disproportionate attention. He praised a committee for the building of a new church in a northern town who had told the architects selected to compete for it that what they chiefly wanted was a fine interior. That showed a great advance upon the time, not long past, when it was outside elegance only that was thought of. He proceeded to denounce side galleries and sloping floors, and said that the worst place possible for the organ was the chancel. The danger most to be dreaded was the creating of a notion that the object of church music was not the praise of God but the people's pleasure. This was a thing at all points to be combated, not pandered to. He recommended a return to the pulpit canopy, advised that the chancel should not be too deep, yet spacious and unencumbered, and spoke of what was appropriate to the font and the Holy Table. The lecturer concluded by expressing the hope that the Scottish Universities would soon, like their English sisters at Manchester and Liverpool, be supplied with chairs of architecture, and that side by side with a thorough teaching of the classical orders there would be an exposition of those heaven-born thoughts and longings which were embodied in the sanctuaries of Christian worship.

Mr. Hippolyte J. Blanc, in proposing a vote of thanks to

Dr. Cooper, said he wished to correct a misapprehension which seemed to exist in the mind of the public as to sum that was at disposal for the Kirkwall Cathedral restoration. The sum was not so large as had been represented. He had made inquiries in England as to how much money had been spent in the restoration of various cathedrals, and he found that the sum that was available for Kirkwall Cathedral was only one-sixth of the amount considered necessary for some of the leading cathedrals there. He was a Conservative, and he hoped he should not ask one penny to be spent on Kirkwall Cathedral unless it proved to be absolutely necessary. He would have a sacred regard for every stone in that cathedral before he touched it.

The services of the chairman, Mr. H. O. Tarbolton, president of the Association, were also acknowledged.

TESSERÆ.

Ancient Liverpool.

THE earliest building in the neighbourhood of Liverpool of which there is any record is the castle or manor house built by Edward the Confessor in West Derby, not far from Croxteth Hall, which is alluded to in Domesday Book and of which the memory is still kept up in the Castle of Liverpool. Of its style and construction we know nothing. In Liverpool proper the castle built by King John was the cause and cause of the town, the *fons et origo* of all its future greatness. It was well placed for defence according to the strategies of the day, and admirably suited for the protection of the intercourse with Ireland. The plan of the enclosure of the building was well preserved in the irregular open space around St. George's Church. What were the original features of the building is not known, but from view of the town taken at a later period it consisted of a curtain wall with semicircular towers or bastions at intervals, an entrance gateway, towers and drawbridge fronting Church Street, resembling on a smaller scale the Edwardian castles in North Wales, such as Conway Castle. Another fortified stone building called the Tower was constructed by Sir John Stanley at the foot of Water Street at the beginning of the fifteenth century, which survived through all the changing fortunes of the port, and was finally removed in 1819. Liverpool for an ancient commercial port is singularly destitute of ecclesiastical buildings. Most of the other ports at an early period distinguished themselves by the magnificence of their churches. Hull, Yarmouth, King's Lynn, Newcastle-on-Tyne, Bristol, with many others, possess Mediaeval churches on a grand scale, which testify to the liberality, taste and piety of the mercantile classes; but in Liverpool no church at all existed until the end of the fourteenth century, and then it was a chapel-of-ease to the mother parish of Walton. It was a humble structure, built in three aisles with a square end tower. It remained until 1776, when the body of the church was taken down.

The Four Bars of York.

The four bars of York have much in common. A rectangular in plan, with superstructures of two or three stages, a central passage and a barbican. Each gate retains a central part or core which is evidently Norman and represents the original gatehouse of the eleventh century early in the twelfth century. It is square, has a round-headed arch at each end or face, and the passage between, but little wider than the arch, had a flat cover of timber. There was no portcullis and no intermediate rebate, as at Sherborne, but there were two doors which opened inwards from either face. No doubt there was an upper floor, as at Tickhill, where is a Norman gate, but little altered. During the Decorated period, probably in the reign of Edward I., the old gatehouses were replaced by exterior arches were added and grooves worked for a portcullis. The walls were also cased, and the upper part replaced by a far more elaborate structure of two stories battlemented and with round tourelles or bartizans, one at each end of the front angles, corbelled out from the first and second floor. Part of these additions, however, were removed. The chamber above the portal contained still in one case does contain, the portcullis winch, and a communication on either side with the city walls, directly or by means of a passage within the rear wall of the structure. At Monk Bar the entrance portal is vaulted but the other gates retain the original flat timber roof. In front of each bar was an oblong pen or enclosure contained within four walls, and projected longways across the street. This was the barbican. The wall was about 15 feet

had battlements front and rear, and had a gateway in outer end, and flanking this gateway two dwarf barchans corbelled out over the two angles. The rampart was entered by two small shoulder-headed doorways in the portcullis chamber. This structure rose out of the hill, usually having lateral openings through which flowed water. The passage was planked, and there was a drawbridge in front of the inner gate.

The Pyramids and Railways.

We may wander on the banks of the Nile and marvel at the remains on all sides of civilisation and of art, but we are not likely to imitate either. Take, for example, the Great Pyramid of Gizeh. As a permanent monument it is perfect, but a monument of what?—of mechanical monotony, of weary waste of labour. There would be no difficulty in building another pyramid to surpass this one, and it is not surprising that some worshipper of the past has not done upon such a task. So much is often said of the chief of machinery that we may, perhaps, sometimes console ourselves if there is not such a thing as profligate waste of manual labour; and to such a question the Pyramids cannot supply an answer. No doubt a pyramid is a wonderful work, and illustrates the stage of civilisation at which builders had arrived. A great railway is a work at least as wonderful; and if we look at it in the light of a specimen of present-day enterprise, it will not compare disadvantageously with the Pyramids. Considering the circumstances of the time, the mechanical difficulties attending the erection of the latter will appear to many more formidable than in the modern case; but in the case of the railway, the triumph of intellect is immeasurably more apparent, and if we compare the results of both we find that one ministers at best to morbid ostentation while the other serves the wants of ministers to the convenience of millions.

The Connection of the Arts.

Although the connection between each of the arts is different, yet the precise nature of the bond of union is different in the case of one art to what it is in that of another; and, on the other hand, in certain instances where the material of the art varies most extensively, the mental resemblance between them is frequently very close. Thus, in regards painting and gardening, the material employed is different as possible, but the principles of design and composition applicable to each are identical. So also with respect to music and eloquence. Indeed, there is this important point as regards the connection between the arts which is deserving of such consideration, and although at first sight it may appear somewhat paradoxical, yet its truth will be evinced when the matter has been fully considered, and that is, that the greater the difference in the material availed of as the vehicle for any particular arts, the more in essence and spirit do they in reality very often coincide. For while the difference in material causes them to appear wider apart, and indeed altogether distinct and unconnected, it is the circumstance of their being so fully and so indissolubly united in soul and spirit, if we may so term it, which alone serves to preserve the connection between them, and which is also alone the essential of their connection. The first of these mutual points of coincidence is the common origin which all the arts acknowledge. They coincide with one another in their germ in the mind, in the capacities and powers described, as also as to the mode of their invention. They further agree in each being either the ornamental or the means of calling forth the refined ideas and emotions. As originating alike in nature, in the representation of her, although in different modes and under different conditions, they all further coincide. Each of the arts, more or less, is the product of all nations and all times, and is found among barbarous as well as civilised people. The same taste in the mind which originates beauty in nature, produces that in arts the most remote from this, as in music and in costume. The same emotions which are called forth by grandeur in form are called forth also by this in sound.

Mediæval Monuments.

Monuments of Christians of an earlier date are stone coffins, the top formed prism-shaped, like the sloping roof of a house, for the purpose of allowing wet to run off; for they were always placed in the open air. Very ancient monuments are without inscriptions, the form being the only guide to their probable date. It appeared that it was not till 1160 A.D. that these stone coffins with their roofs began to be ornamented. From that period

carvings, chiefly of a grotesque character, but occasionally of armorial bearings (adopted at the beginning of the twelfth century), appear on them. These are the earliest specimens of sculpture, but they rise in excellence, completeness and beauty, as the dates advance. The sloping roofs gradually disappear with the progress of sculptured emblems. Not content with merely carving the cover of the monument itself, figures were cut separate therefrom, and the roof flattened for them to be laid on it. This state of art seems not to have been arrived at till the thirteenth century, so that the spectator may be sure that a monument with a flat top is not of greater antiquity than that period, whether supporting an effigy or not. Of figures there are various kinds. Those which have their hands laid on their breasts, with chalices in them, denote that the person commemorated was a priest. Prelates are always represented with their insignia—pontificals, crosiers or mitres. Knights, again, are to be known by their armour. Most of them are lying flat on their backs, and several with their legs crossed. In this case they have been either crusaders or married men; beside the latter a statue of the wife is sometimes laid. The various descriptions of armour by which the effigies of ancient military men are covered are sure guides to the era of their existence. Warlike figures of the earliest date are found in tegulated or scale armour, like that of William Longespée, Earl of Salisbury (son of Henry II. by Fair Rosamond), in Salisbury Cathedral, who died in 1227. Chain armour, or mail composed of small iron rings, is seen on figures of later date, extending from the reigns of Richard Cœur de Lion to that of Henry III. A specimen of this kind of armour may be observed in Hitchendon Church, Buckinghamshire. Plate armour seldom appears on knightly effigies more ancient than the latter reign. Female figures adorned with a mantle and a large ring, though they afford no clue to a date, denote that the deceased had taken the vow of chastity. Armorial quarterings of arms annexed to tombs show them to have been raised subsequently to the fourteenth century, while supporters were not adopted till Richard II.'s time. At a later period, arches were raised over sepulchres to protect them from the weather, but gradually sepulchral monuments were removed within doors and built in churches. In process of time it was found that these arched monuments took up too much room even in the most spacious cathedral. To lessen this evil a plan was devised which gave rise to the practice of annexing chapels to the churches expressly for containing such mausoleums. These chapels are in many instances only separated from the main body of the building by iron rails, and are entered by doors from the side aisles. This practice was not commenced till the fifteenth century.

Tudor Hearths.

The windows had curtains, and were glazed in the manner described by Erasmus; but in inferior dwellings, such as those of copyholders and the like, the light-holes were filled with linen, or with a shutter. The hearth-recess was generally wide, high and deep, and had a large flue. The hearth, usually raised a few inches above the floor, had sometimes a halpas or dais made before it, as in the king's and queen's chambers in the Tower. Before the hearth-recess, or on the halpas, when there was one, a piece of green cloth or tapestry was spread, as a substitute for the rushes that covered the lower part of the floor. On this were placed a very high-backed chair or two, and footstools, that sometimes had cushions, and, above all, high-backed forms and screens—both most admirable inventions for neutralising draughts of cold air in these dank and chilling apartments. Andirons, fire-forks, fire-pans and tongs were the implements to supply and arrange the fuel. Hearth-recesses with flues were common in the principal chambers of houses of persons of condition; and were superseding what Aubrey calls flues, like louvre holes, in the habitations of all classes. The adage that "one good fire heats the whole house" was found true only in the humbler dwellings; for in palace and mansion, though great fires blazed in the presence chamber, or hall, or parlour, the domestics were literally famishing with cold. This discomfort did not, however, proceed from selfish or stingy housekeeping, but rather from an affectation of hardihood, particularly among the lower classes, when effeminacy was reckoned a reproach. Besides, few could know what comfort really was; but those who did valued it highly. Sanders relates that Henry VIII. gave the revenues of a convent, which he had confiscated, to a person who placed a chair for him commodiously before the fire and out of all draughts.



Jewish Architects.

SIR,—May I be allowed to point out that in the article on "Jewish Architects" which you cite from the *Jewish Chronicle* there is an important omission? Before the statement, "Every metropolitan synagogue of importance erected in the last half-century has been built by Jewish members of the profession," certain exceptions are pointed out. One of these is the new West End Synagogue (in St. Petersburg Place, close to Orme Square, W.), which is by Mr. Audsley, and practically the counterpart of his synagogue at Liverpool; and the other is the Great St. Helen's Synagogue, now to be reckoned among the more ancient places of worship.—Your obedient servant,

M. H. SPIELMANN.

21 Cadogan Gardens, S.W. :
March 4, 1905.

GENERAL.

Mr. S. J. Thacker, architect, died on Tuesday in his seventy-third year.

The Royal Scottish Academy at a meeting last week resolved to elect to the rank of Associate a member of each branch of art, viz. one painter, one sculptor and one architect. The resolution will have to be confirmed at a second assembly before the election takes place on the 15th inst.

The Dean Hole Memorial executive committee have instructed Mr. F. W. Pomeroy to execute a recumbent figure of the late Dean in marble, and in conjunction with Mr. C. Hodgson Fowler, architect to the Dean and Chapter of Rochester, to design an altar tomb or base for the figure. The work is to be completed within eighteen months. A site for the memorial will be selected in Rochester Cathedral.

Mr. Alfred Griffin, architect, has entered into partnership with Mr. Benjamin Woollard. The practice will be carried on under the style of Griffin & Woollard.

The United States Senate have passed a Bill authorising the appropriation of 1,250,000 dols. for the enlargement of the Metropolitan Museum of Art, New York. It is proposed to add a wing to the Fifth Avenue side 350 in length.

Pius X. has issued a brief to the members of the committee interested in the restoration of the abbey church of the Benedictine Monastery of Monte Cassino authorising them to undertake the work.

The Executive Committee appointed for the purpose of carrying out the memorial at Eton of Old Etonians who fell in the South African war have received a report from the committee of taste and design upon the question of the plans for the memorial buildings. The plans have been recommended and approved and are the work of Mr. L. R. Hall, to whom the first premium was adjudged in the competition open to Etonian architects last summer.

The London Corporation have decided not to hold a special loan exhibition this year in the Guildhall Art Gallery.

The Architectural Section of the Royal Philosophical Society of Glasgow elected on Monday the following Council for next session:—President, Mr. R. D. Sandilands; vice-presidents, Mr. Alexander Gardner and Mr. Isaac Low; hon. secretary, Mr. Robert Miller; hon. treasurer, Mr. Alexander Davie.

A Report is to be prepared by the city architect of Manchester, showing how the site of the Royal Infirmary can be arranged for an art gallery, reference library and other buildings.

The Rev. R. M. Sergeantson has discovered a volume of churchwardens' accounts in Burton Latimer Church, which has for binding several sheets of parchment which were taken from a fourteenth-century illuminated missal.

The Spring Picture Exhibition at the Whitechapel Art Gallery will be open from March 23 to May 3 (12 noon to 10 P.M. daily). The aim of the exhibition is to illustrate "British Art Fifty Years Ago," the year 1855 being taken

as a central date and a period of about fifteen years before that date and after it included.

The London Topographical Society will hold a convention at Drapers' Hall, Throgmorton Street, on Thursday next, the 16th inst.

The Norman Priory Church of St. Bartholomew Great, West Smithfield, will be shown and its history explained on Saturdays, March 18 and 25, at 3 P.M. crypt and other parts of the building will be thrown open without fee, but a collection will be made for the restoration of the cloister.

The Council of the University of Leeds invite applications for the appointment of a lecturer in civil engineering vacant owing to the death of Dr. George Wilson. The salary is £300 a year. The lecturer will be free to take up consulting work, provided it does not interfere with university duties. The appointment will date either from April 1 or from October 1, to suit the convenience of the selected candidate. Applications will be received until March 25.

A Collection of garden ornaments was sold by auction in London last week. A stone sun-dial brought 105 guineas; a pair of terminal figures in marble, Pan and Satyr, 140 guineas; a pair of marble vases, 89*l.*; a marble pedestal with back, 78*l.*; an Old English fountain, 55*l.*; a pair of lead vases, 54*l.*; a pair of marble lions, 46 guineas; an 8-inch square sun-dial, 51*l.*; a lead fountain, 42*l.*; a lead figure of a shepherd, 41 guineas.

The Late Fernand Duval, the French painter, has bequeathed his property to the Archbishop of Paris for the benefit of the poor of the city.

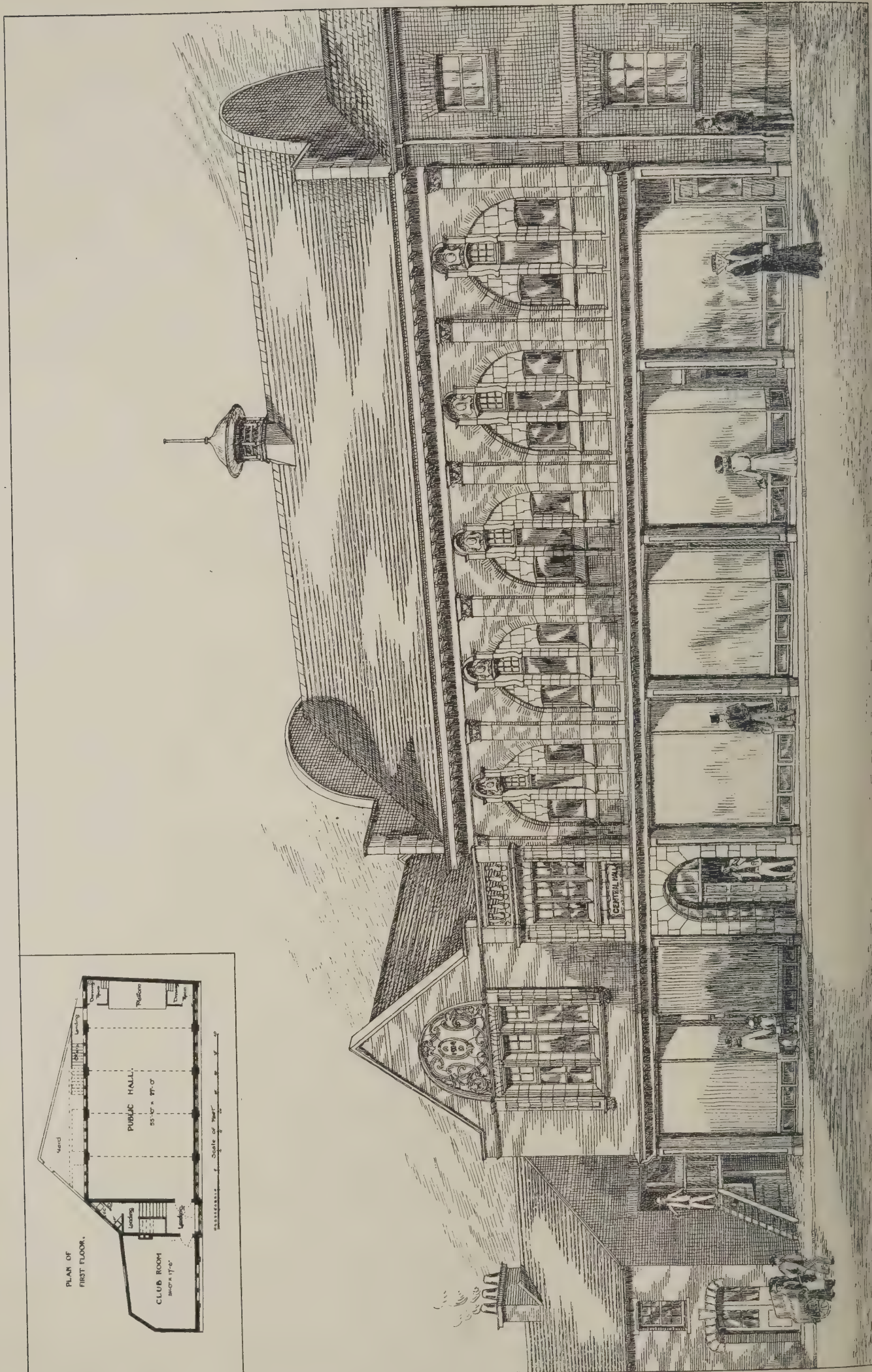
Mr. James Casey, who was on the executive committee of the Thames barrage scheme, and was understood to be the originator of the proposal, has died in St. James' Hospital, Paddington, from jaundice and syncope at the age of sixty-five.

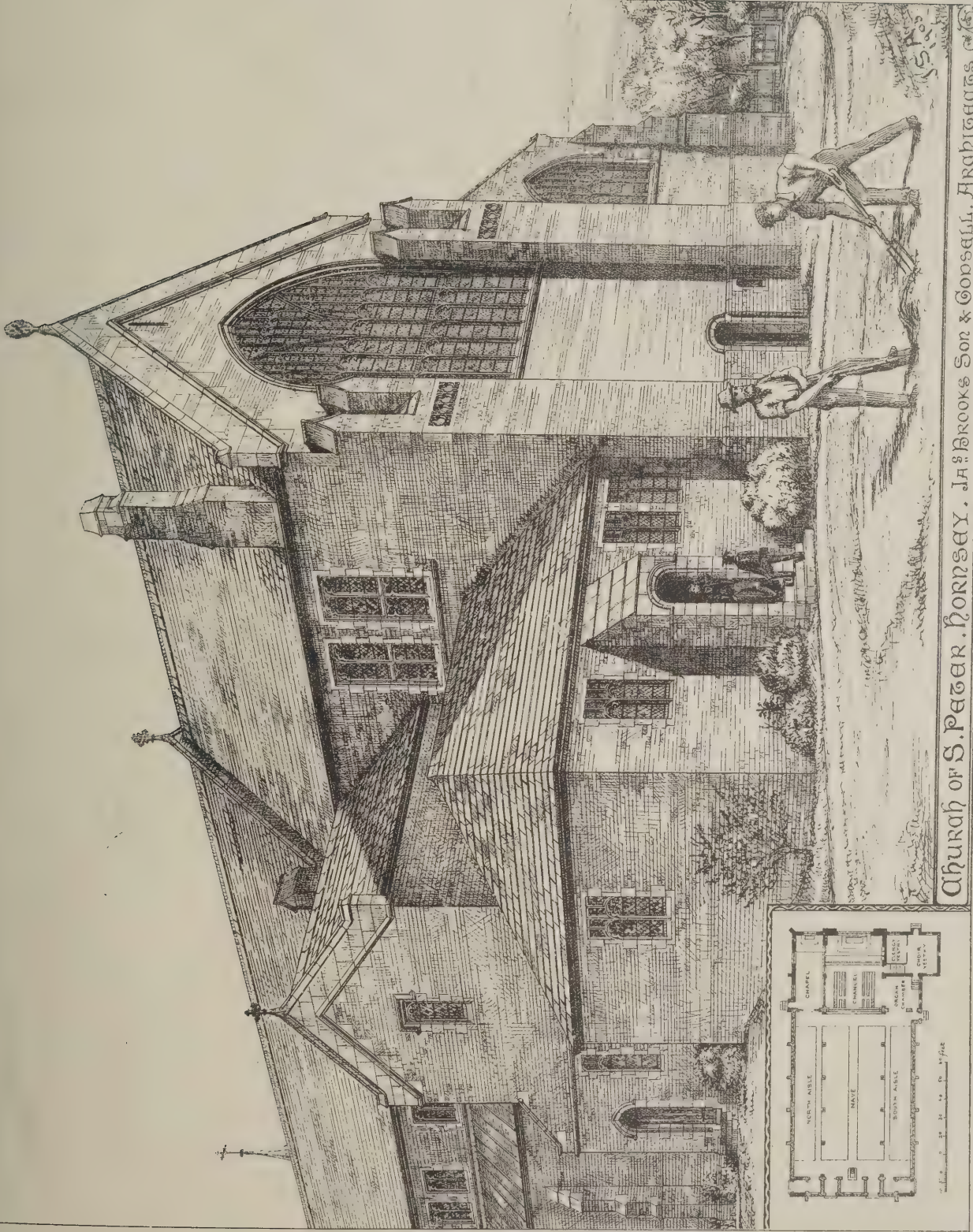
The Housing of the Working Classes Committee of the London County Council were on Tuesday instructed to report whether the Government should be asked to pass legislation for the amendment of the Housing of the Working Classes Act, 1903, so as to extend to the owners of private estates the obligation which, by section 3 of the Act, rests upon local authorities, companies or persons to provide house accommodation for working-class persons displaced through the operation of land under statutory powers.

On Tuesday, before Mr. Justice Warrington, in the Chancery Division, the Attorney-General, Sir Robert Phillimore, mentioned the case of *Lever v. The Corporation of Liverpool*, which was in his Lordship's Chancery list, and asked that a date should be fixed for the trial, as it was a very important action with serious issues. His Lordship fixed the trial for April 6 and 7.

An Antiquarian Discovery has been made on the site of a house owned by Mr. Thomas Given, Markstown, Cullyboe, co. Antrim. Workmen were engaged in making excavations, when two large cavities were disclosed. The said to be subterranean dwellings, which were in existence before the introduction of Christianity, and formed a series of chambers or places of refuge for the ancient Irish. The entrances were built of unhewn stones, and their entrances were of such narrow dimensions as to protect effectively the inhabitants from any danger of invasion. There were a number of chambers, each measuring about 20 feet long and 10 feet high, all being perfectly formed. It was the habit of the makers of these habitations to construct them near to the water, well covered with bracken, and they were so ingeniously and so craftily concealed that the popping into them was quick and so mysteriously is presumed to have originated the belief in the existence of fairies.

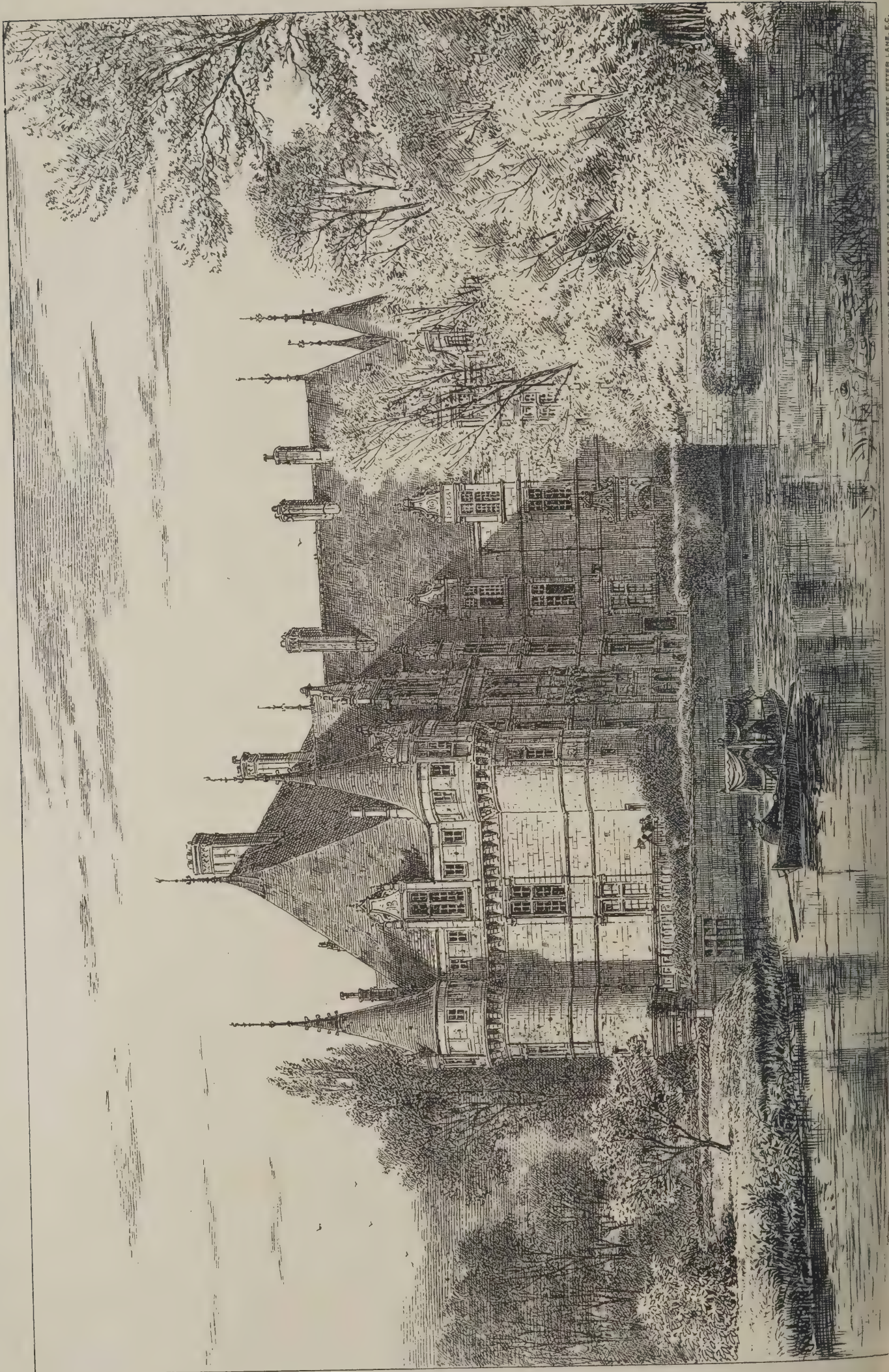
Lord Ashton in November last presented the Liverpool Town Council with a sum of 30,000*l.* for the purchase and erecting an ornamental structure in Williamson Park. The proposed erection—for which plans have been prepared by Mr. J. Belcher, A.R.A.—consists of a two-story building, approached by a double staircase. In front of the latter there will be a lake with ornamental fountain in the centre. The building itself will comprise two lofty towers surmounted by an octagonal dome, and three open loggias encircle the building, the top one being at the base of the dome. From the latter position a panorama extending over 60 miles, of the Irish Sea and coast of Lancashire, from Blackcombe (Cumberland) to below Southport will be obtained. Lord Ashton has given an additional 6,000*l.* devoted to improving Williamson Park.





Church of St. Peter, Norway. J. B. Hooke Son & Co. Architects.

PHOTO LITHO. SPRAGUE & CO. LTD. 435, EAST HADSON STREET, KETTER, LAN. K.C.



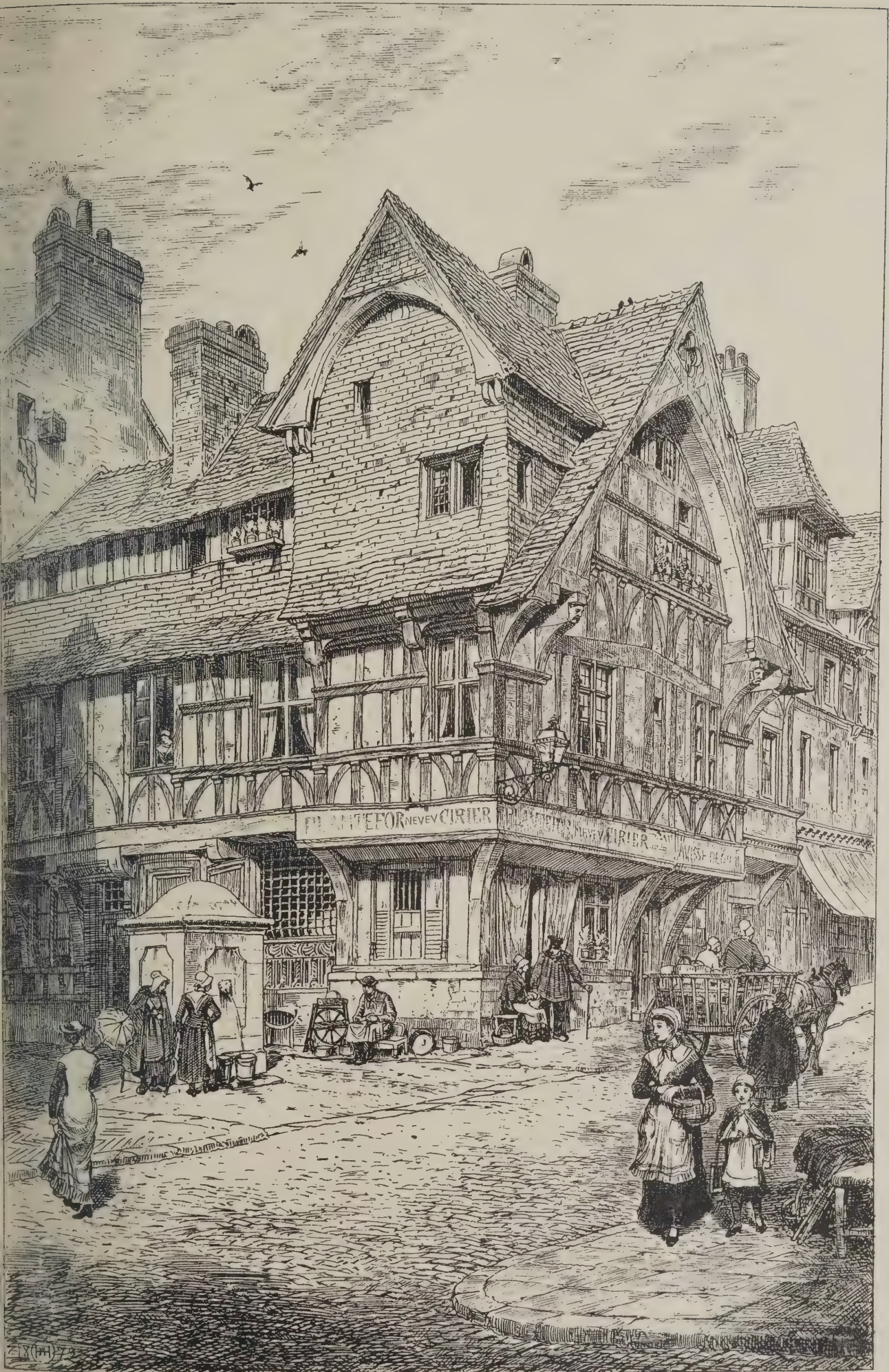


PHOTO-LITHO. SPRAGUE & CO. LTD. 4 & 5, EAST HARDING STREET, FETTER LANE, E.C.

*Continental Sketches by A. H. Haig
A Corner in Lisieux.*

The Architect, Mar: 10th 1905





PHOTOGRAPHED BY BEDFORD LEWIS & CO. 147, STRAND, W. C.

INK PHOTO, SPRAGUE & CO. 19, 4 & 5, EAST HARDING STREET, FETTER LANE, E.C.

"MOUNT STUART": ISLE OF BUTE, N.B. THE CHAPEL, WEST END

SIR R. ROWLAND ANDERSON, LL.D., Architect.

The Architect. Mar. 10th 1905.





PHOTOGRAPHED BY S. B. BOLAS & CO. 51 JEXELL STREET, A.

INK PHOTO: SPRAGUE & CO. LTD. 4 & 5, EAST HARDING STREET, FETTER LANE, E.C.

WESTMINSTER CATHEDRAL: ALTAR IN CHAPEL OF SS. GREGORY AND AUGUSTINE.
The late J. F. BENTLEY Architect.

The Architect.

THE WEEK.

It is remarkable that in the course of a few weeks France should have lost three prominent sculptors. BARRIAS was followed by GUILLAUME, and now JULES THOMAS has passed away in his eightieth year. He was a pupil of DUMONT, and always retained the style of the master. He might also be compared with M. BOUGEREAU, for the two artists appeared to be confident to undertake any form of work in their respective arts, and to do it successfully. Each, however, excited the desire in a spectator that an attempt was not made to go further and to produce a masterpiece. JULES THOMAS won the Grand Prix in 1848 by his *Philoctetes Departing for Troy*, and on his return he gained some success by a bas-relief representing a Spartan mother receiving the body of her son who was slain in battle. It was suggested by the legend of a woman saying, "Come back, my son, either with your shield or on it." To a bust of a boy which he also produced in Rome he gave the name of ATTILA. The young Hun showed the spirit he possessed by one day trying to stab the sculptor with his knife, and his efforts to slay brought him to the galleys when he was thirteen. M. THOMAS also produced some figures for churches as well as some of the groups for the Opera House. The *Architecture* in the Musée Galliera is also by him. When it was decided to place a memorial of CHARLES GARNIER outside the Opera House JULES THOMAS produced the two figures which flank the bust; they have been recently added. For several years he was professor in the École des Beaux-Arts, and he had the privilege of occupying BARYE's chair in the Institut.

ARE there too many houses in existence in this country, or are owners become more speculative and will not make the inquiries or seek the references which a few years ago were customary before houses were let to tenants? A man and his wife were tried at the Armagh Assizes on Saturday who had a uniform system of occupying expensive houses without payment. An Irish mansion was taken at a rent of 200*l.* a year. It was decorated and furnished in a most expensive way. But neither the landlord nor the tradespeople were paid. Ireland was not the only sufferer. In Glasgow the prisoners obtained a fine house in the Nithsdale Road; at Harrogate a like course was followed, but in the latter case the house was to be bought, for the lady said, "I have never been used to pay rent." The name of the house was to be changed to "Tremont," after the Boston temple in which the Rev. HUGH PRICE HUGHES once preached. The Judge sentenced the male prisoner to eighteen months' imprisonment and the female to twelve months. The owners of the houses could probably say that investment in house property is foolish. But if people accept tenants because they give a glowing account of themselves and their wealth, they cannot expect to derive a large revenue from rents.

THE proposal for the removal of the Society of Arts from the Adelphi will be received with incredulity by many people. It is almost equivalent to the destruction of the Adelphi, for among all the buildings in that part of London the house for the Society of Arts was the best known. The Society was founded in 1754, after a project by a drawing-master. It originally occupied a house opposite Beaufort Buildings in the Strand, but the premises in the Adelphi were taken in 1774. The site was not, however, purchased, and as the lease of the renewals have expired there is now only a yearly tenancy of the premises. It would be difficult to estimate the extent of the excellent work which has

been done by the Society in its Adelphi house. But larger premises appear to be required, and it is proposed to obtain them through amalgamation with the London Institution. The latter body was incorporated in 1807, and the building in Finsbury Circus was erected at a cost of 31,124*l.* It is believed that the premises would now realise 150,000*l.* With that money and the funds accumulated by the Society of Arts and the London Institution it is believed that about 200,000*l.* could be expended. It is proposed to obtain a site from the County Council at Kingsway, and there to erect a suitable building at a cost of from 100,000*l.* to 150,000*l.* There will be general regret at the departure from the historic house in John Street; but a history no less important is sure to be created in whatever premises the Society of Arts may occupy.

THE Exhibition of Process Engraving in the Indian Department of the South Kensington Museum is of undoubted interest. But if justice were done to modern methods of reproduction the whole museum would have to be filled. Hereafter photography, if judged by its results, will have to be considered as one of the most useful arts, and the credit for it can be claimed by the nineteenth century, for although WEDGWOOD and some other amateurs in chemistry made sun-pictures, they were not like those of NIEPCE, DAGUERRE and FOSTALBOT. The art developed, but at the expense of other arts which did not rely upon chemistry. Engraving and wood-cutting are almost unknown arts. On the other hand, marvellous fidelity to an original is obtained, and when there is artistic manipulation to supplement the sun-picture a satisfactory plate can be obtained. In England hand-work is not so much appreciated by manufacturers of prints as abroad, and on that account purchasers give the preference to foreign plates. The collection at South Kensington is varied, and will be interesting to those who are engaged in the business of reproduction.

IN SHAKESPEARE'S time it was customary to prepare models of buildings. But few examples have survived. The custom was of older date, for one of St. Peter's at Rome still exists, although very few travellers have seen it. There is also a model of WREN'S favourite design for St. Paul's. But only recently has it become an example which could be seen without payment. Of late years there has been a revival of the old practice, and some excellent specimens have been seen at the Royal Academy. Supposing the production of models were to become more general the question should be asked, "What is to be done with them?" The Germans are now endeavouring to meet a difficulty of the kind. They like to deliberate over projects, and when public buildings, bridges and various other classes of works are contemplated models are prepared which are supposed to be better adapted for the comprehension of laymen than the preparation of plans and elevations. A great many examples have accumulated in the course of years, and their storage causes much inconvenience. There is satisfaction among officials whenever it is arranged to represent German construction in exhibitions, for then many models can be cleared away. But the relief is only temporary. The latest occasion was the St. Louis Exhibition, and the collection of models becomes once more an incubus which it would be an offence against the State to destroy. Accordingly it has been proposed to vote 20,000*l.* towards providing some kind of store-house in which the models could be placed, and where they might be examined by anyone interested. It would be regarded as extravagance to erect a store-house of a superior class. It has, therefore, been proposed to utilise some of the buildings of the Hamburg station in Berlin. The position is a little remote, but that is not considered a disadvantage.

LOADS ON FLOORS.

ACCORDING to physiologists, human beings alter in the course of time, and there is a difference between the present generation and that which preceded it, as there will be between the present and the succeeding generation. In considering such subjects it is necessary to assume that men can be taken *en gros*, and an average afterwards struck. The science of statistics depends on operations of that kind. Man became a subject for calculations, and extraordinary results were ascertained by QUETELET. Among his investigations were some concerning the weights of different races. He found that there was no uniformity among the inhabitants of the various countries of Europe, and according to him Irishmen were the heaviest of all those who submitted themselves to his tests. Professor FORBES took up a similar inquiry with the aid of the students of the University of Edinburgh, who might be considered as fairly representative specimens. He came to the same conclusion as QUETELET.

It might be supposed that when calculating the loads which can come upon the floor of a room, hall, bridge or other place where men assemble, all that would be necessary would be to take FORBES'S or QUETELET'S figures, and from them to arrive at the weight which had to be borne per square foot of surface. There are no doubt such averages to be found in most table books relating to construction. But the figures differ, and in important cases special experiments are made, and it rarely happens there is exact correspondence between the results and the established data. The cause of this difference is easily understood. Sometimes the men whose weights are taken are selected and are probably the heaviest to be found. At other times there is no selection and the men weighed are chance-comers. Then again if an effort is made to obtain not only the weight of individuals standing apart, but of a crowd of them, the arrangements for embodying them may be different. Sometimes the men have been placed within a hoop in order that the density of several in contact could be ascertained.

The first English experimenter who endeavoured to discover what is the greatest load which it is possible to put upon a floor was TREDGOLD. According to him, 120 lbs. per square foot should be taken as the weight of an assembly of human beings. When JOHN NASH was engaged on Buckingham Palace he made experiments on a large scale, but he could only attain a load which corresponded to TREDGOLD'S figures. That load was accordingly adopted as the standard during several years. When civil engineers arose they were not disposed to adopt information which they considered old-fashioned, and new investigations became necessary when designing footbridges, platforms and other structures. French engineers calculated that from 60 to 70 lbs. per square foot was adequate. But they were thought to be too venturesome, and to have derived their information from the weights of their small-sized countrymen. Accordingly, when the late Sir JOHN HAWKSHAW was constructing the Charing Cross Bridge, part of which was to be opened to foot-passengers, he resolved to make more elaborate experiments than had been hitherto attempted. He took the rivetters, fitters and other working engineers engaged on the works as being at least equal in weight to the ordinary people who would use the bridge. They were, in fact, of a more robust type. He found that when placed close together the weight of the men was not more than 70 lbs. per square foot. But in opposition to that experience Mr. COWPER, who at the time was a well-known consulting engineer, said he was able to arrange a crowd which weighed 140 lbs. a square foot. An Irish case was also mentioned in which labourers brought the weight to 146 lbs. per square foot.

The subject has recently been discussed in the American Society of Civil Engineers. Mr. C. C.

SCHNEIDER read a paper in which he said that "a uniform load of 40 lbs. per square foot will scarcely ever be exceeded by a crowd of people." That was considered by some of the members to be too low an estimate. Mr. L. J. JOHNSON stated that he made experiments with his pupils, "and found that 156 lbs. per square foot was attainable, without any attempt at selecting the men or crowding them to any painful degree of personal discomfort." One of his experiments was recorded by means of photographs. Sixty packed students in a box 6 feet square, the sides being 5 feet 9 inches high. They were arranged in various ways, such as distributed or placed along the sides. It was found that the result reached 154.2 lbs. Some of the men were very short, and if taller men were substituted the weight would possibly reach 160 lbs. Mr. JOHNSON remarks that a crowd of 80 lbs. per square foot can easily make way so as not to afford serious obstruction to the progress of a person who wishes to go through it, and a little persistence will enable a man to make his way through a willing crowd weighing 120 lbs. per square foot. But a closely packed crowd is not likely to be in a mood to take calmly any undue deflection or appearance of weakness in the floor, and the result of such seeming insecurity is not pleasant to contemplate. Another member referred to an office measuring 13 feet by 16 feet, in which, with pamphlets and a safe, the total load was at least 200 lbs. per square foot of floor. Mr. G. J. BLAKELY said that in American offices, especially on bargain days and during the holidays, the people weighed at least 80 lbs. per square foot. Mr. CLERMONT considered that 40 lbs. per square foot were to be taken as a standard; it would be a step in the wrong direction, and with few exceptions public buildings should be equal to a live load of not less than 100 lbs. per square foot. Mr. LOWINSON said that in country houses it was his practice to design the first floor for a live load of not less than 100 lbs.; for theatres and assembly-rooms the load should be considered as not less than 125 lbs.

The building laws in American cities often define the live load per square foot of floor. For dwellings it is in New York 60 lbs.; Chicago and St. Louis, 70 lbs. Boston, 50 lbs.; while in Buffalo and Denver it is 40 lbs. But in buildings for public assembly Boston imposes a strength equal to 150 lbs.; St. Louis 120 lbs.; Buffalo, 100 lbs.; New York, 90 lbs.; Denver 80 lbs.; and Chicago, 70 lbs. Messrs. BLACKALL and EVERETT, of Boston, found that in over 200 offices the average live load was between 16 lbs. and 17 lbs., while in the larger offices it was only about 33 lbs. From 40 to 60 lbs. is considered a high average by some designers of tall buildings.

The diversity between the figures is remarkable, and men like QUETELET would consider that the reason for it must be traced to the difference of the races who were employed as weights. It is not easy to devise a uniform system for such cases, for even with inanimate pig-iron there is risk in piling. England, as usual, endeavours to minimise the risks by adopting a high figure, and 150 lbs. per square foot is preferable to TREDGOLD'S 120 lbs. Economical construction obtains more attention in the United States than in England, and that may explain why so low a weight as 40 lbs. per square foot is approved. Considered merely as a question of weighing, the subject deserves wider attention than it has received.

There is less certainty about the weights on floors which are not used for residences. Safes with their contents form a concentrated load which should be taken into account. Books are also a dead weight falling upon a small area. In Boston the load for office buildings is taken at 100 lbs., while in New York 150 lbs. is the weight on the first floor and 75 lbs. elsewhere; in other towns the weight is taken at 70 lbs. Stores and warehouses are not classed with office buildings, for in Boston the minimum load is 250 lbs. per square foot. The difference between

various classes of goods in respect of weight is sometimes remarkable. Mr. BLAKELY, an American engineer, says that wool and dress goods in cases side by side, and not piled, produce a load of 84 lbs. per square foot. Cotton prints, under similar circumstances, produce a load of 93 lbs., and flannels in cases 4 feet high, 100 lbs. But with inanimate things it is not difficult to ascertain the exact weight, and if it is excessive provision can be made for sustaining any contingent load.

ANCIENT LIGHTS.

It was decided in *COLLS v. The Home and Colonial Stores* that, in order to be actionable, an obstruction of ancient lights must be of such a nature that it causes a substantial diminution of the light. The premises having the right to light must be rendered uncomfortable, or, in the case of business premises, unfit for the proper conduct of business. That case did not, however, decide the question whether the right to an extraordinary amount of light could be acquired by twenty years user. Lord DAVEY expressly reserved his opinion upon this point. This question has been decided in the case of *AMBLER v. GORDON*. In that case the parties had submitted their case to arbitration. The arbitrator had found as a fact that the part of the premises in question, which were occupied by the plaintiff AMBLER, who was an architect, had sufficient light for ordinary purposes, but not sufficient light for the purposes of his business, which required an extraordinary amount of light. BRAY, J., decided that the question whether for the purposes of any business an extraordinary amount of light was required was a question of fact, which it was within the competence of the arbitrator to decide upon the evidence. The arbitrator having found that an extraordinary amount of light was required, and such extraordinary amount of light having been enjoyed for twenty years, the question then arose whether user for twenty years of this extraordinary amount of light gave a right to the continual enjoyment of that amount of light; whether, in other words, the easement of the owner of the dominant tenement was enlarged, and the burden upon the owner of the servient tenement increased by twenty years user. The learned Judge answered this question in the negative. The decision in *COLLS v. The Home and Colonial Stores* is fully amounted to this—the test of whether or no an obstruction to light is actionable is, Does it amount to a nuisance? Now when the question is whether any set of acts amount to a nuisance, the law looks to see whether they could be considered to be a nuisance to a person of ordinary health and strength. The fact that the plaintiff is a delicate person, so that what would not be a nuisance to the ordinary man is a nuisance to him, cannot be regarded. So, if we regard an action for the obstruction to light as an action for nuisance, we must consider whether the light is so obstructed as to be a nuisance to the person who is using his house for ordinary purposes and in an ordinary way. To allow twenty years user of an extraordinary amount of light to give a right to that amount of light would be to allow the owner of the dominant tenement to acquire a right by acts done by himself, wholly without the knowledge of the owner of the servient tenement. The owner of the servient tenement would never know the extent of his obligations. As the learned Judge said, "The introduction of the quantum of user would work inconvenience and introduce uncertainty." Under the law as established by the two cases the owner of premises commanded by his people's windows knows his exact position. He knows how high he can raise his walls without obstructing his neighbours' lights. He knows therefore whether it is worth while to take measures to prevent his neighbours from acquiring a right to light. To decide that for twenty years of an extraordinary amount of light

could give a right to all that extraordinary amount of light would mean that the owner of such premises would never know the extent of the liability to which his omission to take measures to block his neighbours' windows would expose him. As the law at present stands the acquisition of a right to light means only that a right is acquired to the amount of light which is necessary for the ordinary purposes of social or business life. Neither the user which the owner of the dominant tenement makes of his premises nor the peculiar construction of those premises can add to the burden of the servient owner. If the servient owner's buildings allow an access of light sufficient to light an ordinary room used for ordinary purposes, all legal obligations have been fulfilled.

ARCHITECTURAL MEMORIALS IN YORK.*

THE city of York has held so important a position in the history of England, the question must often arise why it did not become the capital. Whenever it is referred to, it is as the scene of some great transaction affecting the whole State. We think of it now as if it attained prosperity as a centre of railway traffic (and it deserves to be known that GEORGE HUDSON, the railway king, was three times Lord Mayor of York), and as having no special characteristics. In the eighth century it was described as "a common emporium on land and sea." We may conclude from what is related that it was connected with traffic from the time of the Romans. They called it Eboracum, but that was only an adaptation of a still earlier name, Eborac, which probably was conferred on it by some primitive dwellers. Whether it was derived from the name of a tribe or the name of a river cannot be determined.

We must suppose that primitive settlers were attracted by the natural advantages of the site. York stood in a fertile country, possessing rivers, forests and other features prized by men who were mainly hunters. The Romans approved of what had been done by earlier possessors, and they fought desperately with the Brigantes to capture the settlement. AGRICOLA was in the North about A.D. 78, and there is a memorial of a standard-bearer of the Ninth Legion who is presumed to have been one of his officers. York still retains evidence of the Roman occupation. One mural inscription, having finely cut letters, was found in 1854 in the excavations for a drain in King's Square. It is believed to be the earliest example of its class in England. There are also remains of walling, gates and towers. Mr. COOPER says of the masonry:—

The walls are not of solid masonry throughout, but are constructed of concrete or rubble, faced with cut stones laid in regular courses. About half-way up the wall were placed five courses of bricks or tiles, to strengthen and bind together the ashlar and rubble walling. The bricks are flush with the face of the masonry but do not extend through the wall, although they are seen at the same height on both sides. The ashlar, both on the exterior and the interior face of the wall, is similarly worked.

As yet no trace has been discovered of the Imperial palace which must have existed in York, as it was the most important centre in the Roman dominion.

In the centuries which followed the departure of the Romans, York was unquestionably a coveted place and various tribes fought for its possession. There is nothing to show that Picts, Angles or Danes were among the builders of the city. The Danes were traders, and it is believed metalwork and other crafts were exercised by them in York. The city did not accept the sovereignty of WILLIAM, and in consequence there was a siege, and he succeeded. Afterwards there was an attack by Danes. WILLIAM came to its rescue, but there was really no city remaining, and his army had to encamp outside the walls. THOMAS OF

* *York: the Story of its Walls, Bars and Castles.* By T. P. Cooper. (London: Elliot Stock.)

BAYEUX, who was the first of the Norman archbishops, erected a cathedral which was afterwards altered from time to time.

Mr. COOPER gives extracts from Domesday Book which well suggest the character of York at that period. One item records that "LANDRIC, the carpenter, has ten mansions and a half which the sheriff made over to him." On which Mr. COOPER remarks:—

At this date castles were chiefly constructed of timber; the look-out tower upon the conical mounds, and the protecting stockades, placed on the earthen ramparts of the baileys, and their counterscarps were of this material. It would appear that Landricus Carpentarius was not merely a carpenter or workman, but a person of authority—perhaps the master-carpenter or engineer who directed this class of work when the castles of York were erected. This overseership, an office of consequence, probably entitled him to be acknowledged as a king's thane. At the time of the Survey, a Landric had property in Badthorpe (?) and Acaster; and a person of the same name was holding lands which the jurors said were William Malet's. These references may be to one man, Landric the carpenter, as Malet, the sheriff of Yorkshire, had charge of the castle works at York, under whom Landric would plan, prepare and superintend the fixing of the defensive timber erections.

At a later time timber was insufficient by itself for defence. York, from its importance, was often attacked, and the Plantagenet kings insisted on large sums being expended on the fortifications of the city. York was probably at that time the best fortified place in England. The remains which exist and which impart so much interest to the city are proofs of the skill exercised by the builders. It is to be regretted that many examples were destroyed because they were supposed to stand in the way of public improvements. Here are some of the acts of vandalism which were perpetrated in the early part of the nineteenth century. "In 1808 Skeldergate Postern was demolished; in 1825 the barbican of Monk Bar was taken down; in the succeeding year Castlegate Postern was removed, and the barbican of Micklegate Bar was also considered of no historic value and carted away. Layerthorpe Postern Tower shared a similar fate in 1829; Bootham Bar was deprived of its barbican in 1831, and a most lamentable breach in the city wall was made for the formation of St. Leonard's Place at that time." WALTER SCOTT expressed his readiness to walk from Edinburgh to York if the journey would induce the Corporation to preserve the Micklegate Barbican. It was likely that still greater destruction would have followed if an Association had not been formed for the purpose of protecting the remains. The interest which the walls can excite may be judged from WILKIE COLLINS's "No Name"—a book which owes much to the author's residence in York.

Mr. COOPER collects everything for his book which he considers will cast a light on the manner of building in the past. The following relating to masons' marks will show that York still possesses many of those geometrical records which, unlike ogham inscriptions, fail to be deciphered, for we cannot know the names of any one of the men who formed the angular lines:—

In the olden days, when a building of magnitude was completed, the workmen dispersed, exercising their art here and there, leaving their marks in various places, far and near. The early masons formed themselves into societies, similar to other trade guilds of the Middle Ages, and such a brotherhood anciently existed in York. Formerly members of masonic guilds registered their marks in the books of their respective societies, and some sixteenth-century lists are still extant. In the little, but beautiful, Early English church at Skelton, near York, there are the marks of thirty-five masons. It is singular that so many men should have been employed on so small a work, compared with the number engaged on other buildings of greater dimensions. From close observations we have come to the conclusion that Mediæval masons did not cut their marks to scale, or of any particular uniform size, but incised them by means of the chisel nearest to hand or last

used. Marks found on the exterior of buildings generally appear bolder and larger than those found on the inside walls. Commencing with the Early English period, many marks inscribed on interior masonry seem to have been simply scratched with a sharp-pointed tool known as a scriber. The size of the characters thus varies considerably. A series of the smallest, $1\frac{1}{2}$ inch long, may be seen on the interior walls of the church of St. Michael le Belfrey, York (Perpendicular, 1525); and of the largest, 7 inches long and deeply cut, figured on the boundary wall of St. Mary's Abbey, Bootham, York.

When we remember all the great men who have lived for a long or short time in York it is remarkable that there is no building in the city (with the exception of the cathedral) which is connected with any individual among them. The Roman wall, the bars and barbicans, the towers and posterns are all of too municipal a character to give a personal interest to the streets. It might be said that the architecture in York is historical rather than geographical, or general rather than particular. In that way York has a character that is almost unique. Nobody can visit it to see the houses which were erected by celebrities, but from the remains which are left to us we can realise the fears in which people lived of attacks from enemies, and, what is still more remarkable, from enemies who were inhabitants of the same island.

The peculiar character of York makes it difficult to write its history. Mr. COOPER, by using the antiquities as centres around which historical scenes moved, has been able to give a very clear account of the real character of the city. His book will be interesting to students of history in general, but for archæologists it will be a guide to a most interesting subject.

ARCHITECTS' BENEVOLENT SOCIETY.

THE annual general meeting of the subscribers and donors was held on the 9th inst. at the rooms of the Royal Institute of British Architects in Conduit Street. Owing to the unavoidable absence of the president, Mr. J. Belcher, the chair was taken by Sir Aston Webb, who dilated upon the fact that the sum of 950*l.* had been expended during the year in the payment of pensions and in the relief of deserving cases, some of which were very sad ones. The income for that period had reached 937*l.*, and it was satisfactory to notice that 45*l.* had been obtained by income-tax rebate, but in spite of all there was a deficiency of about 47*l.* He made an urgent appeal, therefore, for additional subscriptions, and incidentally mentioned that only 5 per cent. of the members of the Institute were subscribers. He asked that architects generally would support the Benevolent Society, as they did not go outside for help. It was gratifying that Mr. W. Glover, a past president of the Northern Architectural Association, had handed to the Society a cheque for 300*l.*, and it was further announced that subscriptions of 25*l.* each would be given by Mr. Colcutt, Mr. Woodward and by himself (Sir Aston Webb). A like sum was also promised by Mr. E. Hall. The report of the Council having been duly received and adopted, a vote of thanks was accorded to the retiring members of the Council for the care and attention they had given to the affairs of the Society. The election then took place of new members for the Council during the present year, and afterwards a vote of thanks was accorded to Mr. W. Hilton Nash for his services as hon. treasurer. Votes of thanks were also given to Mr. Percivall Currey, the hon. secretary (who complimented Mr. R. Dircks for the assistance which he had rendered), and to the retiring auditors.

Mr. H. H. Collins moved that "By-law No. 43 amended by inserting the word 'vice-president' between the words 'president and Council,' and that further alterations be made where necessary to give effect to this resolution." This was carried, and the proceedings concluded with a vote of thanks to the Institute for the use of the rooms, and to the chairman (Sir Aston Webb), who suitably responded.

The Election of a Royal Academician to fill the seat made vacant by the death of Mr. G. H. Boughton, R.A., will take place on the evening of the 22nd inst.

THE BAY HOTEL, BIRCHINGTON-ON-SEA.

THIS building, of which our illustration shows the main elevation, has been erected from the designs and under the personal supervision of Messrs. Turner & Holditch, architects, of 160 Stoke Newington Road, London, N., for the Bay Hotel Company, the work having been carried out mainly by local labour, the resident clerk of works being Mr. B. H. Pearce, of Tottenham, N. The hotel occupies a bold and commanding position at the head of one of the many cliffs for which this part of the Isle of Thanet is noted, overlooking Minnis Bay in the centre of the estate now in course of development by the Birchington Bay Estate Company. The favourable position and the contour of the coast line, ably seconded by the designs of the architects, have been responsible for an ideal seaside hotel, for nearly every room commands a charming sea-view, the main entrance looking direct over the sea to the well-known Mediæval landmark "Reculvers." The elevation has been carried out in red brick obtained from the well-known local brickfields, the upper storeys being rendered in rough-cast, hand-dashed with shingle, giving the building an harmonious appearance in conformity with the other buildings in the vicinity.

Messrs. Cakebread, Robey & Co., Stoke Newington, N., are responsible for the ornamental ironwork verandah, so characteristic a feature in the "Isle of Bungalows." This firm also carried out the numerous windows in leaded lights with which the building is adorned. Other London firms

engaged upon the building were Messrs. Barclay Bros., of Devonshire Square, E.C., who supplied the whole of the joinery and turned work; Messrs. Partridge Bros., of Hackney Downs, the internal fittings and cabinet works; and Messrs. C. F. Day & Co., of Stoke Newington, N., who are represented by the mosaic tiling to hall and vestibule, all the internal tiling and the railing surrounding the hotel grounds. The kitchener, stoves and overmantels, as well as the heavy brass finger-plates and lock furniture, were supplied by Messrs. Pryor & Co., Ltd., Dalston Junction. The roof is covered with best Broseley tiles, supplied and fixed by Messrs. Roberts, Adlard & Co., of Bermondsey Wall, and the plumbing and sanitary work were carried out by Mr. C. Pindard, of Ilford.

We understand that the whole of the furnishing arrangements are in the hands of Messrs. Spillman & Co., of St. Martin's Lane, W.C., and that Mr. E. J. Smith, of Grosvenor Park, Camberwell, will supply all the blinds.

The Birchington Bay estate covers an area of about 70 acres, and possesses a sea-front extending over a mile and a quarter. There is an excellent sandy beach and capital bathing. The property is well advanced in development, many houses having already been built, and others are in course of erection. The estate also possesses a large pavilion, public gardens, &c., and the further advantage is attached of a first-rate water and gas supply. There are well-metalled roads, and the estate is within easy reach of Birchington railway station.



THE BAY, HOTEL, BIRCHINGTON-ON-SEA.

(Architects: Messrs. Turner & Holditch, 160 Stoke Newington Road, N.)

THE ST. LOUIS EXHIBITION.

AT the meeting of the Royal Institute of British Architects on the 6th inst. Mr. H. Phillips Fletcher read a paper which was entitled "Some Impressions of the St. Louis Exhibition, 1904," which he had visited as Godwin Bursar. Several lantern-slides were used to supplement the description.

Mr. Phillips said the arrangements for the exhibition began in 1898. The site selected was at the western

boundary of St. Louis. The general scheme of the plan was prepared by a committee of architects. It resembled an open fan. The centre, which corresponded to the handle, was the Festival Hall on the top of a hill. It was designed by Mr. Cass Gilbert and stood in front of his Arts Building. The latter did not correspond in colour with the other buildings, for it was constructed in buff brick, while they were of "staff" coloured white. Flanking the hall was a Colonnade of States. The preparation of the ground

required much engineering. The paving had an area of 5,800,000 square feet. Timber bridges were also constructed. The Main Exhibit Buildings were of timber, and it was calculated that the use of the material instead of steel saved from 30 to 50 per cent. The main walls had a double framing. Steel sheets were nailed to the timber and covered with fibrous plaster or "staff." The "Howe" truss was generally adopted for the roofing with timber columns. The Festival Hall was circular, having a diameter of 195 feet with a rectangular annexe. The auditorium was covered with a dome 90 feet in diameter. Externally the building was ornate, as became the focus of the Exhibition. The cost was about 53,000*l*. The United States Government Building was designed by Mr. Knox Taylor. It was neo-Classic in treatment. The approach was by one flight of steps 100 feet wide and two of 50 feet. The dome resembled that of the Pantheon, Rome; it was 93 feet in diameter and was surmounted by a quadriga. As this building, which measured 750 feet by 250 feet, had a roof with steel framing, there were no columns in the interior. The Main Exhibit Buildings were constructed by the Works Division, the façades alone being entrusted to the Commission of Architects. The arrangement appears to be gaining a foothold in the States. Mr. Theo Link designed the front of the Mines and Metallurgical Building. Obelisks flanked the entrances on the northern and western sides in order to suggest the success of the early Egyptians. Several styles were combined in the building which covered about nine acres. The Liberal Arts Building was similar in size, and for it the Louis XVI. style was adopted. The Education Building was amidst the lagoons and the internal court was covered to allow more space for exhibits. A break in the northern façade was overcome by having an entrance at the point and the colonnade on either side abutted against it. Messrs. Carrère & Hastings were the architects for the Manufactures Building, which cost about 144,000*l*. It stood on a stylobate of steps, and the arched entrances were each surmounted by a quadriga. The Louisiana Purchase Building was placed in an unsatisfactory position. One feature was a memorial having a shaft 125 feet high supporting a figure of Peace with emblematic figures of the Mississippi and Missouri at the base. In the Electricity Building the Corinthian order was used. The corner pavilions were formed as towers crowned with groups of sculpture. The Ionic order was adopted for the Varied Industries Building, which corresponded on plan with the Manufactures Building. The Machinery Building was distinguished by the height of its towers. The façades were treated as arcades, but there was a want of unity in the building when considered as a whole. The Transportation Building had an area of 15 acres. The style was an adaptation of the Louis XVI. period. Four miles of tracks were provided for locomotives and cars. The Agriculture Building was still larger, as the area was 20 acres. The roof was supported by 192 columns. The building was admired by exhibitors from its arrangement and lighting. The Horticulture Building was also simply and effectively treated. The Forestry, Fish and Game Building was also simply treated. The Administration Buildings were supposed to represent the Tudor style, and were built of red granite with limestone dressings. The Washington State Building was designed in such a way as to exemplify the character of the timber found in the district.

Japan contrived to secure the space allotted to Russia, and thus having 300,000 square feet was able to exemplify its arts and crafts worthily. The French Building was a replica of the Grand Trianon, but the charm was lost through badly painted columns. The Castle of Charlottenburg was imitated for the German Pavilion. The British Pavilion was a reproduction of the Orangery at Kensington, and was considered to be the best built. Mr. Fletcher in conclusion commented on the influence of French art on American architects. They could not escape from it even with temporary buildings. Although a new alphabet might not be required in the language of the art, there was no reason why thoughts should be expressed in the set style of one book.

The Restoration of Malmesbury Abbey has, since December 1898, been aided by contributions to the amount of 3,556*l*. 17*s*. 4*d*.; two bazaars have produced 1,045*l*. 13*s*. 1*d*., and bank interest 75*l*. 16*s*. 3*d*., making the total receipts 4,678*l*. 6*s*. 8*d*. Nearly the whole of that sum has been expended on the fabric.

TWO ROYAL EGYPTIAN TOMBS.

A CORRESPONDENT of the *Times* gives an account of a remarkable discovery by the American explorer, Mr. Theodore M. Davis, of two tombs which hitherto had escaped the notice of either plunderers or archaeologists:—

On Sunday, February 12, his workmen came across the descending steps of a tomb midway between the well-known sepulchres of Ramses IV. and Ramses XII. At the foot of the steps was a door cut in the rock and blocked with large stones. One or two of these having been removed, a boy was sent through the opening and quickly emerged with a gaily painted wand of office in one hand and the yoke of a chariot, thickly plated with gold, in the other. The opening was thereupon widened, and Mr. Davis himself stepped into the space beyond. There he found himself at the head of another flight of rock-cut steps, twenty in number, at the end of which was a second door, also blocked with stones. Here, however, the outer face of the stones was still plastered with the mud on which were impressions of a royal seal with rows of fettered captives, while on one of the lower steps the two basins of coarse red ware were lying, out of which the mud plaster had been taken. Higher up, on one of the steps, was a superb pectoral scarab, while on another step was a broken writing palette of alabaster. It was evident that the tomb had been entered by robbers shortly after its construction; that, having been surprised in their work of plunder, they had fled hastily, leaving some of the objects they had stolen in the vestibule, and that since that day it had never again been visited by man.

Professor Maspero, who happened to be at Luxor at the time, was at once communicated with, as well as other museum authorities, and although the next day was the beginning of the Baira holidays, Mr. Davis arranged to have the work of opening the tomb carried on to its completion. It was accordingly opened the following day, in the presence of the Duke of Connaught and his suite, and a marvellous sight met the eyes of the fortunate discoverer. The tomb itself was not large, and its walls had never been smoothed or decorated, but it was filled from one end to the other with the untouched and richest spoil of ancient Egypt. Mummy cases encrusted with gold, huge alabaster vases of exquisite form, chairs and boxes brilliant with paint and gilding, even a pleasure chariot with its six-spoked wheels still covered by their wooden tires, were lying piled one upon the other in bewildering profusion. It was some days before the band of explorers could even ascertain the full extent of the treasures which the tomb contained.

The sepulchral chamber is about 30 feet long and 15 feet wide, the height being no more than 8 feet. On the left-hand side of the entrance were the two great wooden sarcophagi, painted black and gold, within which the mummy-cases of the occupants of the tomb, a man and a woman, had been placed. The cases themselves were double, the outer case being completely plated with gold on the outside, except where the face of the mummy was realistically represented, while the inside was lined with silver. The second case was similarly plated with gold externally, but inside gold-leaf was used instead of silver. On one of the mummies a few objects were discovered such as were usually buried with the dead—a "heart-scarab" made to imitate lapis-lazuli, another scarab of black-painted wood, a gilded "dad," the model of a hoe and the like. Over a gilded mask, which must have belonged to one of the mummies, a veil of black muslin, or rather crape, was drawn. It is the first time that anything of the kind has been met with in Egypt.

The inscriptions on the cases, as well as on other objects found in the tomb, showed to whom it had belonged. It was the burial-place of Yua and Thua, the parents of the famous Queen Teie, the wife of Amon-hotep III. and the mother of the "heretic-king" Amon-hotep IV., of the eighteenth dynasty. It was to her teaching that the religious revolution attempted by her son seems to have been due, and since the discovery of the cuneiform tablets of Tel-el-Amarna the Assyriologists have believed that she was of Mesopotamian descent. This belief is confirmed by the inscriptions found in Mr. Davis's tomb. In these the names of her parents are written in various ways, indicating that there was no fixed spelling of them, and that the Egyptians of the eighteenth dynasty had the same difficulty in pronouncing and reproducing foreign names as their descendants have to-day.

No light, however, is thrown by the inscriptions upon the parentage of either Yua or his wife. Thua is merely

"the chantress of Amon," and it is clear that she and her husband were not of noble, much less of royal, birth. They must have lived, however, at Thebes with their daughter after her elevation to the position of "chief wife" of one of the greatest of the Egyptian Pharaohs, and here they died while Amon-hotep III. was still on the throne and the wealth and power of Egypt were still undiminished. Queen Teie, with all her influence, had been unable to overcome the jealousy of the Egyptian aristocracy and include her parents in its ranks, but she revenged herself at their death by giving them the honours of a royal funeral.

Beyond the coffins, at the western end of the tomb, the ground was covered with large sealed jars of wine or oil and shell-like boxes of black-painted wood, each of which contained a piece of cooked meat neatly wrapped in black muslin. Planted on the top of them was the chariot, broad enough to hold two persons, richly painted and encrusted with gold. The leather-work belonging to it is still as fresh as when it was first made. Here also were found the four canopic jars of alabaster in which the entrails of the deceased were deposited. It would be difficult to match them as regards either size or fineness of workmanship. The heads which form their covers are in the best style of Egyptian art, and on being lifted were found to have under them a second set of heads, the latter being of plaster coated with gold. At the eastern end of the tomb two other alabaster vases were discovered, each of them with handles and of exquisite workmanship.

This eastern end of the tomb contained a large number of small objects. There were among them seven pairs of sandals, most of them of papyrus, but one of them was of stamped yellow leather and another had been gilded. On the floor were numberless boxes, each of them occupied by an "ushebti" figure of considerable size. Many of the "ushebti" were of wood, but some were of alabaster, and there were two of gold and two of silver. Here, too, was a second wand of office, together with vases and boxes of gaily-painted wood. Among the boxes perhaps the most interesting is a large "clothes chest" of palmwood and papyrus; it is lined inside with papyrus, has two fastenings of string, and contains a second case or shelf with papyrus flaps. Apertures have been made in the sides for the sake of ventilation.

Some of the objects bore the names of Amon-hotep III. and his queen. This was the case, for instance, with a large vase of alabaster, as well as with a sort of box-stool, resplendent with gold and blue enamel, on the cover of which the king is represented as sitting on the hieroglyphic of "gold." On another box, which is fashioned like a small table with legs, the Pharaoh is depicted in the same attitude, yellow paint taking the place of gold on a third box of smaller size. Among minor objects, one of the most beautiful is a kohl-case of blue faience with the cartouches of the king. Near the latter the gilded handle of a mirror was picked up, together with a stone box, painted white and stuffed with cotton, the lid of which represented a recumbent mummy with a winged soul on the breast. In another part of the tomb were two large wigs.

At its eastern extremity there was also a small arm-chair, the back of which is formed by the figures of the god Bes and a monkey on either side of him. Two other arm-chairs were discovered in the western portion of the tomb. The largest of these, with its seat of interlaced palm-fibre, is profusely ornamented with figures in black and gold. At the back is a double representation of "the eldest daughter of the king, Amon-sit"; in each representation she is seated on a throne, with a winged solar disc above, and a female slave bringing her the offering of a golden collar, while under each arm of the chair are three other female slaves holding up their offerings of rings of gold. An inscription tells us that the gold had been brought from "the lands of the south." The legs of the chair are modelled after those of an ox, and above each of the front legs is a boss in the form of a human head. There is a second and rather smaller arm-chair which also belonged to Amon-sit, who was a daughter of Amon-hotep III. On the back of this the princess is represented sitting with a cat under her chair and a female attendant on either side, while under the arms of the chair is the figure of Bes between two monkeys. The picture of the princess and her attendants is lined on either side by the so-called Greek fret, an interesting illustration of the intercourse that existed at the time between Egypt and the Egean. The two chairs of Amon-sit might have been regarded as presents from the princess to the occupants of the tomb, were it not that three funeral biers, and not two

only, have been found in it. This seems to indicate that the tomb of Yua and Thua had already been the burial-place of a member of the royal family, and that when all the objects which now cover the floor can be removed and packed we may hope to discover a "well" or chamber in which the sarcophagus of its original occupant rests.

A pathetic relic of a dead world is a mat of palm-fibre on which the figure of Osiris was delineated in soft mould. Seeds were then sown in the mould, and in the green grass which sprung from them after the tomb had been closed and sealed the Egyptians saw an image and earnest of the Resurrection. A similar "bed of Osiris" had already been found in the tomb of Amon-hotep II.

LEEDS AND YORKSHIRE ARCHITECTURAL SOCIETY.

A PAPER on "Architectural Photography" was read at the meeting of the Leeds Society on the 9th inst., by Mr. E. C. Skill. A brief sketch was given of the struggles of the pioneers in the science of photography. Experiments and discoveries were made by Scheele in 1777 with the action of light on silver compounds, followed twenty years later with a further application of these primitive discoveries by Wedgwood and Davy, who obtained pictures of objects they wished to copy by throwing the shadow upon paper impregnated with the silver salts, thereby producing a white image upon a dark ground. The work of Daguerre and Niepce was mentioned, also the discoveries and patents taken out by Mr. Fox Talbot for his photo-lithographic process-work, &c., an illustration from one of his original results being shown. Mention was made of the discoveries and experiments with bichromate of potash, and of the carbon printing process patented by M. Pontevin in 1855. After comparing this later process with one in use at the present time, the lecturer dealt with the subject of the evening and proceeded to give a rough illustration, with description, of the camera best suited for architectural purposes. While not altogether condemning, he discountenanced the hand camera, as being unsuitable for this class of work. Suggestions were made as to the most suitable lens or form of lens to be chosen, and the names of some of the most noted makers, both English and foreign, were given.

The choice of time and proper illumination for buildings to be photographed was dealt with, the lecturer remarking that frequently what might have been good pictures suffered for want of a little care in this direction, especially by beginners. Slides illustrating this were shown. The choice of plates was next considered and comparisons made between backed and unbacked ones. A diagram was shown illustrating the cause of "halation," which was described. Examples of photos showing comparison between both kinds of plates were exhibited. The orthochromatic plates and screen were described by the aid of a diagram showing the action of a screen when interposed between the lens and plate. On this the two extreme rays of light, viz. violet and red, were delineated, and some idea of the controlling power of the screen upon the undulations of the violet ray was given. Two slides of exposures made through a set of coloured glasses in conjunction with white followed firstly on an ordinary plate, and other exposures on orthochromatic plates in conjunction with different screens were shown, after which some flower studies and views taken under similar conditions were exhibited illustrating the effect of colour under different treatment. Architectural work was again considered and a number of slides shown, with notes on the arrangement of perspective and the conditions under which operations frequently had to be carried out, also the best method of lighting or choosing light for subjects in relief. The lecturer concluded with a few remarks on the help of photography to the architectural student and its use in making valuable records of ancient buildings, &c.

A vote of thanks to the lecturer was proposed by Mr. Robert Hudson and seconded by Mr. Butler Wilson.

An Arrangement has been arrived at by the Corporation of London and the London County Council respecting the Escape from Fire Bill and the Building Acts Amendment Bill. Both Bills were read in the House of Commons on Tuesday, and the discussion of clauses will be heard by a committee. All the clauses in the Council's Bill except those relating to fire protection have been dropped.

NOTES AND COMMENTS.

DODWELL describes the entrance to the Treasury of ATREUS at Mycenæ as 9 feet 6 inches wide at the base, 7 feet 10 inches at the top, and about 19 feet in height. It might from the description be supposed to be an unobtrusive entrance to the treasury. But it is assumed that the wall was flanked with columns or semicircular pilasters which were wider above than below, and were probably decorated with spirals and other ornament. DODWELL describes a columnar pilaster of a soft green stone singularly enriched with spiral and zigzag ornaments of an Egyptian rather than of a Grecian character. The late M. CHIEPZ, in the restoration which appears in his volume on archaic Greece, has shown the pillars adorned somewhat after the manner that is represented in DODWELL'S book. He omitted, however, the spirals, which are an important feature. One of the columns is believed to have been obtained by the second Marquis of SLIGO, and has been lying at his house in Westport for about ninety years. The present Earl of ALTAMONT last year realised the importance of the relic, and after testing drawings and measurements which he made at Mycenæ, his father, the Marquis, has presented the column to the British Museum. It is proposed to add a capital, and a very beautiful base is shown by DODWELL. The gift will, therefore, be a valuable addition to the collection of Greek work in the British Museum.

THE directors of the tube railways in London have reason to congratulate themselves on the comparatively small sums which have had to be paid for injuries to buildings. It was believed that houses along the line would be dislocated, and that the compensation would be beyond precedent. The case which was tried before Mr. Justice LAWRENCE on Friday last is therefore ominous. It was claimed that during the works on the Great Northern and City Railway a house in Highbury Crescent, which was worth 120*l.* a year, had subsided, and that the restoration cost 1,111*l.* The leaseholder was put to an expense of 450*l.* in having to remove, and no higher rent than 90*l.* could be obtained for the house. The Act stated that the iron casing of the tunnel was to be properly grouted with cement, but it was admitted that lime was used instead, and that such grouting might contract when it cooled. All the injury might easily be compensated for. But the question arose, What damages would be claimed from the leaseholder by the landlord when the lease expired in 1909, especially as in the lease the strictest liability for repairs was agreed to? The jury found a verdict for 2,000*l.* damages, and the result is not unlikely to inspire the raising of other claims.

THOMAS TWOPENNY, F.S.A., who lived from 1797 to 1873, was, we imagine, a conveyancer of the type of Mr. HIRAM GREWGIOUS, of Staple Inn. He had a weakness for ancient work, and among his productions is a lithograph with the title "A Stack of Ancient Chimnies and a Stack of Modern Chimnies, respectfully offered to the notice of the British Architects of the 19th Century by an Amateur," which may have had some effect on later building. He was a careful draughtsman and the British Museum possesses a very large series of drawings by him representing architecture, furniture, woodwork and ironwork, all derived from English examples. MESSRS. ARCHIBALD CONSTABLE & Co. have produced copies of ninety-three of the drawings under the title "English Metalwork." There are examples of leadwork, cast-iron work and wrought-iron work. They are of a size which would enable a metal-worker to produce similar objects with all their detail. We may assume them to be made by English hands, and the greater number belong to the Gothic period. They are all admirable, and the book will be a valuable auxiliary to anyone who has to design metalwork in connection with building.

ILLUSTRATIONS.

CHATEAU D'AZAY-LE-RIDEAU, INDRE-ET-LOIRE.

TOURAIN, although rich in historical monuments, possesses few buildings which will be found worthier of close examination than this château. Not so much on account of its historical associations, for in this respect Plessis, Blois, Loché and others far surpass it, nor even because of any very striking picturesqueness, but for its quiet, unobtrusive elegance, the feeling of which grows upon you as you wander round the building, and which characterises the details no less than the whole. The river Indre here divides itself into two arms, which embrace the small island almost entirely occupied by the château, planned somewhat in the form of the letter L. The building, says Mr. HAIG, is an exceedingly well preserved example of the refined Renaissance of the first half of the sixteenth century, having been erected during the reign of FRANCIS I. by GILLES BERTHELOT, whose initials appear not only over the main entrance, but interlaced with foliage and scrollwork in some of the dormer gables. Over the entrance appears also FRANCIS'S emblem, the salamander, so often introduced in French work of this style and period, some niches, now empty, and much ornament carved in low relief, enriching a graceful composition of three orders terminating in a curvilinear gable. The enrichments, attributed to JEAN GOUJON, are most of them exquisitely carved. All the masonry is excellent, and the material is a very light cream coloured, nearly white stone, not perhaps sufficiently toned down by age to satisfy the sense of colour, but bearing an aspect of refinement. As this stone is easily carved, the ornaments are often very minute, and as it is also durable, it is only in the most exposed parts, such as the dormer gables, for instance, where any marked decay is to be observed. Lightly touched by time, the building has suffered but little at the hand of the restorer; and, fortunately, where any repair has been attempted it has been lovingly and reverently done, and in a true conservative spirit. The interior of the château has undergone scarcely any alterations. The staircase is admirable; the old portraits and the old furniture are interesting, and this monument from a picturesque period of art is well worthy of a visit, and deserves to be mentioned as one of the few dealt kindly with by the modern proprietors.

HALL, ST. JOHN'S GATE, CLERKENWELL.

MANY visitors to Clerkenwell when they see St. John's Gate imagine it a surviving representative of the old City gates. It is not very ancient, for it dates from A.D. 1504, and it served not as a public approach, but as the entrance to the Priory of St. John. The monastic buildings were demolished as a consequence of the Dissolution, and the materials were utilised for old Somerset House. The gateway was allowed to remain. In the eighteenth century it was used as the printing office of the *Gentleman's Magazine*, and Dr. JOHNSON said he "beheld it with reverence" when he first came near it. Afterwards he was the principal writer for that periodical, if not the editor. It is remarkable that afterwards JOHNSON'S name was more associated with the gateway than any other. The tenants of the tavern looked on his memory as a sort of chattel. Fortunately the structure reverted to uses which were more allied to those of the founder. The Order of St. JOHN of Jerusalem, which was introduced into England about A.D. 1100, was reincorporated in 1888. No more appropriate habitation could be found for the knights of justice, ladies of justice, knights of grace and other members than the room in the Clerkenwell gateway, which, as the illustration shows, is now in a condition that recalls the old glories of the Priory, when its superior ranked as the first baron of England.

CATHEDRAL SERIES.—ST. ASAPH: GENERAL EXTERIOR, NORTH SIDE.

ELDER LIBRARY, GOVAN, N.B.

ALLHALLOWS BARKING.

ALLHALLOWS BARKING was the subject of the second winter visit of the Upper Norwood Athenæum, under the guidance of Mr. Theophilus Pitt, F.C.S. It was arranged that the members and their friends should meet at St. Olave, Hart Street, and inspect that church, as many of the members had not seen it when visited by the Society in 1894. A brief outline of the principal features of the church was given, its dedication in honour of the Norwegian king and saint, Olaf, who came to London in the year 993 with ninety-four ships, and, fighting against the city, met with a stouter resistance than he had anticipated, so that he had to retire to the south coast, plundering as he went. King Canute acted with diplomatic instinct and sent a bishop and alderman after Olaf, offering him tribute and food if he would cease to plunder; the bishop and the alderman led him to the king at Andover, and a covenant was made and an *entente cordiale* established, which made Olaf a friend of the English, whom he afterwards assisted in defeating the Danes. In the year 1030 he was slain by his own people at Stiklestad, and afterwards sainted. Thus the "Anglo-

Misselbrook, whose care for the treasures under his charge, and Mr. Frank McDuell, whose excellent photographs of Barking Church and its brasses have been generously placed at the disposal of the Society, are entitled to cordial thanks.

The following address was delivered by Mr. Theophilus Pitt:—There are not many who remember that the site of the present wide street to the north of Allhallows Barking Church leading to Tower Hill was, within living memory, covered with houses. Yet a narrow street, called Barking Alley, ran parallel with the north aisle and led to Tower Hill, the side of the lane opposite the church being occupied by seventeenth and eighteenth-century houses with small shops. A ventilating shaft for the railway occupies the position of the centre of Barking Alley, while a skyscraper of massive proportions and glaring ugliness dominates the position at the east end of the church, and a warehouse is built right against it in the south-west corner. The houses which formerly stood on the north side were built on what must have been a portion of the churchyard, or cemetery as it was called, in which stood, about a hundred yards to the north, the chapel of Our Lady of Barking.



ALLHALLOWS BARKING.

axon Chronicle." Other churches in London were named after the great Northman, indicating his popularity in the city—St. Olave, Silver Street; St. Olave, Old Jewry; and St. Olave, Southwark; in the latter case the street in which the church was built became St. Olave's Street, now known to us by the contracted form of Tooley Street. Other churches are dedicated to St. Olaf in Exeter, Chichester, York and Chester, at Creeting in Suffolk, Poughill in Cornwall, and St. Olav's in Orkney and St. Olave's near Yarmouth serve to indicate the widespread reverence with which he was regarded. The association of Samuel Pepys with the church of St. Olave, Hart Street, the monument to his wife, the tablet to his own memory unveiled by Mr. Russell Powell, the interesting brasses to Sir John Haddon and John Orgone, the former having the words "Justifica nos" referred to in the paper, and the latter the woosack, merchant's mark and rhyming epitaph given in the *Record* 1894-5.

Berkyng Church by the Tower was then visited, and very detail carefully inspected by the members, who all expressed admiration at the beauty of the church and the wealth of its ecclesiological and historical traditions. Mr.

The Venerable Bede tells us how, about the year 675, Archbishop Theodore appointed Earconwald Bishop of the East Saxons, in the City of London, what time Sebba and Sighere were kings. Before he became bishop, Earconwald had built two monasteries which became famous, one for himself at Ceortesei (Chertsey), the other for his sister, Ethelburga, at Bercingum (Barking), and established them both in regular discipline of the best kind. It was Earconwald that built the gate at Bishopsgate, and it is interesting to note the proximity of a church dedicated in honour of his sister, Ethelburga. He was the first Bishop of London to be canonised, and his shrine in Old St. Paul's was the great treasure there; it disappeared with the tomb of King Sebba and an untold wealth of historical interest in the Great Fire of 1666.

"It is presumed," says Dr. Mason, "that the fifteen acres which constitute the parish of Allhallows belonged to St. Erkenwald, and that the manorial rights over them and the tithes were part of his endowment for the magnificent foundation (Barking Abbey). At any rate, so far back as the reign of Stephen, the parish is called Barking Church, and though at that time the advowson was in other hands—

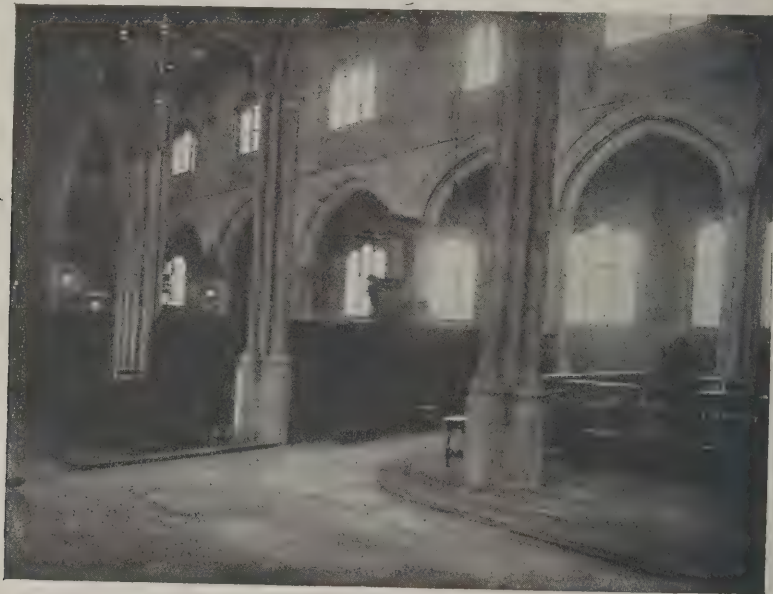
those of the cathedral chapter of Rochester—it passed, or passed back at an early time, to the convent at Barking.”

The early history of Allhallows Barking is thus somewhat vague. The earliest church was, of course, Saxon; the nave of the present building has columns of the Norman period, “circular and massive, with capitals formed by a few simple mouldings.” The capitals of one or two piers and an arch at the west end of the nave have been left untouched by successive restorers; until recently these piers were enclosed within a screen which carefully guarded a supply of coals and the unconsidered trifles usually associated with church cleaning so dear to the nineteenth-century mind; a commodious choir vestry has replaced them all. Of this Norman church nothing more is known than can be seen with the eye. It would be interesting to know if the apsidal termination, the stilted horseshoe arches and the ambulatory, features common to St. John’s Chapel in the Tower close by and to St. Bartholomew-the-Great, also obtained in the Norman church of Allhallows Barking. The piers had been, up to the time of the recent restoration, thickly coated with white paint, the removal of which disclosed traces of colouring.

The nave arcades are formed of arches acutely pointed and plainly chamfered, without moulding, clearly suggesting an Early English origin. Of the Decorated period there is a piscina on the easternmost pier which has been recently disclosed. The east window had its tracery renewed in the restoration of 1814, probably on the lines of the former

still remains. The inscription, copied at the time, “Hic jacet cor Ricardi regis Anglorum,” is in characters indubitably of the period of Richard I., and we may reasonably be excused from believing that the heart of Richard Coeur de Lion rested at Barking, unless the Canons of Rouen lent the relic to the chapel of Our Lady of Barking for a time, a not unusual circumstance in the case of relics of saints in Mediæval times. The chantry chapel of St. Mary of Barking became famous; Edward I. placed a statue of the “Glorious Virgin” in it, and John Tiptot, or Tiptoft, created Earl of Worcester by Henry VI., when he was Constable of the Tower, founded in connection with the chapel a guild presided over by a warden, one of the first to fill the office being the Sir John Croke whose supposed tomb stands in the north aisle of the present church. Tiptot was the friend and patron of Caxton. Though beheaded on Tower Hill his body was not buried in the chantry chapel. The chapel was rebuilt by Richard III. who raised it to further dignity by appointing a dean and six canons; the first dean was Chaderton, then vicar of the parish. Finally the chantry was suppressed by Edward VI. and thereafter disappeared with all it contained.

The brasses in Allhallows Barking are more numerous than in other City churches; here there are sixteen, complete and incomplete. St. Helen’s contains eleven, including three from St. Martin Outwich; St. Olave, Hart Street, five, including two from All Hallows Staining; St. Andrew Undershaft, two; St. Dunstan-in-the-West, two; there is



ALLHALLOWS BARKING: NAVE ARCADE.

existing window, in which case the fourteenth century would have its representative in this window. The remaining portions of the structure are the chancel arches, of very late Perpendicular character, and the clerestory and aisle windows, probably the result of “making newe all the upper windowes and severall side windowes” in 1634, at a cost of over 1,400*l*.

King Richard I. founded the chantry on the north side of the church, and in a document of Edward I. prayer is especially enjoined on behalf of the soul of Richard I., “whose heart is buried beneath the high altar.” This statement is adopted by Stow, but whatever the ground for the statement may be, it does not coincide with the facts as we have them. Richard I., “cor-leonis dicti,” died April 6, 1199. He received his death-wound under the walls of the castle of Chaluz, in Limousin. He bequeathed his heart to the canons of Rouen, whom he had benefited during his lifetime, and his body to be interred at the foot of his father’s tomb at Fontevrault, and there are recumbent effigies of him at both these places. Investigations were made at Rouen in 1838, and the receptacle containing the heart was “discovered” in the choir. A detailed account of the subject may be seen in “Archæologia,” 1842 (vol. xxix. p. 202), from which it would appear that all reverent care was taken of the remains; but when in Rouen in 1899, the writer saw the leaden casket which contained the heart, empty, and in the museum of the cathedral on the north side of the nave, near the west doorway, where it presumably

one at St. Bartholomew-the-Less, one at St. Martin, Ludgate, and a palimpsest in the Guildhall Museum. Moreover, the earliest brass in the City is at Allhallows Barking. It is that of William Tonge (1389), and the date is known through the important fact that his will is preserved,



THE EARLIEST CITY BRASS (1389).

in which he left ten marks to Barking Church. The brass consists of a shield charged with a fleur-de-lis, and surrounded by the inscription:—“Pries p’ l’alme Willm. Tonge g’gyt ycy Ky Dieu de sonn alme eyt

Next in order of date is a brass to John Bacon and his wife (1437). Like John Orgone at St. Olave's, Hart Street, John Bacon is represented with a wooll sack, upon which his feet rest, for he was a citizen and woolman, as the inscription declares. Then an imperfect brass to Thomas Virby (1454), who was vicar of Allhallows Barking and was imprisoned for the perpetration of a pious crime. There is some doubt about this brass; the canopy is executed in distinctly Decorated style, which suggests that the inscription belongs to some other brass. John Croke (c. 1500) is generally supposed to be commemorated, by a large altar tomb in the north aisle from which the name of the date are missing, but the brass figures on the back of the tomb. Sir John Croke was an alderman and skinner, and one of the wardens of the Guild of St. Mary. The brass to Thomas Gilbert (1489) describes him as "civis et draper merc Staple Callis." This is fragmentary, and the inscription also commemorates "Agnes ux ejus." The

are above and the merchants' mark below the figures. The inscription at the foot has been mutilated, and the brass still retains traces of colour. The brass to William Thynne (1546), Clerk of the Green Cloth, Clerk of the Kitchen and afterwards Master of the Household to King Henry VIII., was relaid and restored by Waller in 1861 at the expense of the Marquis of Bath. He is represented with his wife, Anne, a daughter of William Bonde. He was the editor and publisher of the first complete edition of Chaucer's works. The brass is a palimpsest, "almost entirely made up of earlier pieces; on the reverse of the male effigy is part of a body in mantle, with cord, tassels and rich girdle (c. 1530); on the reverses of parts of the female effigy is a priest holding a chalice (c. 1510), and on the reverses of parts of the marginal inscriptions are portions of another inscription in English." On a pier in the south aisle is a quadrate plate, with male effigy, wife, three sons and two daughters, commemorating William Armer, Governor of



ALTAR TOMB OF SIR JOHN CROKE.



BRASS OF ANDREW EVYNGAR (1530).

ss to John Rusche (1498) has a dog at the feet of the, and Christopher Rawson (1518), with his two wives, represented by a brass in the south aisle, having a mutilated inscription and four scrolls. He also was a merchant of the Staple of Calais and a mercer. A scroll over the effigy reads, "O beata Trinitas," and over Rawson and his wives other scrolls appear, labelled respectively, "Justifica nos," "Libera nos," and "Salva nos." Rawson in his will ordered the words "Sanctifica nos" to be engraved on the brass, but it actually appears as "Justifica nos." The latter phrase occurs on the brass of Sir Richard Haddon in St. Olave, Hart Street. Christopher Rawson's brother, Richard Rawson, was rector of St. Olave's from 1510 to 1518, and it is probable that both inscriptions were from the same hand. Next in order of date is the brass to Andrew Evyngar (1535), his wife, son and daughters; this is a fine brass laid in a slab, the left side of which has been destroyed, together with the inscription it bore. The figures are, under a canopy of pointed arches, and in the center is a pieta, Our Lady of Pity. The arms of the Merchant Adventurers' Company and the Salters' Company

the Pages of Honour to Henry VIII., Edward VI., Mary and Elizabeth, who died in 1560. In the nave, between the choir stalls, Roger James (1591), a Lower Thames Street merchant of Dutch parentage; he came to England in the reign of Henry VIII., and was an ancestor of Lord Northbourne. Other late brasses are one to Margaret, wife of Arthur Bassano, and Camela, wife of Henry Whitton, in the south aisle (1620); one in the north aisle to George Snayth, Laud's steward (1651); and a late and undated representation of the Resurrection and a scroll, with male effigy, wife, three sons and four daughters. Two minor brasses consisting of shields charged with arms of various persons brings up the list to sixteen, a very goodly number.

The registers of Allhallows Barking date from 1558; had they commenced three years earlier we should probably have been able to see the entry recording the baptism of Lancelot Andrews, who, born in 1555, used to pray "for the church of Allhallows Barking, in which I was baptized." The communion table was given to the church by John Burnell in 1613, and the pulpit ordered in 1638 in these

terms, "take care that new pulpett hedde be made in regarde the old one is too small." It was made by a Mr. Lane at a cost of 19l, and the hexagonal sounding-board has the curious and unusual motto in a panel, "Xpm pdicam crucifixum." In 1649 the church was damaged by an explosion of gunpowder in a ship-chandler's shop in Great Tower Street; over fifty houses were destroyed and many lives lost; the following morning a female infant was found in her cradle on the leads of the church; she grew up "a proper maiden." The tower of red brick which was erected after the destruction of the former one in this explosion was one of the few ecclesiastical structures erected in the Commonwealth period; the church at Wrotham is one of these, built by Sir Harry Vane.

Amongst other entries in the registers is that of the baptism of William Penn on October 23, 1644. He became a Quaker and was thereupon disowned by his father, Sir William Penn, whose efforts in the Great Fire of 1666 to arrest the progress of the flames, which destroyed the parsonage house, appear to have been successful. Samuel Pepys mentions that his wife called him up at two in the morning to tell him that the fire had "come to Barking Church." Then there is the entry in the register:—"Died January 10th, buried 11th, William Laude, Archbishop of Canterbury, Beheaded," and a further word which was erased later. The body was removed to the chapel of St. John's College, Oxford, in 1663.

The sixth President of the United States of America, J. Quincy Adams, was married here July 26, 1797, to Louisa Catherine Johnson, of this parish. The present porch is the design of the late J. L. Pearson, R.A., who had charge of the recent restorations, not yet completed. On the porch are three statues by Nathaniel Hatch, the artist employed on the north transept of Westminster Abbey. The centre figure is that of the B.V.M., and on either side are St. Ethelburga and Bishop Andrews; the arms of the see of London and St. Erkenwald, of the Convent of Barking and St. Ethelburga, are added with appropriate purpose.

There was a time when the History of Allhallows Barking, by the Rev. Joseph Maskell (1864), was almost the only available source of information with regard to this interesting building. It required amplification and exposition. More recently Canon A. J. Mason (*Nineteenth Century*, May 1898) has written the "Romance of an Ancient City Church," the Rev. Dr. Biggs a booklet, "Berkynge Church by the Tower," and Mr. Philip Norman, F.S.A., read a paper in 1902 which will be found in the Transactions of the S.P.E.S.

THE ARCHITECTURAL ASSOCIATION.

A MEETING of this Association took place on Friday last at the Royal Architectural Museum, Tufton Street, S.W., Mr. E. Guy Dawber, president, occupying the chair. Prior to the reading of the paper Mr. Guy Dawber announced that the students had organised a smoking concert to be held on March 28 at the Monico, Piccadilly. A hope was expressed that there would be an unusually large attendance, as any balance will be contributed to the new premises fund.

Mr. H. V. LANCHESTER then read the following paper on

Law Courts.

When you kindly invited me to read this paper I selected "Law Courts" as the subject, not so much in the hope of being able to contribute very much to the knowledge that most of you already possess, as because it seems to me that of the various problems in planning that the architect is called upon to solve this is one that involves the use of nearly all the expedients that are demanded, and is perhaps the most typical of the methods to be adopted in matters of arrangement, while at the same time there is considerable scope, in larger examples at all events, for the study of architectural expression.

In this matter of architectural expression the continental nations are noticeably our masters. Comparing most of our public buildings with those of equal importance abroad, while we find that at home they are too frequently pinched and ineffective, wedged into irregular sites between commercial premises, abroad we see a massive and imposing pile, its dignity enhanced by judicious isolation from all mean and unworthy surroundings, approached by a noble avenue or a spacious square. The rooms are lofty, the corridors wide, and everything is calculated to impress one with the importance of the building and its uses; but as far as ingenuity of arrangement goes, it is inferior to the cramped little concern familiar to us at home, and as

regards the specific provision for its purpose, very little study seems to have been expended; in many cases the outline plan would hardly inform one whether the building was municipal, legal, or residential in its intention, while a few modern plans in our own country would fail to show at a glance whether they were for town hall, law court, or palace. Lest we should feel inclined to congratulate ourselves unduly, it behoves us to consider whether we do attach too much importance to our clever little schemes specialising the routes and entrances in our designs, and whether the Englishman's mania for privacy is not carried beyond what is either essential or desirable. I certainly incline to this view myself, and think that we should occasionally make some concessions in minor points, if by such a course we can strengthen, if one may use the term, the dramatic force that a fine architectural treatment exercises. As an example of the importance attached abroad to worthily and suitably expressing the purpose of such a building, one need only cite the Law Courts at Brussels, where the intention of impressing the mind with the power and dignity of the law is so successfully fulfilled. The Courts at Paris, though most interesting in themselves, are less suitable as an example, for, in spite of Duc's masterpiece, they represent, as a whole, a gradual aggregation which cannot be regarded in the same light as a completed study from a hand.

While far from desiring to detract from the design of our own Courts of Justice, combining as it does remarkable grace of detail with vigorous composition, it must be admitted by all that the internal arrangements fail, both from a practical and an architectural point of view, the chief defects being the divorce of the great hall from the court, and the consequent meanness of the approaches to the latter. One of the most striking and typical examples of assize courts is that at Manchester, by Alfred Waterhouse, of which a plan is published in the *Transactions* of the Institute of June 12, 1865. If you refer to this you will note the skill with which the somewhat complex problem is met, and, taking into consideration the fact that the public galleries are practically on the same floor as the courts, the satisfactory separation of the officials, Bar and witness, with the consequent avoidance of awkward cross-currents.

You are doubtless familiar with the plan of the Birmingham courts, which are universally considered to be most admirably arranged. In this case the large hall is in daily use, as it serves both police and assize courts; in fact, the latter are very much used throughout the year, and the large hall is a great convenience.

In the case of the Old Bailey courts, the site was a somewhat limited one for the accommodation required, and of this account the problem is treated in a simpler manner. As you have most of you recently visited the building, it is hardly necessary to embark on a detailed description, and may suffice to mention that the courts are grouped in two adjacent pairs, separated by the main staircase and lighting area, while a corridor in front serves witnesses and Bar, and another behind the Bench; the judges' and juries', the barristers' rooms are on an upper floor, and a suite at the south end of the building is provided for the Lord Mayor and City authorities.

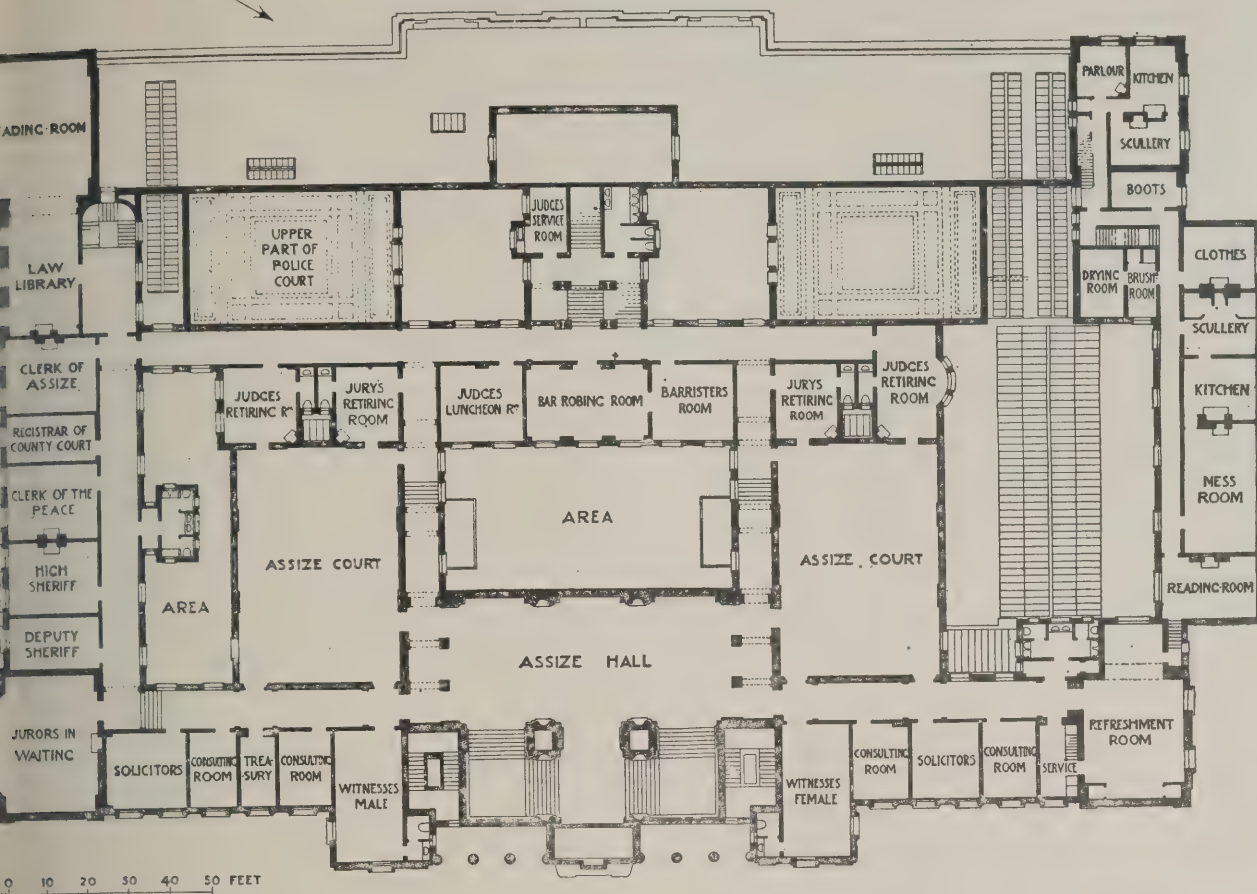
Very fortunately for us the site provided for our work at Cardiff is quite an exceptional one, and though not laid out with the skill that one sees exercised in France or Germany it is nevertheless of a noble spaciousness and liberality, so that the buildings stand four square, open on all sides, and the façades only broken by the surrounding trees. The design of the Cardiff courts was, to a great extent, governed by the relation of the building to the town hall on the east side, to which it corresponds in architectural details, and in its dimensions from north to south. This also suggested the arrangement of the assize courts and their adjuncts on an upper floor, though such a course is in this case justified on economic grounds alone.

The very general objection to the placing the courts on the first floor is to some extent met by the arrangement of the steps, those not external forming as it were part of the design of the assize hall or *salle des pas perdu*.

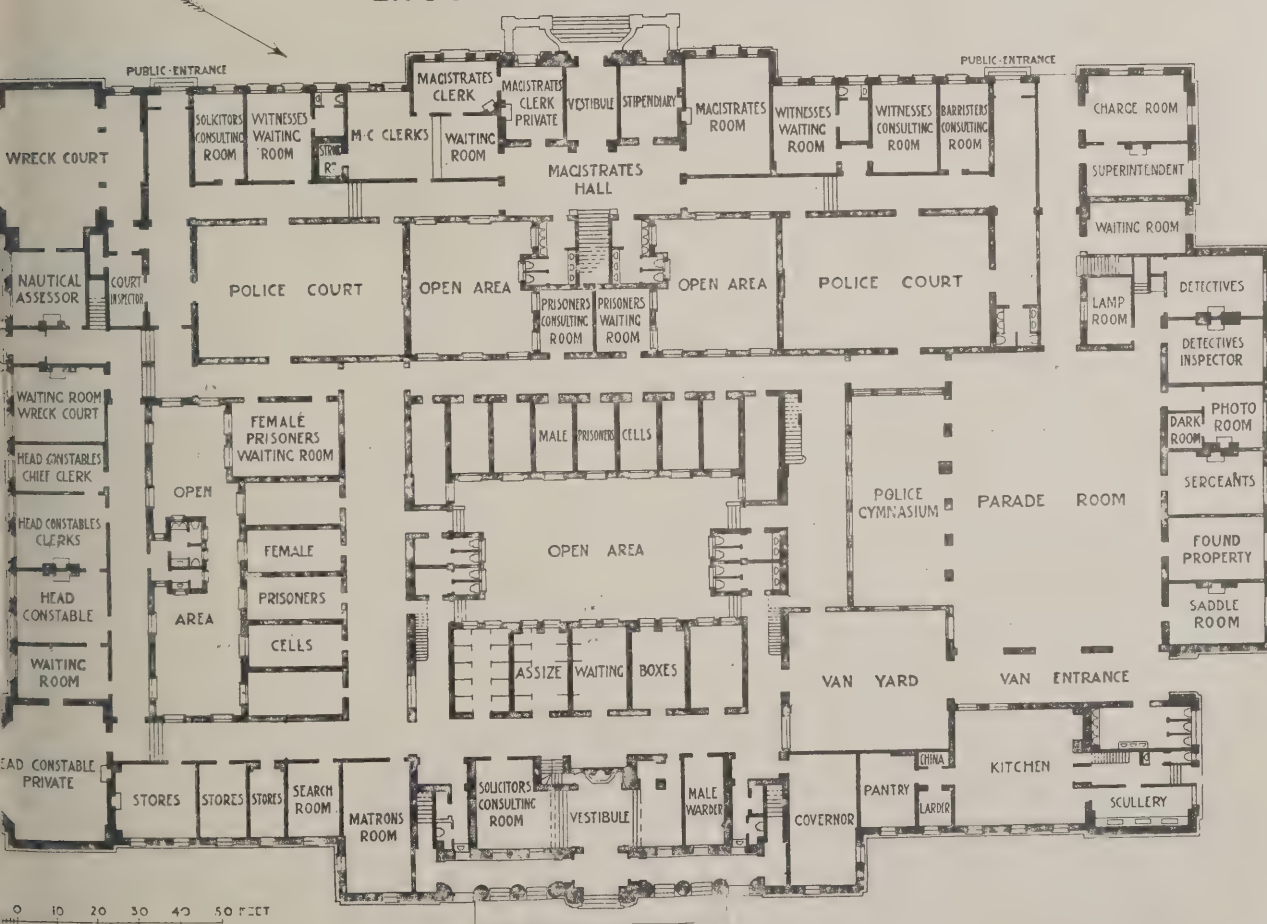
You will, I trust, understand that in illustrating my paper by means of these plans, it is not with any idea of their representing a standard type; as a matter of fact, the conditions themselves preclude such a supposition, but that such a course makes it easier for me to formulate the various points with which I ought to deal.

With the plan before us I should mention that the buildings include the following:—The assize courts, police and wreck courts, the A Division police station, the chief

• FIRST FLOOR PLAN •



• GROUND FLOOR PLAN •



constable's offices. Beyond pointing out on the plan the accommodation allotted to the two latter, I do not propose to refer to them, as they present but few variations from the usual practice. Basing our ideas on the examples quoted, it will be best to commence with the assize courts, and taking one of these and its surroundings in detail, the practical problems that I referred to at the commencement of this paper will become obvious.

We shall not then need to consider the lesser courts at the same length, as they will follow to a large extent the same principles. You have in those attending the court the following six main divisions:—(1) Judge; (2) jury; (3) Bar; (4) witnesses' solicitors (and litigants in civil cases); (5) prisoner and police; (6) public, each of which it is desirable to keep to some degree distinct, while the first two must be able to pass direct to their retiring-rooms without emerging into any of the general corridors.

You will see at once that it is practically impossible to secure this degree of subdivision on one floor, but the removal of the public to an upper gallery, and provision of steps from the dock to a lower floor for the prisoner simplifies things very much.

A corridor in front of the court will serve division 4, and also jurors in waiting and when discharged. Corridors on one or both sides will provide for the Bar and officials, while the judge enters through his private room, from suitable access provided at the back of the Bench. Thus we may mentally picture as the ideal arrangement a central block consisting of the court plus the judges' and jury retiring-rooms, surrounded by a corridor, outside which are suitably placed the various rooms for officials, Bar, witnesses, &c. Taking this as a starting-point, it will almost inevitably occur that exigencies of lighting, access, &c., will demand modifications; for instance, the courts may require to be grouped, as at Birmingham and the Old Bailey; the site may be too small to allow of all the rooms on one level, as

at the High Courts; or, again, the lighting of a lower floor may have to be considered, as is the case in our building at Cardiff. At the High Courts of Justice the officials' and barristers' rooms are very ingeniously dealt with on a mezzanine below the judges' rooms, &c., at the back of the Bench; the Bench being raised, these rooms are conveniently near the level of the court. On the other hand the jurors' retiring-rooms are not well managed, being in the basement, two floors below the court level. The witnesses' rooms are next in importance, and if it is difficult to place those in close proximity to the courts, an enclosed space may be provided at the back of the court for witnesses immediately wanted, though I think the more usual provision of a few seats in the court and a good room close at hand preferable.

The grand jury, an important factor in the conduct of our assizes, need not be in such close touch with the court as it only assembles there at the commencement of the session to receive the judge's charge and then withdraws to deal in a preliminary way with the cases. It hears sufficient evidence to decide whether a case should proceed or not, and its communications are handed in to the clerk in the form of a "true bill" or otherwise.

The grand jury, twenty-four in number, is drawn from the magistracy and more important residents in the circuit.

It is a general practice to put its rooms on an upper floor with an opening into the court by which the bills can be delivered on the usual "fishing-rod." The arrangement of our building enabled us to put a gallery in the court which would accommodate the grand jury while being charged, but it is very possible that judges will prefer to have them in the body of the court instead.

Before going into the arrangements of the courts themselves it is worth while to run through a short schedule of those for whom accommodation must be provided:—

(1) Assize Court (Criminal)	Sheriff Deputy Sheriff Judge Judge's Marshal " Clerk Assistant Clerk	Jury of Twelve Jurors in waiting	Bar	Witnesses and Solicitors Ushers Official Reporter Press	Prisoners Warders Police	Public
(2) Assize Court (Civil)	As above	As above	"	As above and Litigants	None	"
(3) Quarter Sessions (Appeals from police and petty sessions in minor cases; licensing cases)	Magistrates with Chairman of Bench or a Recorder Clerk	None	"	Applicants Witnesses and Solicitors	Prisoners and Police	"
(4) Petty Sessions (Country police court)	Magistrates or Stipendiary Clerk	None	"	Prosecutors Witnesses and Solicitors Press	Prisoners and Police	"
(5) Police Court	Magistrates or Stipendiary Clerk	None	"	Prosecutors Witnesses and Solicitors Press	Prisoners and Police	"
(6) Wreck Court	Stipendiary Nautical Assessor Clerk	None	"	Ship's Officers Witnesses and Solicitors Press	None	"
(7) Sheriff's Court (Compensation cases and assessment of damages)	Deputy Sheriff Clerk	Jury of Twelve	"	Plaintiff and Defendant Witnesses and Solicitors	"	"
(8) County Court	Judge Registrar Clerk	Jury of Five	"	Plaintiff and Defendant Witnesses and Solicitors	"	"
(9) Coroner's Court	Coroner	Jury of Twelve	" (Occasionally)	Witnesses	Occasionally prisoner under escort	"

We now come to the details of the court-room itself. Taking assize courts first, we find that the usual form of court is now a short oblong, with a width of 30 feet to 40 feet and a length of 40 feet to 60 feet; but at Gloucester the courts (erected some sixty years back) are semicircular in form, with the seating in concentric semicircles struck from the judge's throne. This arrangement seems a good

one, both practically and architecturally, and might, I should imagine, be more frequently employed where the site is suitable. We will assume, however, that the rectangular plan is adopted. After arranging for the Bench, which should be about 25 feet long by 6 feet or 7 feet of width, and raised 2 feet 6 inches to 3 feet above the floor in the court, the chief point on which any difficulty arises is

the position of the witness-box; this should not be less than 10 feet or more than 12 feet from the judge, and could again be within 12 feet or 14 feet of the examining barrister and the jury. If much further than this the witnesses' replies may not carry, and the facial expression, which is sometimes important, may escape observation. It is more usual to put the witness on the other side of the judge to that occupied by the jury, with the advantage that the witness practically faces the jury-box when under examination, but with the disadvantage that remarks audible to the barrister and judge may not reach the jury, who are generally less inclined to interfere in asking the witness to speak up. After consulting authorities of great experience we decided to place the witness-box on the jury side, pushing the latter slightly further down the court than usual, so that they get at least profile view of the witness. The witness-box should be 4 feet above the floor, and should have a small table-top for documents or other articles produced in evidence. In front of the Bench, and about a foot below it, are seats for the judge's clerk and officials assisting him, and in front of these on the floor of the court the tables and seats of solicitors, while on the opposite side to the jury-box are placed the official shorthand writer and the Press. Behind the solicitors sit the barristers, and behind them is the dock. In the court where civil cases are heard this dock is convertible into additional seats for the Bar, or for special witnesses, experts, &c., while the bank of seats at the back of the court provides for witnesses and jurors-in-waiting.

Police.—Police courts follow much the same general arrangement, with the exception that no jury-box is required, while the cases are usually disposed of much more rapidly. The public may either be in an upper gallery or on raised staging at the back of the court. The prisoners are usually brought into the dock by means of a staircase from below, but at Cardiff they come in on the level from the cells corridor which runs along the side of the courts; to our mind this is the more expeditious method. You will see that these courts are in our building approached from three sides, and that the grouping of the two avoids cross lines of traffic as far as possible in such a case.

The wreck court is presided over by the stipendiary and a nautical assessor, and deals with such cases as the name implies, those attending being chiefly engaged in the mercantile marine.

The buildings are heated by the atmospheric steam system, the steam being slightly below atmospheric pressure; the boilers are in the basement of the town hall, and pipes are brought through a subway connecting the two blocks; the courts and other rooms are supplied with fresh filtered air, driven by electric fans through steam-heating batteries, and carried by means of ducts and flues to suitable points. Extraction flues and ducts are carried to blowers in the two towers. It may interest you to hear, what I only knew myself a few days back, that this is practically the same system as was adopted in the court-rooms at Manchester over forty years ago; though, of course, many variations in detail have developed in the meantime. At all events, experience has proved that for rooms as much occupied as courts some form of mechanical ventilation is essential.

You have, I imagine, formed a fair general idea of the requirements in buildings of the class under consideration, and not wishing to extend these remarks unduly, I propose only to briefly refer to the general character which might be expressed architecturally in a building of this class.

A certain austerity should, without doubt, be the prevailing note, but this should be most emphasised in the justice-chamber itself, where the presence of ornament and useless accessories would be distinctly out of place.

The assize hall, however, presents an opportunity which is scarcely to be found in any other description of building. Severe in treatment though it should be, it is yet a link between the outer world and the solemnity of the tribunal. As it leads to the various departments, and has to provide for the freest perambulation, it includes more than one vista, and affords scope for the romantic treatment that art associates with an exchange or public loggia, where the learned might exercise the imagination and find inspiration in a sense of space and rhythmic form such as a well-designed apartment of this importance and character should suggest.

A feeling of the open air quite apart from the matter of ventilation should be imparted, and any sense of confinement would effectually mar the relief which such a hall affords those who have felt the tension of a hardly fought

case. Balconies to the open air, provided their outlook is not too exciting, would be valuable as adjuncts, and mysteries of light and shade might be sought for.

A considerable uniformity of material would seem to be desirable, such as could be secured by a vaulted room in stone with a stone floor tempered by the introduction of other materials, if they are used only in the broadest way.

Such a hall offers great opportunities of an almost purely architectural character, and the use of ornament and sculpture need not be excluded, though these adjuncts are capable of a freer treatment in the exterior of the building. It may be remembered that a palais de justice is not a prison, and that in the hands of an artist dignity and balance may achieve a result typifying the magnificence of the law, which is no terror to those who have no reason to fear it, and a palace of justice as a monument to a merciful institution might well have some elements of gaiety in its composition.

Mr. HOOPER said he rose with great pleasure to propose a very hearty vote of thanks to Mr. Lanchester for the most instructive paper that had just been read. The subject of law courts seemed to belong rather to the specialist. Mr. Lanchester was to be congratulated on the wonderful opportunity he and his partners have had in erecting the law courts at Cardiff. It might almost be said that in no other similar instance in Great Britain has the architect been subject to so few restrictions. The most notable instance in London of this class of work which has been so hampered is the Law Courts in Fleet Street. Mr. Street's design was cut down and meddled with in a most merciless manner. In consequence an amount of waste space was obtained which one cannot but wish had been devoted to building, and thereby to obtain the architectural effect which Mr. Street was so anxious to secure. In effective contrast to this cheeseparing policy one can turn to the law courts of Brussels, and marvel at the opportunity which M. Poelaert had afforded to him, and also at the brilliant manner with which it was seized. It used to be said that the building was a monument to Justice, but the King of the Belgians said it was rather a monument to Architecture. Such indeed it appears to the casual observer. Whether it fulfilled all the requirements for which it was erected he could not say. But externally, at any rate, it was a very expressive structure. The student of architecture cannot refrain from marvelling at the attention bestowed on the minutest detail. Even the fittings and furniture of the interior were carried out under the personal supervision of the architect, M. Poelaert. Paris has no law courts to compare with those at Brussels. Those in Rouen are of extreme interest, but being out of date are not within the purview of the paper under discussion.

Mr. E. A. RICKARDS, in seconding the vote of thanks, said he was grateful to Mr. Lanchester for having presented the subject under a new light to him.

Mr. GREIG said that he was struck very forcibly by the fact that Mr. Lanchester throughout the course of his paper referred to no point of historical interest. The whole question of law courts seems under its present aspect an eminently modern one. There was nothing to guide a designer as to what principles should be followed. This method of dealing with the subject was perhaps a surprise to anyone who had expected that Mr. Lanchester would include some remarks on the history of law courts and our methods of dispensing justice, and perhaps indicate the gradual development which culminated in the system of the present day, thereby affording us some guide as to how to carry on a tradition if there was such a thing in this branch of architecture. If the subject is accepted as an essentially modern one, the employment of modern materials is perhaps more completely justified than in any other kind of work. Mr. Lanchester did not enter either into a discussion as to the various materials best suited to the difficulties peculiar to this architectural problem.

Mr. E. GUY DAWBER in closing the discussion said that everyone must regret the very lax attendance on that evening, and that the paper had not provoked more discussion must be attributed to the very inclement weather. It seemed to him that the subject of law courts was beyond question one for the specialist. Mr. Lanchester and his partners have made it entirely their own, and Mr. Lanchester knows more about it than anyone in England. Messrs. Lanchester, Stewart & Rickards were to be congratulated on being able to put up two such magnificent buildings as the Cardiff town hall and law courts together. The short-sighted policy of local authorities in England when cramping the sites of municipal buildings must be a

cause of deep regret to all who could see a little ahead. This is borne out by a visit to any continental town. There the town halls were made the principal feature of the town and were enhanced by the dignity of their surroundings. The overwhelming sensation in looking at the law courts in the Strand is that they are restricted in area, for it is impossible to obtain a general view of the buildings from any point. At Cardiff, on the other hand, the buildings can happily be seen from all sides. In England, of course, it is sometimes exceedingly difficult to secure an open space for imparting the full effect to a design. But one must nevertheless regret such a fact. Mr. Dawber concluded by proposing a vote of thanks to Mr. Lanchester, which was passed with acclamation.

Mr. LANCHESTER in reply thanked the meeting for the very cordial way in which his paper had been received and for which he was very proud. He protested against the statements of two of the previous speakers when they said that law courts were for the specialist. He strongly objected to such a description, and doubted if there was such a being. If a man bestowed extra attention on a particular branch of his work he was not thereby constituted a specialist. Of course, he and his partners knew more about law courts than they did when they secured their first commission. But he declined to accept it as a compliment if he were labelled specialist, no matter of what kind. It had never occurred to him to deal with his subject from an historical point of view, and he hoped that this aspect would be separately treated at a meeting of the next session. His effort was to attentively study modern and contemporary work, and endeavour to carry it a step forward. Our modern arrangements were not like those of even so recent a period as fifty years ago. Mr. Dawber, in alluding to the cramping of the sites of public buildings, had told them by way of comfort that they could not expect free open spaces in old England. The argument was not altogether sound, for it must be conceded that most of the continental towns, where the opposite condition prevails, are quite as old, and usually much older, than English cities.

GENERAL.

Mr. LILIE FIELDS, R.A., has completed the State portrait of Queen Alexandra and has submitted it to the inspection of Her Majesty.

The Property left by Mr. George Henry Boughton, R.A., of West House, Camden Hill, London, W., who died recently at the age of seventy-one, has been valued at 24,916*l*.

The Public Works Department of the Cape of Good Hope will obtain a design for the new law courts to be erected in Cape Town by competition. The architects will be confined to those practising in South Africa.

A Joint Committee of admirers of the late Robert Brough, A.R.S.A., appeal for help in raising a fund for the following purposes, viz.:—(1) To acquire and place in the Art Gallery, Aberdeen (where the late artist received his artistic education), the fine portrait-bust of him by Mr. Derwent Wood, exhibited last season at the New Gallery; (2) to found an art scholarship in Aberdeen, to be called the "Robert Brough" scholarship.

Mr. Hippolyte J. Blanc, R.S.A., read a paper on Friday last before the Edinburgh Architectural Association entitled "The Arts of the Monastery." The numerous lantern slides included examples of his own work.

The Royal Scottish Academy rejected at a statutory meeting, by eleven votes to nine, the proposal to elect a painter, a sculptor and an architect to the rank of Associate.

The University of Oxford has renewed the annual grant of 100*l*. to the British School of Archaeology at Athens for three years.

The Ruislip District Council have decided to offer premiums of 50*l*., 30*l*., and 20*l*. for the designs submitted in the competition for the new public free library, towards which Mr. Carnegie has given 5,000*l*.

The Carpenters' Company have voted 25 guineas to the building fund of the Architectural Association.

The Royal Society of British Artists have elected the following members:—Mr. G. C. Collins, Mr. Walter Dexter, Mr. T. Hodgson Biddell, Mr. W. M. Palin, Mr. H. Lindley Richardson and Mr. D. Murray Smith.

The Annual Exhibition of the Royal Hibernian Academy was opened on Monday by the Countess of Dudley.

Mr. D. G. Hogarth is to have charge of the excavation the site of the "Artemision," which will be resumed at the end of the month.

Professor W. E. Dalby will deliver on Tuesday next the Royal Institution the first two lectures on "Vibrations and Problems in Engineering."

The Plans for the Liverpool County Hospital for Children have been passed by Wirral Rural District Council. The quantities are now in preparation. The central block will be first undertaken at a cost of about 25,000*l*.

An American Court of Appeal has decided that an engineer is not compelled to hand over to his successor books containing field notes made by him in surveying lots of individual owners upon their application, under the employment and at their expense, but such books are his private property.

The Bexhill Education Committee have decided to appoint an assessor in connection with a proposed competition for the design of a new school.

An Academy of Music is to be erected in Brooklyn, New York, at a cost of 1,000,000 dols. Several well-known architects will be selected and invited to submit plans in the competition held under the supervision of the professor of architecture at Pennsylvania University.

Mr. J. R. Bell, M.I.C.E., has removed his offices to 25 Victoria Street, Westminster, London, S.W.

The Ascoli Cope has been returned by Mr. Pierpoint Morgan to the Italian Government. The transference to Italy was effected through a secretary of the Italian Legation in London.

Mr. G. H. Willoughby, of Manchester, has been appointed assessor in the Nelson free library competition. It is believed 200 designs have been sent in.

An Office Building is to be erected in Chicago on which the total expenditure will amount to five million dollars. Half of this amount will be the cost of the site.

The Chailey Rural Council have received an account from their solicitors showing payments amounting to 267*l*. in connection with the proceedings against Sir W. Grantham. The clerk has in addition presented a bill for 68*l*. as out-of-pocket expenses.

The French Government has purchased a picture by Mr. Sickert representing Old Bedford Music Hall, Camden Town.

Clifford's Tower and Mound at York Castle will henceforth be upheld at the expense of the whole county of Yorkshire.

The Leeds City Council have accepted the resignation, on account of failing health, of Mr. Thomas Hewson, M.Inst.C.E., city engineer and surveyor and waterworks engineer. Mr. Hewson, who is now sixty-five years of age, came from Rochdale to Leeds in 1881.

Mr. Holbrook Gaskell will give 1,000*l*. towards the erection and complete furnishing of an operating theatre in connection with the Liverpool Country Hospital, which is about to be erected at Heswall, Cheshire.

Mr. T. G. Jackson, R.A., will on Thursday next, at five o'clock, deliver the first of his course of two lectures at the Royal Institution on "The Reasonableness of Architecture."

Mr. J. H. Mawson, garden architect, has taken an action against the Carnegie Dunfermline Trustees, claiming 3,101*l*. 11*s*. 2*d*. for services in connection with the improvement scheme. The trustees have offered 300*l*.

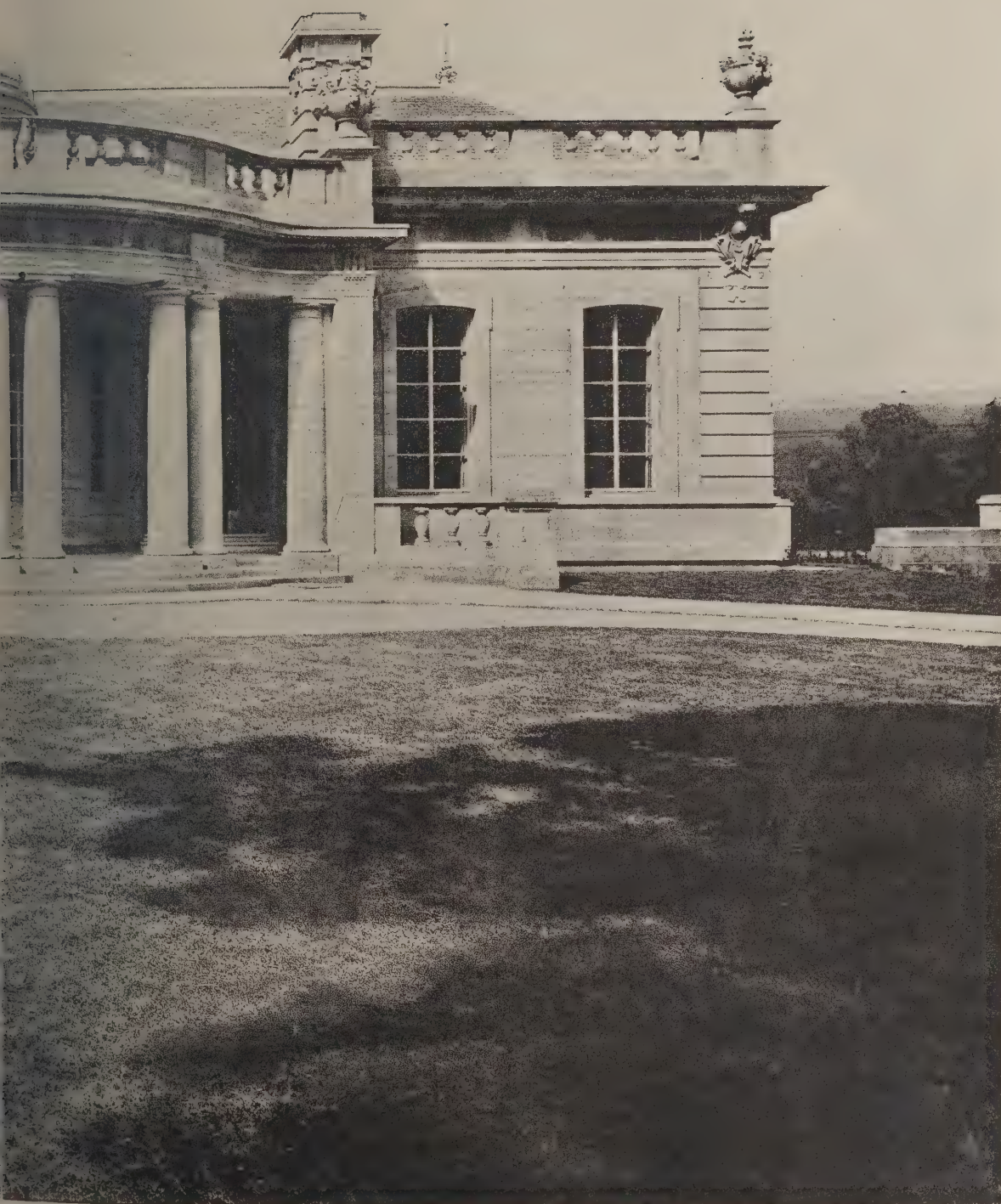
The Birmingham Association met on the 10th inst. to consider the question of registration. The following resolution was adopted:—"The Birmingham Architectural Association having listened with great interest to the addresses of Messrs. Cross and Hubbard upon the subject of 'The Statutory Qualification of Architects' hereby records its approval of the general principle they advocate, and wishes them every success in their endeavours to bring about, through the most appropriate channels, suitable legislation upon the subject."

Her Majesty's Theatre, Carlisle, which was destroyed by fire some months ago, is in process of reconstruction. The seating accommodation of the new theatre will be as follows:—Private boxes, 14 persons; dress circle, about 100; upper or back circle, 152; stalls, 132; pit, 560; gallery, 572—total, 1,530. The frontage of the old building, which was not damaged by the fire, will remain. It is expected that the theatre will be ready for opening in the autumn. Messrs. W. H. Bendle & William Hope, 33 Grainger Street West, Newcastle-on-Tyne, are the architects.



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17th 1905



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The Architect, Mar. 17th 1905.





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Continental Sketches by A. H. Young

The Architect.

THE WEEK.

THE new Workmen's Compensation Bill, which will have to pass through the House of Lords before being submitted to the House of Commons, corresponds to a large extent with the report of the departmental committee issued last year. It was recommended that the limitations in respect of employment on or in or about any building, as regards height of building, use of scaffolding and employment of machinery, be repealed. In the Bill there is no longer a necessity for restricting accidents to those which occurred on, in or about any building which exceeds 30 feet in height, or on which scaffolding is employed or machinery used for the purposes of construction. Men engaged in preparing the ground or laying the foundations can claim compensation. Another recommendation was that the words "dock, wharf, quay, warehouse" should be inserted after the word "factory." That has been done, and the Act will also apply to tramways, workshops and laundries. An accident which occurs while a building is being decorated or altered in any way can also be made a subject for compensation. The committee furthermore considered that a workman should not be prevented from recovering compensation by reason only of the fact that the accident did not occur on, in or about a particular place. The Bill proposes to extend the obligation of the employer to cases where the accident happens to the workman while actually engaged on the duties of his employment although absent from the premises of the employer. The dependants who received compensation are such members of the workman's family as were wholly or partly dependent upon his earnings. In the Bill dependants include "wife or husband, father, mother, grandfather, grandmother, stepfather, stepmother, son, daughter, grandson, granddaughter, step-daughter, brother, sister, half-brother, half-sister."

VISITORS to the Paris International Exhibition will remember that in the Petit Palais a pleasing effect was achieved by covering the ironwork with mat gilding. Gilding on metal may be false in heraldry, but in decoration it is generally advisable. The palace now belongs to the City of Paris, and the Municipal Council have added it among the other structures which have to be devoted for the benefit of visitors in the summer. But though a penny-wise policy which is unworthy of the city instead of regilding the ironwork it is being covered with ordinary paint. It is not often such a lack of taste is exemplified in a public building in Paris, and the gain is so insignificant as not to be worth consideration.

ALTHOUGH the St. Louis Exhibition of 1904 has ended with financial losses to others besides the promoters, the exhibition must in many respects be considered successful. The buildings demonstrated American expedition both in the designing and the construction. Mr. ALFRED FLETCHER read an interesting paper before the Institute on the buildings. The book he has issued, of which Mr. BATSFORD is the publisher, gives more information than was possible in a paper, besides a great many photographs of the buildings and grounds. The information contained in the pages can be turned to account for other purposes. What must strike every architect on examining the plates is that Old World architecture has been employed throughout, and that the building is suggestive of an independent effort to employ novel forms. Mr. FLETCHER explains this by saying that "so thoroughly has the Beaux-Arts captured the imagination of American architects that none could get away from its influence even in erecting a temporary building." Evidently the American "Young American" has not yet appeared in architecture.

AN exhibition of paintings by HENRI LEYS and his nephew, HENRI DE BRACKELEER, will be held in the New Museum, Antwerp, from May 15 until June 15. LEYS, who lived from 1815 to 1869, was one of the great masters of the modern Belgian school. His style was imitated to some extent by his pupil, Sir ALMA-TADEMA, when he preferred Mediæval to Classical scenes. LEYS might be described as a Mediæval realist, and his paintings are very different to the masquerades of modern models in fancy dresses which are supposed to be historical paintings. If LEYS painted Mediæval buildings his style would seem from be in keeping with the architecture. But the severity of his manner is not always pleasing, and his pictures appear almost out of place in a modern gallery. HENRI DE BRACKELEER also loved the scenes of a past time, but he was not an archaist, and his colouring appeals to modern eyes as if it were superior to his master's. Both artists produced admirable works, and a sight of them will repay a voyage to Antwerp.

WE lately referred to RUDOLF VON ALT, the NESTOR of the Austrian painters. In spite of his age, he was so young and ardent in temperament that he was elected to be President of the Society of Secessionists, or the advanced painters who were in revolt against the old methods of the Austrian school. He died on the 12th inst., and, as he was born in 1812, he was in his ninety-third year. He was specially successful with landscapes and representations of Austrian buildings. His water-colour drawings were highly valued. He was a link between past and present, and it was remarkable to find so old a painter in the van of progress. No artist in Vienna was so popular with young aspirants as RUDOLF VON ALT.

THERE is no country in Europe where the French proverb "Aide-toi, le ciel t'aidera," deserves to be accepted and acted on as in Ireland. What can be done by self-help under adverse circumstances has been exemplified in the attempt to obtain examples of modern art for Dublin. In the first place the committee succeeded in obtaining for exhibition the collection of French and Dutch paintings which belonged to the late Mr. J. STAATS FORBES. They were better adapted than any discourses to convince the people that modernity in art has its importance. Energetic efforts were made to raise subscriptions for the purchase of some of the works. On Monday last the treasurer was able to announce that the money already promised amounted to within 840*l.* of the sum required to purchase fourteen examples of COROT and nine of CONSTABLE from the Forbes collection, and that various other pictures in the exhibition had been presented. It is difficult with such a collection to allow any part to leave Dublin, and the other works which are considered necessary will cost 5,800*l.* It is proposed that an attempt should be made to borrow that sum, at a reasonable rate of interest, on the security of the pictures and the names of certain members of the committee before the exhibition closes. Time to collect the money would be given by such an arrangement.

A PAPER was lately read in Bonn by Dr. SIEBOURG on an ornament for the dead which was obtained from an ancient Greek tomb. It is made of a very thin pale gold, and was used as a band for the head of a corpse. The inscription on it is to the following effect, "Be consoled, EUGENES, nobody is immortal," as if it were the last greeting from a relative or a friend. Similar inscriptions are found on steles and must have been of ancient origin. The name Taenia was applied to streamers on ships and to the string used for tying garlands; it was also applied to a band for the hair. Priests and priestesses wore one, and it was sometimes intertwined with the chaplets of olive and laurel for prophets and poets. It was not supposed to be employed for the dead.

BUILDINGS IN CHANCERY.

ACCORDING to JOHN SELDEN, there is no land in England which can be described as allodial, or held of nobody, for "all the land of England is held either immediately or mediately of the King." If we believe theorists, the greater part of the globe was once treated as collective property, but in course of time there was a change which in Western Europe was presented as feudalism, through which there was no land without a master. Afterwards in England the feudal tenants became freeholders and copyholders. Finally there was landlordism and tenancies of various kinds. In England it may be supposed that the holding of the land from the Sovereign is only a legal fiction, but in practice it is found to be of great importance, and is essential to the State.

One result of the principle or the fiction, whichever we like to call it, is that with us property has become sacred and inviolable. This state of things is so familiar that we look on it as if it were a law of nature. But philosophers in all ages have been doubtful about individual rights to property, and one of them, a Frenchman, wrote an elaborate treatise demonstrating that private property ought to be allowed to exist. Many political societies abroad take an opposite view, and will not believe in individual privileges. MIRABEAU suggested the opposition to the possession of land when he said:—"If every man that ever lived had a tomb, it would be necessary, in order to find land to till, to overthrow these monuments and to disturb the ashes of the dead in order to nourish the living."

One of the consequences of the belief in the seigniorial privileges or visionary proprietorship of the Sovereign with respect to the property held by his subjects was that the Court of Chancery, which was closely connected with him, became the guardian of property in various forms. Its powers are not easily defined. DICKENS described the Court as having decaying houses and blighted land in every shire, and, indeed, it might be said without exaggeration that there is not an acre of land in England which at one time or another did not come within the purview of the Court. The complaints raised about its arrears, which sometimes seemed to be fabulous in number, were evidence of the extent of its transactions. In CROMWELL's time the Parliament found there were 23,000 causes awaiting judgment from periods ranging from five to thirty years, and it was resolved to abolish the Court. There was, however, no change; we suppose it was found on reflection that the consequences would be more dangerous than the evils which then existed.

In dealing with property the Court, or as it is now called the Chancery Division, is not confined to large landed estates. It also takes cognisance of all buildings upon estates, whether mansions or cottages or farm buildings. Building in general would lose some of its importance if it were exempt from the control of the Chancery Division. That is only reasonable, for a fine estate would have a diminished value if a residence on it had fallen into ruins. The extent of the power of the Court over buildings was exemplified in a case heard before Mr. Justice SWINFEN EADY this week.

Lord KENSINGTON is the tenant for life of the St. Bride's estate, in the county of Pembroke. The rental value is about 7,000*l.* a year. But there is also property in the form of investments which yield over 11,000*l.* a year. The mansion-house is not, however, worthy either of the owner or of the estate. It is one of those castellated buildings having a tower and battlements which were in fashion about seventy years ago. It was built for show rather than for comfort. There was a large hall and a grand staircase and a gallery, but visitors were not expected to stay, for there were very few bedrooms to accommodate them. As was to be expected at that time in a great house which stood apart from the highway, the sanitary arrangements

were of a primitive and disagreeable kind. A cesspool received the drainage, and it was placed in such position that the odours from it filled the house. The water supply was scanty, and was only obtainable by hard work in pumping.

Existence under such conditions would not be allowed where sanitary Acts are enforced. Lord KENSINGTON therefore desired to have the house adapted to modern requirements and the dangers removed. An ordinary person would have no difficulty in doing so if he possessed the money which was required. But a tenant for life is not free to act as he pleases, and Lord KENSINGTON had therefore to apply to the Chancery Division to obtain such an allowance from the funds in the hands of the trustees of the estate as the law allowed. By the Settled Land Act one-half of the annual rental derived from the land can be applied towards rebuilding a mansion-house. But in the present case it was a question whether the works to be undertaken could be considered as rebuilding. In the schedule which was submitted to the Court the works were described as rebuilding, viz.:—(1) The rebuilding of the principal mansion-house at St. Bride's, 12,700*l.*, the principal works required therefor being as follows: (a) Removing attics and reconstructing roofs, (b) adding an additional storey to back building, (c) building three storey addition at back, (d) altering gun-room, adding two storeys to north-west side with additional sanitary accommodation, and providing hot-water system, (e) providing heating apparatus, (f) altering vents and building chimneys, (g) converting kitchens, &c., in dining-room, constructing oriel windows, rearranging corridor and providing two new sitting-rooms, (h) rearranging upper floors and carrying-up hall to roof a building tower and tower-room, (i) building laundry and washhouse for mansion-house, (j) electric light for mansion-house; (2) new drainage system for mansion-house, 300*l.*; (3) new water supply for mansion-house, 1,400*l.*—total, 14,400*l.*"

From the foregoing document it will be evident that a transformation was demanded. We are enabled from it to realise the imperfections of one of those mediaeval castles which were supposed to be adapted not only for the nobles and peers, but for those who aspired to that rank. The influence of the existing building would also appear to have dictated the character of the alterations. Instead of a complete clearance and the adoption of a modern common-sense style, some of the characteristics of the old building are to be preserved, although none of the walls may remain. It was argued that the house was not to be rebuilt, but to be altered and to be added to. The judges are sometimes in doubt about the difference between rebuilding and altering. Mr. Justice SWINFEN EADY at one time considered that what was contemplated was only alteration and addition, but on the last occasion he concluded there was to be a rebuilding. As guardian of the property he appeared to be satisfied that the new house would not be more expensive to keep up than its predecessor.

The question then arose how much money could be granted out of capital towards the expenses. Assuming that the net income was 17,000*l.*, his Lordship followed the Settled Land Act in granting 8,500*l.* Lord KENSINGTON has undertaken to carry out the other works included in the schedule. The estimated cost for a new water supply was also allowed for by the Act.

A case of the kind would appear strange to a foreign jurist. The Chancery Division has to take into account not only the present but the future. Throughout the discussion the interest of the tenant in tail, who is not yet a year old, received as much consideration as the interest of the present holder of the estate. That concern for another generation occasionally leads to remarkable results. The late Marquis of Bute was compelled to obtain a special Act in order that he should be repaid 1,000,000*l.* in return for the vast outlay on docks and other improvements at Cardiff. To the trustees his Lordship was merely one individual of

possibly numerous race, and his interests were therefore only of a fractional kind.

When cases arise which relate to architecture there could be an advantage if a Judge could be aided by the views of an architect or assessor. In Chancery there is always a respect for anything which is ancient in its origin. In consequence, styles of building which may be obsolete are respected. A few years ago trustees had to suffer because they built houses in Bedford Park in a form which was novel at the time. When it becomes a question of rebuilding and alteration an architect is likely to apprehend that the Court will only give sanction to a new building which is suggestive of the old. Then planning becomes cramped and there is a risk that convenience will not always be attained, and that future occupants will have to suffer through the reference which is given to forms and arrangements which have come from an earlier time. The principle, however, of the Court, which is opposed to HERBERT SPENCER's dictum that equity does not permit property in land, is so important for the continuance of Great Britain, we are bound to undervalue the slight inconvenience which may occasionally have to be endured by individuals.

COMPOSITION IN PAINTING.*

VISITORS to exhibitions of paintings in England are aware that the most admired works rarely consist of more than a few figures. This fact is also proved by the engravings or etchings which are published. MILLAIS is known by such dualities as the *Side of Lammormoor*, the *Black Brunswicker*, the *Princes in the Tower*, the *North-west Passage*, the *Described Royalist*, and the *Huguenot*. Occasionally there are three figures, as in the *Rosalind and Celia*, the *Order of Release*, and the *Rescue*, but as a rule the most admired works are confined to one or two figures. The practice was hardly less remarkable with WATTS. He was ambitious, and was eager to display his power in overcoming difficulties, but most of the paintings which were to be seen in the Winter Exhibition were as limited in figures as those of MILLAIS. Equally noteworthy was the practice of WHISTLER.

Whether this disregard of several figures is to be attributed to the love of portraiture which prevails in England or to the difficulty of grappling with composition we need not inquire. Few modern engravings have been more popular than those of GUSTAVE DORÉ, which are representations of crowds, and in a lesser degree the engravings from EDWIN LONG's *Babylonian Marriage Market*, *Egyptian Feast* and the *Spanish Dancing Girl*, in all of which many figures appear, have been successful. Certain paintings of State functions, of battle-scenes and the like have also been admired. But every exhibition it is demonstrated that the majority of painters believe that pictures with a few figures are more likely to be appreciated by the multitude than those in which a great many appear. The President of the Academy sets the example. He would, no doubt, prefer his *Israel in Egypt* and the *Queen of Sheba* are pictures by which his reputation is to be sustained, and in ordinary years he is satisfied with a nymph in a cave or a Roman lady looking out of her window. There are some critics who will say that the system is mainly owing to incompetence. Composition is supposed to be exceedingly difficult, and receives scant attention in the training of artists. But it should be understood that in the representation of a head some attention to composition must be given. It is only necessary to look through a collection of coins or of postage stamps in order to see how much effect is gained by the relations between a head or an emblem and the

boundaries of the space it occupies. Indeed, in all great pictures we find that the disposition has some connection with an imaginary geometrical outline. In a great many cases the relation may be too manifest, as was the case with many of the old "machinists." As FUSELI says:—"Composition, like all other parts of style, had a gradual progress; it began in monotony and opposition, emerged to centre and depth, established itself on harmony and masses, was debauched by contrast and grouping, and finally supplanted by machinery, commonplace and manner." But when the cone, the pyramid, the globe, the oval, the circle or the segment become too obtrusive, then the figures, however excellent, are undervalued, and the whole painting is supposed to be a mechanical production, mere "art by geometric rule." For that reason many authorities have set themselves against composition as it was understood by the Italian masters, and as it is still believed to be taught in academies.

Courage is therefore manifest in Mr. HATTON's endeavour to explain the rules of figure composition. His book on figure drawing contained much useful advice to students of art, and his new volume is an excellent supplement to it. But the subject being more difficult, what he says may not be manifest on the first reading, and it might be supposed that originally the pages formed only parts of lectures in which *viva voce* explanations were given. The author is sometimes inclined to be paradoxical, but it is only in the intention of impressing his rules on the student's mind. The first part relates to architecture in reference to decoration, for indeed we may presume that composition arose out of the necessity to have a correspondence between the groups and other parts of the picture and the space which it was to fill. Considering the number of mouldings, the pilasters, columns and other efforts to break up the monotony of surface which is found in Classic architecture, the following may be taken as expressing the views of a decorator:—

Classic architecture is a projected architecture, just as Gothic is recessed. We find this in numerous instances of the placing of architectural members, somewhat resembling complete little buildings, upon the wall and projecting before it. These projecting members are connected together by their mouldings being continued along the wall. This is, indeed, another way of describing the broken entablature and the broken plinth, which give projections without undue weight.

In an Italian church the so-called projected architecture became a necessity, for instead of having deep chapels with altars, as in Gothic buildings, only a slight recess was necessary and it was emphasised by columns and a pediment. Each of these altars afforded an opportunity for decoration. Sometimes fresco was used, sometimes easel pictures were employed, and in both there was subserviency to the architecture. When easel pictures were employed for secular adornment they were made to present some of the characteristics which were necessary when used for the decoration of large buildings. When an architectural setting is not obtainable, Mr. HATTON suggests that a substitute is to be found in "an adaptation of nature, and use of sky, trees, and all the accessories of existence, or we can arrange our figures among ornament." There is, however, no arrangement equal to architectural forms. We have only to imagine such a work as DELAROCHE's *Hémicycle*, with trees or ornaments instead of the colonnade, in order to realise how much the work would lose in effect. The same result would follow with LEIGHTON's two works in the South Kensington Museum if the architectural accessories were removed.

Mr. HATTON has some useful remarks about filling spaces. He explains the radial method, the oval method, the starlike, circular, and the crescent or moonshaped. An admirable illustration of the last is given, viz. the "King War-wolf," by the late FREDERICK SANDYS. The king is meeting his death in the burning boat used in many adventures. The poop is curved and the lines

*Figure Composition. By Richard G. Hatton. (London: Swan & Hall.)

of the flames are in keeping with it; the chain armour he wears, his hair and beard, the armorial bearings on the sail are all crescentic. The only drawback is the overcrowding of the detail in a limited space, and in consequence the ingenuity of the artist is likely to be overlooked. It is not, however, with northern heroes that the theory of art is generally concerned. Academicism still has a weakness for Greek and Roman mythology. An engraving is given after a picture by TINTORET, which bore an inscription to the effect that if the spectator wished to know the meaning of the picture it was *Mercury and the Graces*. On this Mr. HATTON offers the following remarks:—

The Classic figure is nothing more or less than the delineation of a body capable of easy and equal action—the form arising from the possibilities of action. It is a perfect body, without differentiation, without individualisation. No one who has made any study of Greek art will hesitate to say that the Greeks carried the treatment of the figure to the highest perfection. It cannot be claimed that they gave to their figures the expression of the soul, but so far as the rendering of the body with the greatest beauty and nobility went, they succeeded as none have, since. The explanation seems to me to be this. The Greeks separated man from man, according to his actions or his fortunes. Fortune and misfortune are the outside actions bearing upon the individual, and are consequently of the same nature as his own actions. It is true they granted men passions—Ajax is hot-tempered, recklessly bold, Ulysses is crafty or wise—but in each, as in all cases, the attitude towards life is the same. The healthy, well-developed man pursues the ordinary course, swayed by this or that, defending or opposing divinity, and battling with these, or taking advantage of those, accidental circumstances. It becomes, therefore, the exploit that makes the man, who is identified by the emblems appropriate to his several ventures. Otherwise all men are alike—a little heavier limb for Hercules, a slenderer form for Mercury, activity and strength for Mars, and so on. Now, whether this be true of the delineation of personages in Greek literature, it certainly is of their representation in art. It were idle to say there were no expression in Greek sculpture—in Scopas particularly; but is it expression after all when compared with the work of, say, Donatello or Rodin? It is not. At the best it is pure physical expression, not emotional, or even if we grant that, it is the expression of emotions common to all men, though the circumstances give some degree of special intensity—as in the Laocoon. All the gods, heroes and men of Greek art would act in the same way upon a given occasion, assuming that their distinguishing characteristics did not interfere, but in the art of more recent times the individuals would act differently even when all conditions were equal, for it seems a postulate of modern art that the characters shall be so drawn that they will appear of a temperament and nature different on all occasions from other men, while the postulate of Greek art seems to be that personages are the same, except for casual variations.

Mr. HATTON employs a large number of reproductions of old prints and etchings after famous paintings to reinforce his explanations. In some cases there is a transposition of the figures in order to suggest an improvement or the superiority of the original over any alteration. The reader is, however, made to feel that there can be no cast-iron system of composition, for even within specified limits imagination can assert itself. The book will be useful not only to students of art, but to visitors to exhibitions who wish to understand why a picture is admired or condemned.

Sir R. Melvill Beachcroft has given notice that at an early meeting of the London County Council he will move that Trafalgar Square stands much in need of improvement, and might, at very moderate cost, be made as attractive as a place of public resort occupying so important and central a position in London ought to be, and that it be referred to the parks and open spaces committee to consider and report what, if any, proposal can properly be made on the subject to the First Commissioner of His Majesty's Office of Works.

ROYAL INSTITUTE OF BRITISH ARCHITECTS

A MEETING of the Institute of Architects was held on Monday evening last, Mr. John Belcher, A.R.A. president, in the chair.

Sir Wm. Richmond, K.C.B., R.A., Mr. Alfred East, A.R.A. and Mr. Solomon J. Solomon, A.R.A., read papers on

Decorative Painting.

Sir WM. RICHMOND, in his opening remarks, referred to the ties which united the arts of architecture, sculpture and painting. The votaries of architecture were builders who designed and erected, sculptors who designed and carved, painters who enlivened its severe spaces with the glory of colour, craftsmen who brought glitter and sunlight into its darkest nooks as rays of light into a cavern. Late in history architecture had wished to go alone. Hence arose the danger that ornament might be stereotyped and of trade manufacture, painting cease to be its magical charm, and sculpture be relegated to an independent and solitary mission. But a return to a healthy union of the arts was in progress—thanks in a large measure to the Institute which, more than any other artistic institution in Great Britain, was encouraging "fraternity" and taking more and more sculptors and painters into its confidence and within its ranks. Hence the Institute was becoming stronger, broader in view, larger in artistic enterprise, and the sculptors, painters and craftsmen whom the Institute had honoured by electing among them were gratified. The great traditions which bound the past architecture, sculpture and painting had been kept alive by a few serious workers who did not believe that a new art was possible, any more than that a new man could be created. The great principles which had made art to the highest factor in true civilisation would grow in usefulness as their exponents gathered together in closer bonds of sympathy. Union is strength. They had to educate an inert public to use their higher faculties, to cultivate the observation and enjoy in peace what was permanent and beautiful.

Coming to the special branch of the arts he was to discuss—viz. decoration, which included mosaic and mural decoration—the author said he feared that the delightful method of "buon fresco" was for the present an impossibility to pursue in London owing to the vitiated atmosphere produced by disintegrating acids which were destructive of lime; but in the country, where pure air was obtainable, "buon fresco" might be adopted for interiors with as much security as in Italy in times past. Provided there was no poison in the atmosphere, damp was the only enemy of fresco. The author gave particulars as to the preparation of the walls to be decorated, what materials to use and what to avoid, the method of applying the colour, &c. To be successful all preliminaries, studies and cartoons must be absolutely certain both in their relation to design, forms and colours, so that the painter when he paints has only to think of his difficult but most fascinating technique. Subdivision of the various stages of development must rigidly adhered to.

Mosaic is as adaptable to exterior as to interiors, but to be effective mosaic must be used lavishly, as in St. Mark's in Santa Sophia, and in many churches and chapels at Ravenna. But mosaic demands another kind of design and drawing from any other material for decoration. The translation of pictures into cubes is obviously absolute. Mosaic can do what no other method is capable of, but cannot imitate except inadequately. The design must be clear, the drawing severe, the accidents few, the light and shadow rare. An architect should build for mosaic decoration if he intends to use it. He should give plenty of domes, semi-domes, alcoves, because mosaic looks best upon curved surfaces, where it is least likely to come in competition with pictorial design. A building to receive mosaic should have few mouldings or frames; the framing of mosaic pictures should be executed in mosaic, and strict courses as well as mouldings should be so designed to be in harmony with the style which is essential to mosaic, and that is severe. If the architect decides to make a sumptuous piece of coloured decoration, he and other artist, his coadjutor, must work together, from the first initiative to the last point of completion, if the final result is to be severe and homogeneous. The architect must consider his decoration while he is initiating the plan for his enterprise as well as the elevation. In a well-built mosaic the construction is never hidden or the joints concealed. The mosaics that look best from a distance have a good wide joint between every cube.

The next best method for wall-decoration to "buon fresco" is tempera painting upon a dry wall of lime and marble dust. The tempera used is the yolk of egg only, not the white. When dry this becomes as hard as the hardest varnish. The yellow tint gives a very agreeable tone to the white lime. Almost all colours can be used with egg. Egg-painting has stood the test of time; many of the wall-paintings at Pompeii are alone in egg, and all the tempera pictures and wall-paintings in Italy which are not fresco or wax are painted with egg tempera.

Wax-painting is another method well suited to our climate. The method, technical details of which were given by the author, may be seen in the National Gallery exemplified by portraits on wood of the second century B.C., and in many of the wall-paintings at Pompeii and Herculaneum. The author said he had tested some Egyptian wall-paintings and found that they were executed in wax and spirit. Wax-painting is perfectly durable on a wall, but not on canvas. In England it would be advisable to burn the wax well into the wall with artificial heat.

Oil-painting should be entirely abjured in decoration.

All decoration should be done upon the wall where it is subjected to environment, and not be applied. Notwithstanding personal discomfort, painters should execute their works *in situ*, even in a dark corner, because that dark corner is the place of the picture, which, if painted in full light of a studio, will be quite disappointing when it is placed in an obscure light. The same law of fitness holds good as regards sculpture. A statue designed to be set in a niche should belong to it and to nowhere else; more, it not only belongs to its immediate but to its less immediate surroundings also, and is out of place away from there.

Treating of colour in architecture, the author said that, being unaccustomed to it in modern times, prejudice was strong. Some would doubtless be shocked if they saw the Parthenon, Westminster Abbey and most of the English cathedrals highly coloured; but there is no doubt that they are, and, further, that uncoloured buildings are of modern invention, dating from the late sixteenth and early seventeenth centuries, at the period when both sculpture and painting were growing away from structures to the detriment of all the arts. The geometric or architectonic treatment of pictorial design in England has been extremely rare. All designs, from Giotto to Raphael, either in fresco or tempera, are decorative in the distribution of masses of colour, of shapes of silhouettes; they are more or less conceived geometrically, however cleverly the geometry may have been concealed. The early English decorators are extremely interesting colourists—the decoration of the Angel Chapel in Winchester is an admirable example. It consists mainly of pale, middle and red ochres and white. The author thought that the tone which appears to be blue from below is composed of nothing but black and white, which among warm tones is a mixture which produces a very gentle and refined blue. Judging from the specimens that remain, the splendour of the celebrated wall-paintings in Athens has not been exaggerated by historians.

Mr. ALFRED EAST, A.R.A., took for his branch of the subject "Landscape-Painting as a Medium of Decoration," and showed that it had been almost ignored as a medium of decoration. The architect, like the figure-painter, had put it strictly in the background. He put the question seriously to architects, Is there no room for landscape-painting as a medium of decoration? Would it hinder the design and intention of the architect to use it to decorate his buildings? Could not it conform to all his conditions as to scale and colour? Nature has an unbounded range, from winter's snow to the full rich tones of the autumn, and even these seasons she offers an inexhaustible supply of beautiful and suitable arrangement of form and colour. The architect may desire a certain colour arrangement to complete the object he has in view; he never thinks that he can find what he wants in landscape. He has the right to demand certain conditions as to scale. To accept those conditions, to work within them so that there is no apparent loss in so doing, is in itself an artistic accomplishment. The architect has no reason to fear that in the adoption of landscape he endangers any of these principles; he can find in such decoration the sentiment of his architecture, the purpose of its being. If he has built a temple of worship there is absolutely no reason why the walls or windows should illustrate the lives of the worshippers. There are things in nature which suggest a lofty purpose in their creation, and which reveal the high purpose of the Creator. There are also the materials in

nature by which the artist can convey a sentiment as pure, as high and as noble as a composition of figures could do. An architect would not tolerate any loud assertiveness of decoration whose anecdote completely distracted the attention of the spectator from the fine proportion of his building. He was not annoyed like the painter when the spectator remarked, "What a beautiful frame!" Nothing should hinder the conception of perfect completion wherein all the arts which are employed for a final end should sing together. A building was artistically complete where everything was in its right relation, where all the values were just. The author contended that his claim for the consideration of landscape-painting as a medium of decoration was that it could conform to give high purpose, and that it did conform to give just demands.

Mr. SOLOMON J. SOLOMON, A.R.A., first dealt with certain objections raised by architects when discussing decoration. With regard to the argument that the finances at the architect's disposal did not admit of the inclusion of the painter's art into his schemes, he suggested that as the edifice would outlive its author he might be permitted to provide for its future. Take a building of a national character: he should be permitted to allot some spaces to indicate to future generations the lines upon which the work should be carried on; in fact, broadly to indicate the kind and style of decoration he would have others introduce. Another fault found was that our variable climate played tricks with existing canvas decorations, causing them to sag and loosen. The fault lay with the use of too large a surface of canvas, when sometimes the architectural features which should be real are imitated by the painter. When, as on the great ceilings of the Doge's palace, a vast panelwork was designed to contain pictures of varying shapes, such as oval, octagonal, oblong, square and others conforming to the spaces of the interstices left when the surface of painting is but a third of the whole, little real danger would result. Again, few practical men would use a fresco ground for painting when the "mat" surface, its chief quality, can be obtained by the use of suitable mediums, and when far greater richness of effect can be produced by other methods ready to our hands. In France most public buildings are decorated by the painter, and none of the technical troubles complained of here were apparent. The author asked the attention of the Institute particularly to his suggestion for the promotion of a school of decoration, not with the object of competing with existing schools, but of supplementing them. His idea was that it should be a school common to the architect, the sculptor, painter, glass designer and wood-carver, for the use not only of the advanced student, but equally for the full-fledged craftsmen in the various arts who desire a special training in the arts of decoration. Professors there would be representing all the branches concerned to lecture and to teach. Studios furnished with reduced models, or studios of pictorial decorations in their settings, applied sculpture, glass, woodwork, &c.—all conceivable facts, measurements, scale, proportions, anything and everything for the use of the student that could be collected, carefully tabulated and arranged. The creation of travelling student-ships, enabling students to travel in pairs—an architect with a painter, an architect with a sculptor, and so on, with provision to make reduced copies of fine examples of art in their settings—the results going to enrich the school collection, so that by degrees these models might replace the photographs or other less useful authorities. The author went on to prove the necessity of such an institution, and the possible advantages that would accrue from its establishment. In these days of innumerable styles of architecture a wider range of architectural knowledge and of cognate decorations is imperative. Most decorative pictures are built upon architectural lines, and more often than not architectural features are abundantly introduced. At the school proposed the architect student would work in the company of sculptors and painters. Each would learn to sympathise with the aims of the others, and so in later life be prepared to work, as they should, into each other's hands. A decorative school, to which almost every painter and sculptor should go for at least a year after his usual training was completed, would react most beneficially on the general art of the country.

Sir ASTON WEBB, R.A., said he had no idea that he would be asked to propose votes of thanks to the authors of the papers. There was only one thing he could speak of with certainty, and that was that they had all enjoyed a most enchanting evening, thanks to the three gentlemen who had favoured them with their papers. He thought,

however, that the papers were too short, and that they might have been extended to double their length. He was afraid that it might be laid to the door of architects that they had not given the opportunity for decorative painting which had lain in their way. If that was so, it had been shown that evening that there was a desire to alter such a state of things. On the other hand, he thought all would admit that in England—and in that damp country of theirs—there had been great difficulties in the employment of decorative painting. Sir William Richmond, whose knowledge he supposed was such as to be beyond dispute in that particular branch of art, had given directions which would be invaluable to them. They would have those directions printed in their Proceedings, and he understood from Sir William Richmond that there was a tempera which could be used in England with certain results. Many of them would remember how, after twenty years, the decorated work by Watts on the wall of the chancel arch of St. James the Less in Westminster had become invisible. He had no technical knowledge of the medium in which it was painted, but when failures of that sort occurred it made not only the architect but also the client hesitate a little before adopting such methods of decoration for buildings. Sir William Richmond had referred to the increased alliance of the three arts, and he, the speaker, was sure he was only saying what they all felt, that a closer union was the desire of all architects. They were not assertive persons, and there was nothing they would like better than to have their walls painted by painters of ability, and he felt that if they were to obtain the co-operation of those painters and sculptors that the architects must see that their buildings bore the print of the day, and that they must impart to their architecture such vitality as would inspire the sculptor and the painter. They must also remember not to stand too much to the work of the past. English painters in Hogarth's time certainly painted large spaces, and Hogarth himself, as they all knew, painted the great walls at St. Bartholomew's, which remained to the present day. In Soho one could go into what were now very poor houses and find whole staircase walls painted from top to bottom. He was not sure that painters were now so ready to paint staircases as they were in those days. Very likely that was the fault of architects, and if it was so he was sure the profession were prepared to try and alter it. There was a great opportunity for painters in the Roman Catholic Cathedral at Westminster, and they looked with a little anxiety, but with great interest, to the way the painters of England were going to finish that building inside. Sir William Richmond referred to a matter which had importance in their work, and that was the matter of joints. The desirability of showing the joints in mosaic, in brickwork and stonework, was proper, and they felt that the work was enhanced. Another point mentioned was the advantage of decorative painting for walls over easel painting. They must all know the great difference there was in effect between a picture seen in a studio and as seen in a room. The blame was often put upon the architect, because it was said his rooms were not suitable to the picture, but if the difference in the lighting of the studio and the room were considered perhaps the studio would be in fault. Mr. East had given them a very delightful paper, but the speaker thought there was no need to plead for landscape-painting as a medium of decoration. A sober landscape in long panels could be made a pleasant feature in a room. Passing on to Mr. Solomon's paper, the speaker said the principal point was the suggestion for establishing schools for decorative painting. They all agreed that one great difficulty in decorative painting was that painters as a rule liked to do their own work, and it was a laudable spirit, but in great buildings progress would be so slow under such conditions that such an idea of perfection could not be carried out. It should, therefore, be the highest ideal of the painter to train a band or school to carry out his compositions. He did not quite understand Mr. Solomon when he said that there should be a new school. He hoped it was not suggested that there should be quite a new school, because there were already in existence very solid foundations of schools in which a training in decoration could be carried out. The school of the Royal Academy did good work in this respect, and the Academy endeavoured to encourage the students by giving from time to time a commission to paint on the walls some of the prize designs which had been won by the students. There was already a wish for the architectural student and the sculptor student to work side by side, and there was the Royal College of Art at South Kensington to foster the wish, and both merely

wanted recognition and encouragement by the public to do what Mr. Solomon proposed.

Professor BERESFORD PITE seconded the vote of thanks, and said the fact had been mentioned that the Royal College of Art was in existence. He hoped Mr. Solomon would pay an early visit. The students there not only worked together and were obliged to share in the work of each other's classes, but in two series during the course of the year they travelled abroad together. Every year groups of painters, architects and sculptors travelled and studied together, bringing back their work together, and the happy day had come when those artists were working hand in hand. It was unfortunate that the great painter and the great architect had not yet been fused into the architect who could decorate. Probably the fault rested in education, but before they could abrogate the education they must recognise the fact that architectural sense should be understood.

Mr. H. H. STATHAM supported the vote of thanks.

Mr. J. D. CRACE said that at the present time what they ought to begin to consider was that decorative painting ought really to be the painting which decorated in the sense of adorning, and the building must be from the beginning the one object to study. It did not matter in the least whether the decoration was a battle scene or a picture of saints, but in colour and form it should improve the building.

The PRESIDENT put the vote of thanks to the meeting, and it was carried by acclamation.

NELSON LIBRARY COMPETITION.

THE following is the assessor's report on the 207 sets of competitive designs submitted in competition:—

Parr's Bank Chambers, Manchester:
March 16, 1905.

Mr. Mayor and Gentlemen,—In accordance with your instructions, I have made a most careful and exhaustive examination of the whole of the drawings submitted for the above, and herewith beg to lay before you my adjudication thereon.

In the first place, I feel called upon to emphasise the extraordinary response of the profession to your invitation and apart from the number of designs sent in—which, in my experience, is unique—the general merit of the majority of the schemes is also very exceptional, many able and carefully thought out designs having been prepared. The difficulty of arriving at an equitable decision has been considerable. Every scheme submitted has received from me a most careful perusal and investigation, and as a result of my deliberations I have no hesitation in awarding the set of drawings numbered 50 the honourable position of first place. The author of this design has shown conspicuous ability in successfully dealing with the problem both from the points of arrangement, construction and design. In every way the scheme is most meritorious and admirably adapted to the several purposes of your proposed structure, as set forth in your conditions, instructions and particulars of competition.

As a practical, up-to-date working library for a manufacturing town like Nelson, it would, in my opinion, be hardly possible for the general arrangements to be much improved upon. It is evident the author has thoroughly mastered the salient points to be striven for in the successful planning of a town library, and the strength and refinement shown also, both in his interior as well as exterior designs, clearly indicate he is "master of his craft." The treatment of the elevations is essentially a suitable one for execution in stone, of a monumental character, and in harmony with the adjoining buildings, symmetrical façades being obtained to the principal streets. The maximum accommodation has been provided on the ground floor (as per instruction No. 12) on the limited space at command, and it was a happy thought of the author to locate the ladies' reading and news-room on the first floor over the central portion of the elevation facing Carr Road, placing also their conveniences over those on the floor below, well lighted and ventilated, and all well away from the principal façades. The excellent lighting of the building throughout should be specially noted, also the utilisation of the roofing to its utmost capacity. The price per foot cub on which the author has moneyed out the work ought, in my opinion, to be sufficient to carry out the scheme.

accordance with your conditions, provided due care is exercised in the detailing generally.

By entering the library from Booth Street additional privacy and quietness to the building is insured, at the same time the likelihood of loafers and other undesirable people misusing the same is lessened. This arrangement also has enabled the author to produce a better working plan than could possibly be obtained by having the entrance to Carr Road. The provision of a small lending store shown to the boys' reading-room in the basement is another indication of the author's familiarity with library planning, and if not immediately adopted it might be in the future as the work increases, and would tend to relieve the existing book store on the ground floor. The provision also for a female staff-room and conveniences on the first floor, at back next Ellen Street, is another thoughtful and desirable adjunct.

Respecting my decision as to the awarding of the second place, for which a premium of 25*l.* is provided, I have had considerable difficulty in advising you.

Although many commendable schemes, carefully conceived and most conscientiously developed and worked out by their authors respectively, have been submitted, yet in each project are to be found a number of points of defect. Two schemes, however—viz. No. 1 and No. 73—contain certain merit of their own, either in plans or elevations, coupled with a sincere and earnest effort to faithfully solve your problem, and I have found it necessary to bracket these two an equal second.

The third place I have given to the design No. 12, a carefully thought out scheme, with the entrance from Booth Street. The plan is a good one, and had the elevations been equal to same it might perhaps have taken a still higher position. The time, labour and money spent on this competition by the competing architects amount in value to about 4,000*l.*, and the extraordinary response by the profession to your invitation emboldens me as your assessor to respectfully suggest that under such exceptional circumstances you disburse the whole of the three premiums offered as some return for the enormous amount of money expended.

In conclusion, I can with the utmost confidence affirm that should your Council adopt Scheme No. 50 they will secure the best design submitted, and one that most fully and adequately embodies their requirements, taken as a whole, a decision also which I feel certain will meet with the profession's endorsement.

I desire to sincerely thank the chairman of the library committee, the librarian, the town clerk and deputy town clerk, all, for the valuable co-operation and assistance they have so loyally rendered me in fulfilling my difficult task. The very real interest they have shown in the work has been most helpful in arriving at an equitable decision.—I remain, Mr. Mayor and Gentlemen, your obedient Servant,
GEO. H. WILLOUGHBY, F.R.I.B.A.,

The successful competitors are:—(1) W. Brandreth and David, A.R.I.B.A., J. R. Poyser, joint architects, Nottingham; (2) David Bird, A.R.I.B.A., Manchester, and G. Fox, F.R.I.B.A., London; (3) H. T. Rees, Liverpool.

REINFORCED CONCRETE IN AMERICA.

A COUPLE of years ago it was the fashion to speak of that time as the concrete age, but the progress of one generation of concrete construction, that of reinforced concrete, makes it possible, says the *Engineering Record*, to speak of the present time as the reinforced concrete age without much risk of serious dispute. It is unlikely that any one who is not thoroughly in touch with the legitimate growth of concrete-steel construction appreciates the rapidity with which it is coming into vogue. This does not refer to those haphazard constructions of interest mainly as an indication of aberrations to which an untrained mind is prone, but to the reasonably well-considered buildings and bridges designed by reputable and competent engineers, and erected by contractors who have no desire to do anything but high-grade work.

The progress in bridge construction has received much more attention than that in any other class of concrete steel, because people accustomed to discuss their work in technical meetings have been interested in it. Consequently the limited information concerning bridges of this nature is voluminous; in fact, it may be considered so voluminous that it has overshadowed the interesting work done in reinforced concrete in buildings. This latter is particularly im-

portant just now because it seems probable that many industrial plants, as well as structures put up in cities for light manufacturing and as warehouses, will probably be constructed partly or wholly of reinforced concrete. This view in no way reflects on the manifest merits of terra-cotta systems but simply recognises the possibilities of the new material along certain lines which have nothing to do with engineering considerations.

The first of these merits of reinforced concrete is its ready execution. In these times, when the man who works on a building considers himself much more important than the capitalist who supplies the funds, it has become a question when it will be possible to complete a masonry and steel structure after it has been started. So many unions of skilled workmen now exist that when they are not engaged in fighting the master workmen they are scrapping among themselves, and during all this period of warfare the men are idle. Consequently when they are at work they expect to get very large wages in order to replenish their depleted larders, and the man whose money is standing idle all this time gets nothing but trouble in return for his investment. With concrete construction nothing of this sort can occur on such a scale, for with it skilled labour is not required—merely skilled supervision. No attempt to unionise unskilled labour has been successful up to the present time, and for this reason it seems improbable that the delays incident to ordinary building operations will occur with the erection of concrete-steel structures.

Another point to be considered is the fireproof character of reinforced concrete buildings. Such structures, with walls of brick, concrete blocks or thin concrete, and metal window sash, are practically fireproof, and offer two marked advantages. The first of these is the practicability of putting up high warehouses in cities like New York, where the building laws limit the height of structures of so-called mill construction to six storeys. This is an important consideration, particularly when it is considered that the difference in cost in many parts of the country between the two classes of construction is practically nil. The second consideration deserving mention is the probable decrease in insurance premiums which will follow the adoption of concrete in place of mill construction. While the saving on the building itself may not be particularly important, it is not unlikely that the saving of premiums on stock carried in the structures will be considerable.

Many structures of reinforced concrete have been built recently which are now in use carrying machinery of considerable weight, and while these buildings have not been in service very long, it seems likely, from the limited experience with them, that they will serve their purpose well. In designing a shop of this construction it is, of course, important to know when the plans are prepared just what will be the weight and location of the machinery they are to contain. With this information in hand there is no reason why a satisfactory system of construction cannot be devised provided the plans are worked out by a competent engineer who will consider all their details, and their execution is entrusted to good contractors with a reputation to maintain as specialists in such work.

GLASGOW ART SCHOOL.

THE diplomas granted last session by the Glasgow School of Art to public school teachers were presented on Saturday in presence of a very large gathering. Mr. James Fleming, chairman of the school governors, presided, and in the course of some remarks said the function was a new experience in connection with the art school, and it was, he believed, a very happy augury for education in Scotland. The diplomas were given to school teachers who, though they might have received their earlier training elsewhere, had passed the last year of their course at the School of Art. It was very graceful on the part of the School Board to work in association with the School of Art, yet it was the proper thing to do, and he felt that it was another step towards bringing together the various parts of the whole system of education in Scotland. The winners, who numbered twenty-eight, were afterwards presented with their diplomas at the hands of Mr. A. R. Andrew, H.M. Chief Inspector of Schools in the West of Scotland, who was cordially thanked on the motion of Mr. R. S. Allan, chairman of the Glasgow School Board.

ILLUSTRATIONS.

ST ANN'S CATHEDRAL, LEEDS.

MOUNT STUART, ISLE OF BUTE, N.B.—THE ENTRANCE HALL.

ST. AIDAN'S CHURCH, BASFORD, NOTTINGHAM.

THE building shown in the illustration was consecrated on February 21. It was erected from designs by Messrs. EVANS & SON. The money was bequeathed by the late GEORGE WATERELL. At present only the nave and aisles have been built.

BUTTENHAUGH, ELMSWELL, SUFFOLK.

THIS building is erected from the designs of Mr. H. STEWARD WATLING, F.S.A., architect, on the old village green at Elmswell, and formerly known as Buttenhaugh Green. The walls are constructed with local old bricks for the lower storey, the upper storey being half timberwork and plaster, and the roof covered with flat tiles. The contractors were the Oak Building Company, of Colchester and Cambridge.

CHURCH AT GOTHEN, IN THE ISLAND OF GOTHLAND, SWEDEN.

THIS church is an example, and by no means the most curious one, from amongst upwards of ninety country churches in the island. These churches, according to Mr. HAIG, may broadly be said to belong to three periods, namely, the Romanesque and Transitional of the twelfth and thirteenth and the Gothic of the fourteenth century, each in its simplest form. There is reason to believe that the first churches erected in the island were of wood, and the earliest chronicled date for their building is the beginning of the eleventh century. These early churches were probably burned by the worshippers of ODIN and THOR, a powerful section of whom had yet got a stronghold in the island. The heathen were, however, soon conquered, and new churches were built, this time of stone. Of these the church of Akeback is the oldest, its date being about the year 1140. STRELOW, a Danish author, and sometime superintendent in Gothland, his birthplace, collected a number of fables as regards the earlier times, and a number of documents and valuable facts as to later periods, and published them at Copenhagen in 1633, under the title of "Cronica Gutlandorum." This book has been until our days a favourite work of reference to all writers about Gothland, but as these have chiefly been literary men with some taste for archæology without the requisite technical knowledge of architecture and the sister arts, they have misplaced most of the dates. Some confusion has been caused by the circumstance that towards the end of the fourteenth century it became necessary to rebuild or enlarge many of the churches, which had become too small for the growing population. The writers referred to have not only entirely ignored the date of these later structures, but have actually assigned to each church the very earliest date mentioned, that is, the date of the probable wooden churches, or the eleventh century.

In *The Architect* for March 10 an article on "Indian Monuments" appeared which was acknowledged to be derived from the *Times*. From the intimate acquaintance with departmental detail which it revealed it was supposed to have an official character, and was intended to explain the reorganisation of the Archæological Survey of India by Lord CURZON. On that account the article was reprinted in its entirety. We have been informed by the Proprietors of the *Times* that the copying was in excess, and therefore interfered with their rights, which are incontrovertible. We regret that such a view had to be taken by them, and frankly apologise for our inadvertence in treating the article as a *communiqué* from the Indian Government.

NOTES AND COMMENTS.

ENGLISH Judges do not seem to be disposed to recognise the right of an architect to act as an agent in the sale of property. It was, no doubt, through an impression that in equity an architect could not make a claim for work of the kind that induced Mr. MURRAY SCOTT, to whom Englishmen owe much for his services in connection with the Wallace collection, decline to pay M. ISABEY, the French architect, his fees as agent in the sale of the beautiful property of Bagatelle to the City of Paris. It was purchased for 6,500,000 francs, and M. ISABEY claimed 300,000 francs, which was rather less than 5 per cent. on the sum given. The case was tried before the Civil Tribunal, and Mr. MURRAY SCOTT was ordered to pay 200,000 francs to M. ISABEY for his trouble in the negotiations and his expenses in making the advantages of the property known to the public. It is doubtful whether, under similar circumstances, an architect would have been successful in an English court.

THE exploration of the Roman fort at Barhill, Dumbartonshire, has demonstrated that the strangers were not altogether indifferent to art in that remote region. The fort was intended for the protection of the Antonine Wall, and was nearly square on plan, the length from east to west being about 100 yards. There was a gateway on each side. Within the area there was, underneath the general level, a trench defining the outline of a smaller fort of quadrangular form with rounded corners, about 180 feet in length by 150 feet in breadth. This smaller fort lies unconformably within the larger, the southern part of the pretorium being built almost diagonally across its southern ditch. The well in the pretorium, which is 43 feet deep, was cleared out to the bottom, and found to be almost filled with architectural fragments, including parts of shafts and twenty-five capitals of pillars, an altar with an inscription by the first cohort of the Bætians, an incomplete tablet inscribed to the Emperor ANTONINUS PIUS, a pulley-wheel and frame and the remains of a wooden bucket with iron hoops, a bag of tools and fragments of pottery. From a number of refuse-pits and from the ditches a miscellaneous collection was obtained, including the usual broken pottery and glass, a small bronze pot with a swing handle, a quantity of iron objects, among which were spear-heads, harness mountings, buckles and staples, wooden articles including some parts of a wheel, a quantity of shoes, sandals and soles of all sizes, and three curious portrait busts of stone. The excavations were carried out at the instance of Mr. A. WHITELAW, the owner of the ground, by Mr. ALEXANDER PARK.

A SELECT Society existed in Berlin known as the "Werkring," and which had for its object the promotion of art in the house as well as in the furniture. The committee have decided to make it better known, and recently Herr AUGUST ANDELL, the architect, explained the objects of the Society at a meeting which was held in the Architects' Club. It is desired to advance the union between artists and amateurs. The organisers believe that too much attention has been given to stereotyped forms, and they wish to promote originality. For that purpose it is necessary not only that artists should endeavour to emancipate themselves from the past, but that the public should also be able to appreciate their efforts. It is easy enough to get patrons for meetings, but the difficulty is to find people who will be sufficiently enthusiastic for novelty as to pay for it. The experiment of the Berlin Union will therefore be watched with interest by architects and craftsmen in many parts of the world, especially as success can only be gained by a contest with officialdom which in Germany will not allow art to be free.

MOHAMMEDAN ART.

PAPER was read at the meeting of the Society of Arts on the 15th inst. by Mr. E. H. Hankin, M.A., who has been as bacteriologist and chemical analyst to the Government of the Central Provinces of India, "On some Discoveries of the Methods of Design employed in Mohammedan Art," which was illustrated by diagrams. A report of the illustrations appears in the *Journal* of the Society.

Mr. Hankin said:—The most striking peculiarity of Mohammedan or Saracenic art is the employment of extremely complicated geometrical patterns. The actual methods by which these patterns were drawn and designed so far as he was aware, unknown to modern artists in Europe, in India, or in Egypt. The works of Le d'Avesnes, of Bourgoine, or of Gayet dealing with Arabian art are equally destitute of any satisfactory explanation of the matter. Some years ago he commenced to study the subject in India. At length, by a lucky chance, he discovered a clue in a small room in one of the palaces of Akbar, the great Mogul emperor. Here, nearly hidden in dust and dirt, he found the actual construction lines used by the artist some four and a half centuries ago in producing an arabesque pattern. By means of the clue thus obtained he came easily to draw the more complicated of the patterns. The clues to the simpler classes of patterns were obtained in the most part by observation and measurement. The methods are not simply methods of draughtsmanship. They may be described as methods of design, as by their means it is possible and easy not only to copy old patterns, but to design new ones in conformity with the rules of geometrical art.

Geometrical patterns may be divided into the following classes—(1) square, (2) hexagonal, (3) octagonal and (4) arabesques. In the first class the space to be decorated is divided into squares. Parts of these squares go to form a pattern. This class will be found described in any elementary text-book of design, and includes various patterns, the fylfots, the Greek fret, rectangular lattices, &c. The method of drawing the second class of patterns, the hexagonal, is also widely known and calls for no special description. Lines are drawn crossing each other, not at right angles as in the square patterns, but at angles of 60 degrees, thus dividing the space to be decorated into several triangles.

The third class of patterns consists of, or is derived from, octagons. There are grounds for believing that in the design of octagonal patterns an octagon was cut out of talc or paper, or some other suitable material, and used as a template. Whether or not a draughtsman should use templates in the actual employment of these patterns may be considered as a matter of individual taste and habit. But templates are useful in the designing of these patterns and may be admitted on consideration of the facts contained in the following paragraphs. Indeed, it is difficult to see how more complicated of the octagonal patterns could have been designed without the use of templates. The common octagonal patterns usually contain octagons of two sizes which may always be regarded as derived one from the other by the following very simple construction. An octagon is drawn in which opposite angles are joined in pairs by lines. The result of drawing these lines is to produce an eight-pointed star in the centre of the octagon. The outer octagon is formed of such a size that one of its sides fits into the angle of the eight-pointed star. Thus we have a large octagon, a small octagon, and an eight-pointed star. These three figures combined in different ways go to form the majority of octagonal patterns. For the designing of the patterns it will be found convenient to cut out three outlines as templates.

The most complicated class of patterns are those to which the term "arabesque" may be appropriately reserved. These patterns are practically peculiar to Mohammedan art and both in their complexity and in their æsthetic value stand on a higher plane than the patterns hitherto considered.

The most square, hexagonal and octagonal patterns the lines run in two, three or four directions respectively. In arabesque patterns the lines run in a much larger number of directions, suggesting that some unusual method was employed in their construction. Mr. Hankin having described several arabesque forms on a geometrical basis he supposed it is required to discover the construction of any given arabesque, proceed as follows. Mark the centres of all the larger spaces included in the pattern, and, joining, as a rule, the star-shaped spaces. Join these points. The polygons thus produced are the primary con-

struction lines. Supposing it is required to copy an arabesque that exists on a ceiling or in some other inaccessible position, a similar method will suffice. On looking at the pattern it is easy to imagine lines joining the centres of the larger spaces, which lines describe polygons. A rough sketch may be made of these imagined polygons. From this at leisure an accurate drawing may be made. In doing so it is necessary to make the different polygons as symmetrical as possible, and, so far as possible, having their sides all of equal length. Guided by this rule, and after a little practice, any complicated arabesque pattern can usually be solved in ten minutes. On the other hand, Mr. Hankin failed to solve some of the apparently more simple patterns despite a more extended study.

One of the objects of decoration is to prevent the eye being displeased by monotony. A geometrical pattern, however elaborate, if used too much, will produce that effect of monotony that it was intended to prevent. It will then become as tedious to the eye as a Greek fret was to Ruskin, or as a cheap floral wall-paper may be to anyone else. In some of the best buildings in Futteypur-Sikri the artist has nearly worked up to the standard of discarding each pattern as soon as he had used it once. In Birbul's house, for instance, a number of richly decorated pilasters are present in the different rooms. Each pilaster has, on its face fronting the room, three carved panels. On each pilaster the upper and lower of the three panels bear the same pattern, but the middle panel always carries a different pattern, and the patterns used on one pilaster do not occur on any other. These patterns are nearly all geometrical, but a few are floral, thus further preventing any impression of monotony.

That the pattern should be adapted to the space it has to occupy is a truism observed in almost every system of art. In the case of geometrical patterns this truism admits of a simple geometrical expression which, with rare exceptions, is adhered to by Mohammedan artists and ignored by European artists when copying Mohammedan designs. In all the patterns used to illustrate the paper star-shaped spaces occur at regular intervals. The rule very generally observed in Mohammedan art in India is that each corner of the panel is occupied by a quarter of one of these star-shaped spaces. If several repeats of the pattern occur in the panel, half stars will occur along the sides, besides quarter stars in the corners. The panel always contains a whole number of repeats. If the pattern contains eight-pointed stars, the space included in the stars may be filled up by fylfots (or outlines of that nature), and then adherence to the rule is only to be discerned on studying the construction of the pattern. In some of the perforated stone balustrades that form so pleasing a feature of the buildings in the garden of the Taj at Agra, the pattern has been visibly and greatly distorted to insure compliance with this rule in the space available. The tomb of Itimiyad Ud Daula in Agra offers a striking illustration of the observance of this convention. Worked into its marble mosaic are hexagonal, octagonal, decagonal and dodecagonal patterns in the greatest profusion, but in every panel, whatever its size and shape, quarter stars are always to be found in each of its four corners. The difficulty of designing the building must have been greatly added to by the observance of this rule. One is tempted to suspect that the building was designed to fit the patterns.

In Mohammedan art, as it occurs in Egypt and Spain, this method of adaptation to the space is sometimes followed. At other times a different plan is adopted. The Moorish artist sometimes put more than a quarter of a star in the corner, and more than half stars along the sides. The arrangement is such that the rays of the stars along the sides form a sort of inner border which is accentuated by the colouring adopted in the original design.

Owing to observance of this rule a panel of given shape is not suitable for the reception of any and every pattern. If the panel is a square, or if it is made up of a whole number of squares, it may be decorated by an octagonal pattern, or by those octagonal and dodecagonal arabesques whose repeat is a square. The repeat of a hexagonal pattern is usually a rectangle whose diagonal forms an angle of 60 degs. with the base. Such patterns are therefore not applicable to square panels, but only to panels that are rectangles of this proportion, or to panels that may be regarded as made up of such rectangles. The repeat of arabesques whose primary construction lines include decagons is usually a rectangle, whose diagonal forms an angle of 36 degs. In "Les Éléments de l'Art Arabe," by Bourgoine, may be found a large collection of

arabesque patterns. In some of these patterns that contain fourteen-rayed stars the unit of pattern is a rectangle whose diagonal forms an angle of about 38 degs. With sufficient knowledge a pattern may be found to suit a rectangle of almost any shape.

A few words may be added as to the amount of accuracy needed and advisable in drawing geometrical patterns. In elementary text-books of design it is commonly asserted that pattern outlines look better when drawn in by hand than when drawn in by compass and rule. The truth of this statement may be admitted without reserve so far as the simplest pattern shapes and outlines are concerned. With regard to less simple patterns, however, some reservation is necessary. If a hexagonal pattern is made with the aid of construction lines that have not been drawn at exactly the correct angle, every hexagon in the pattern will be distorted. If lopsidedness occurred in a single hexagon it perhaps would not matter. But when every hexagon is lopsided to the same extent, and in the same direction, the effect is cumulative and unpleasant. The suggestion that the artist was trying to draw hexagons and failed because he didn't know how to do so, is a suggestion that obviously should be avoided. If, however, the construction lines of a hexagonal pattern are drawn in with accuracy, the pattern may well be drawn in by hand.

Arabesques are usually found drawn accurately. In the case of the more complicated arabesques, this would seem to be necessary to produce their full æsthetic effect. But a relatively simple arabesque may be distorted in order to make it fit the space; that is to say, to get exactly quarter stars in each of the corners of the panel. In order to do this it is necessary to draw first the construction lines, modified or adapted to the space, and then on these lines to draw the pattern.

By observing which patterns were placed in prominent positions, and which were placed where they could not attract much notice, it is possible to arrive at some ideas as to what features of a pattern were considered good by Mohammedan artists. A pattern containing several lines crossing at one point like the spokes of a wheel, as already mentioned, is not much used. The best patterns are those in which all the constituent spaces have either a radial or a bilateral symmetry, that is to say, are free from lopsidedness. A pattern is bad if it contains spaces of the same shape but differing slightly in size. If a construction leads to such a result the pattern must be modified so that the spaces become either identical in size or else widely different. Cases have been mentioned in this paper in which gracefulness in a pattern is obtained by drawing it in conformity with some geometrical rule. Cases also may be found, though rarely, in which the geometrical method leads to a clumsy result, that can be remedied by freehand drawing.

SIR GEORGE BIRDWOOD said it would appear that the Greeks habitually applied geometry to the perfection of decorative design. Decoration must ultimately have a geometrical basis, and must be controlled by geometrical law, however unconscious the decorator may be of its operation. More than that, where decoration is attempted in conscious violation of geometry it rapidly lapses into indecorum and fatuity; furthermore, there is good decoration that to the inartistic eye appears to be geometrical outlining pure and simple, but which really is entirely of artistic inception and draughtsmanship. And no doubt the Oriental craftsmen of Saracenic art, including the Indian, kept up the tradition of the Greek use of geometry in the skeleton lines of their schemes of ornamentation; and we have indeed an obvious proof of this in Mr. Hankin's discovery. All this may be granted, and it cannot be gainsaid. Nevertheless, he (Sir George Birdwood) was convinced that the inspirations of artistic decoration came directly all from animated nature, and that the most inspired of the inventors of the decorative types derived from this ever-springing fountain of artistic impulses and imagery never had a thought of geometrical proportion in their minds. Much of what passes for geometrical ornamentation is due to the form imposed on it by the material used for its production, such, for an instance, as matting, wherein the graceful undulations of a snake work out in a crude "key pattern." The gradual conventionalisation of a design leads also to its gradually taking on more and more of a geometrical aspect; and, again, the decay of artistic inspiration or of technical dexterity will conduce to the deterioration of an ornament to the baldest of geometrical formulas.

Mr. LEWIS DAY said the author had spoken as a mathe-

matician and not as a designer. He (Mr. Day) could imagine a designer always going to work in the manner described. There were so many ways in which the elaborate patterns which had been shown could be constructed. He had always felt very strongly that the simpler patterns found in the Opus Alexandrinum were built up of little triangles, &c.; that was more likely the way in which the more elaborate work was done, and not by means of templates. The patterns which the author had stated to be built up by putting together dodecagons could equally well have arrived at by striking circles, and at the intersections of those circles drawing straight lines from intersection to intersection. It had to be remembered that when the designer drew those elaborate patterns he did not have the whole area of lines, &c., in front of him; he designed a little piece which he could keep in his mental grasp. He had only to keep that small unit in his mind; he knew what the effect of repeating the unit would be.

Professor O. MULLER said there was a tendency to judge a pattern to be good or bad according as it approached more nearly to a proper geometrical basis. That was apparent in many of the pierced screens in the buildings at Agra.

Mr. HANKIN, in reply, said that at Futteypur-Sikri the geometrical methods seemed to have the day, whereas in the buildings in Agra and in all work produced at the present day geometrical methods had fallen into the background. The modern workmen in India were incapable of drawing designs which Mr. Day said could be drawn instinctively by using geometrical methods. They had completely forgotten these methods. In the old work of four centuries ago there were extremely complicated arabesque designs and no suggestion of a method had been brought forward by which they could have been drawn except by the methods he stated in his paper. In Futteypur-Sikri, not only were geometrical patterns of that nature, but even the curvilinear designs were drawn to a great extent by means of a pair of compasses and similar geometrical methods. In the work in India, such as was found in the Taj and the Palaces at Agra, graceful floral outlines were found, but to the best of his knowledge they were not drawn by means of a pair of compasses, but by the free hand guided by the artistic sense of the artist. The buildings at Futteypur-Sikri were in a way archaic. The idea had often suggested to him that perhaps the artists who had to do with the buildings at Futteypur-Sikri were, when judged by European standards, people of low artistic powers; it was all probable that they were incapable of drawing a graceful curve without some such mechanical method as a pair of compasses; but in the later work and in the higher products of Indian art no traces were found of such a hindrance. The fact that these geometrical methods were so completely forgotten in India was no hindrance to the production of artistic products. In their place it would be found that in Agra and its neighbourhood the stone-masons produced floral outlines of the greatest gracefulness and the greatest suitability to the purpose they had in view. The fact that they had forgotten the old trammels of geometrical pattern was not a hindrance but a help to their work. If one went through the slums of Agra, or any other town in that part of India, the façades of houses would often be seen decorated with the most exquisite stone-carving, which in his opinion equalled, if not surpassed, the more famous work of earlier days.

A GIFT TO GLASGOW.

GLASGOW'S good fortune in the matter of gifts to the public gallery is, says the *Glasgow Herald*, the subject of much comment in London at the present time. Only a few months ago, under the will of Mr. James Hamilton, the Corporation became prospectively entitled to 50,000*l.* for the purchase of pictures, and now, by the bequest of Mr. James Donald, a fine collection of works by French masters of the school of 1830 and others is to go to the Corporation. Not unnaturally comparisons are being made between the Donald assemblage and the hundred or more works bequeathed about a couple of years ago to the Corporation of London by Mr. Charles Gassiot, citizen and vintner. Mr. Gassiot, despite the fact that he paid very "long" prices for a number of his pictures, did not succeed in bringing together a gallery which would wholly satisfy the genuine connoisseur. Popular Academy pictures proved too great an attraction. There are, of course, some excellent things, but probably Mr. Gassiot

himself the taste of Mr. Donald, nor was the professional
ice he sought so well balanced and far seeing as that
ined in Glasgow by the Scottish collector. For instance,
ng the sixteen Gassiot pictures which, based on auction
es, show a total of about 24,000 guineas, there may be
ed T. Webster's "The Smile" and "The Frown," each
nches by 24 inches, 1,600 guineas; Goodall's "Head of
House at Prayer," 1,150 guineas; William Collins's
nday Morning," 1,380 guineas; Patrick Nasmyth's
eting of the Avon and the Severn," 1,500 guineas.
are for picture, taking them on the average, Mr. Donald
st certainly spent considerably less than Mr. Gassiot.
it will be seen that for under 20,000*l.* he succeeded in
iring a number of really fine works to-day worth nearly
le what they cost, works which would be eagerly
pted by any public gallery in this country.

From a trustworthy source have been received details
of the cost price and the approximate present value of
ity pictures and one pastel in the Donald collection.
der to facilitate reference, the details may be set out
in tabular form. The numbers within brackets after the
s correspond with those in the catalogue of the Glasgow
International Exhibition, 1901, where the works in question
were seen. For some time Mr. Donald had lived chiefly at
Glasgow, but he had no pictures or other objects of great
value there or anywhere but in Glasgow. He bought almost
all his pictures in Glasgow, many of his principal pictures coming
from Messrs. Craibe Angus, the same firm to whose
good taste and discretion the fine assemblage of the late Mr.
Hamilton Bruce owed so many of its treasures. The
following list is self-explanatory:—

Artist.	Work.	Cost.	Present Value.
Donald	Returning Home: cattle and sheep, 36 by 29 (1303)	£3,000	£6,000
Donald	Cattle (1294)	450	700
Donald	Sheep (1302)	350	700
Donald	Going to Work, 22 by 18 (1300)	1,200	5,000
Donald	The Sheepfold: moonlight (pastel), (1238)	800	2,500
Donald	The Cray Fisher (1298)	3,000	5,000
Donald	The Woodcutters	1,200	3,500
Donald	Evening (1307)	300	1,000
Donald	Clair Bois: Fontainebleau, 27 by 41 (1291)	2,000	4,000
Donald	The Heath (1305)	500	800
Donald	Adoration of the Magi (1310)	300	1,500
Donald	St. Jerome in the Wilderness (1308)	600	1,000
Donald	Point des Dunes: L'Orage (1309)	600	1,000
Donald	River and Ducks (1297)	350	1,200
Donald	The Happy Family (1292)	300	1,000
Donald	In the Forest (1301)	150	450
Donald	Roses (1306)	120	350
Donald	Sheep and Shepherd (1241)	40	400
Donald	Girl on Sofa (1296)	40	400
Donald	Dutch Boats (1205)	50	300
Donald	View of a Town (1236)	60	400
		£15,410	£37,200
Donald	Lyme Regis (W.C.) (797)	450	
Donald	Two Views of Venice (49 and 51)	100	
Donald	The Artist in Spain	450	
Donald	Taming of the Shrew (449)	700	
Donald	The Young Housewife, 1880 (601)	300	
Donald	Philip IV. (from Secretan Collection)	600	
Donald	Landscape with Figures	400	
Donald	Small picture	450	
Donald	Lee Plat de Delft (fine, bought 18 years ago)	400	
Donald	Still life (fine, bought 20 years ago)	300	
	Cost of 32 works	£19,560	

Needless to say, the above table is not exhaustive. For
example, there are two more examples by James Maris,
from the Hamilton Bruce sale; a water-colour study of
a canal, 11½ inches by 6½ inches, sold to Mr. Bruce
Messrs. Craibe Angus for 35*l.*, and bought on behalf of
Donald at the Bruce sale in 1903 for 210 guineas; and
a scene, 18½ inches by 24 inches, similarly acquired by
Donald for 150*l.* and bought by Mr. Donald at 850 guineas.
No note has been taken of the etchings by Meryon,
Gandt, Dürer. In the Queen's Terrace House there is,
a splendid "Hawthorn" pot, and a pair of Oriental
vases with ormolu mounts, which at the Hamilton Palace

sale fetched 450*l.* guineas. By the way, Mr. Donald lent
three of his French pictures to the Guildhall exhibition in
London seven years ago. These were Nos. 1, 4 and 9 in
the foregoing table. In Scotland appreciation for Corot and
Rousseau, for Millet and Troyon, for the Maris brothers,
James and Matthew, came earlier than in England. Hence
there is something of poetic justice in this splendid Donald
bequest to the Glasgow Corporation.

ARCHITECTURE OF IONA.

A MEETING of the Glasgow Archæological Society was
held on the 16th inst.—the Rev. Professor Cooper,
D.D., in the chair—when a paper by Dr. John Honeyman,
R.S.A., was read, entitled "Certain Peculiarities in the
Architecture of Iona."

Dr. Honeyman said that so much had been written,
descriptive and historical, about Iona since the days of
Pennant and Pocock down to the days of Champneys and
Principal Story—late president of the Society—that on the
present occasion he would strictly confine himself to some
reference to peculiarities of arrangement or treatment
which the existing remains exhibited, and he found that
within reasonable limits he could only mention some of
these. There was nothing peculiar about the plan as it
existed now. The cloister was on the north side, but the
contour of the ground accounted for that as in many other
cases. There existed, however, fragments of an older
church at the north-west corner of the nave. There was a
semicircular-headed door which had been built up after all
the freestone parts had been removed, and there was also
a very peculiar structure connected with the old wall,
namely, the lower portion of a tower, the entrance to which
was by a small door, the sill of which was nearly 8 feet
above the ground. In this it resembles the round towers
and a few square ones built in the eleventh century and
earlier. But it has this very unusual peculiarity, that it is
built solid up to the level of the small entrance door.

In the north wall of the choir there is a very unusual
feature, two arches springing from abutments at each
side and resting on a circular column 2 feet 6 inches in
diameter, the base of the column and the sill of the arcade
being 6 feet 3 inches above the level of the choir floor.
Outside there is what now appears to be a side aisle, to
which access is obtained by a very beautiful door of much
later date than the arcade. Although since the insertion of
this door the floor has been at nearly the same level as that
of the choir, and the place was used as a sacristy, there is
evidence that originally the floor was much lower, as during
recent operations the remains of a floor 4 feet 6 inches
lower were found, and a piscina in the main wall of the
building near the level of the present floor shows that there
was here a chapel at a lower level.

After explaining in detail and with the aid of illustra-
tions what had led him to the conclusion, Dr. Honeyman
said that he had come to the belief that at one period
there had been a crypt at the east end of the cathedral,
probably something in plan, though not otherwise, like that
at Hexham, and that at that period the floor of the choir
was 6 feet 3 inches higher than at present, and that a side
aisle existed on the north side. The window in the east
wall of this aisle has a triangular head.

After referring to the very beautiful and peculiar window
in the east gable of the south aisle (just restored through
the generosity of Miss Campbell, of Blythswood), the
peculiar flying buttresses in that aisle, the archaic character
of the arcading in the north transept, the evidence that the
church had a flat ceiling resting on corbels still existing
about 4 feet below the wall-heads with apartments over it,
as at Torphichen, Lincluden and elsewhere, reference was
made to peculiarities in the chapter-house and cloisters.
He thought it probable that the north side next the oldest
part of wall was much the same as the corresponding
cloister at Oransay, but the other three sides were, as re-
maining fragments proved, on the beautiful model of some
of the older Italian cloisters, the wall being carried on a
continuous succession of smaller arches on coupled shafts,
as, for example, at Amalfi, where the same arrangement,
namely, a group of four detached shafts with bases and
capitals respectively wrought on one stone, is to be found.
At Iona the inner shafts were circular and the outer ones
octagonal, but these latter had this remarkable peculiarity,
that they were thicker in the middle by 1 inch than at either
end and had the beads at either end wrought on the shaft.

Attention was next drawn to peculiarities in the belfry. The most remarkable of these is the treatment of the windows, which are filled with flowing tracery, while the inner face of the wall is carried on two flat rear arches, the springer between the two resting on a column of peculiar design. It has been surmised by some that these formed part of an older structure, probably of Norman date, but the lecturer did not favour that idea. He had no doubt they had been specially designed for the place they had to occupy, and their old-fashioned character was quite in keeping with much that had been done there even after the fourteenth century, to the perplexity of Pugin and Parker. Above the belfry there was a chamber designed to be a dovecot. There are small openings for light and air and larger ones for the pigeons, and a liberal supply of pigeon-holes built in the inner face of the wall in the usual way. It is possible that the position of the floor of this chamber suggested the squatness of the belfry windows, just as the position of the upper chamber in the church explains why the arches at the crossing and the windows in the gables are all kept so unusually low.

Dr. Honeyman remarked that the pigeon-holes in the walls of the tower had suggested a new idea, namely, that in our larger towers the comparatively useless space between the first floor and the belfry floor might be divided into columbaria, honeycombed with "cells" for the reception of urns containing the ashes from the crematoria when churchyards were abolished. He thought it would pay when people became a little more enlightened.

In conclusion, he referred to certain earthworks a little to the north of the cathedral enclosure, and expressed the opinion that they had nothing to do with the works of Columba and his successors, but that they marked a very strong position occupied by the natives, and probably so occupied long before Columba's time. In the absorbing interest which the work of the great missionary saint inspires, we may be excused if we are prone to forget that the island of Iona had a history before his advent.

The paper was illustrated by drawings and photographs, and several plaster casts of monuments, lent by Mr. Alexr. Ritchie, 27 Scott Street, Glasgow, were exhibited.

MELANDRA CASTLE, LANCASHIRE.

THE following appeal for subscriptions in aid of the excavations at Melandra Castle has been issued by the Manchester and District Branch of the Classical Association:—

"We venture to ask your support for a project which, we think, will commend itself to many who are interested in the early history of Manchester and the surrounding district, or, more generally, in the influence of ancient civilisation upon our own.

"It is probably known to you that a considerable number of places have been identified in this district as having once been the sites of Roman camps or settlements. In most of these some attempts at excavation have been made at different times and by different individuals or societies, but there has been no organised body willing or able to undertake a systematic exploration of them, or the preservation of the antiquities they contain.

"This duty the excavation committee of the local branch of the Classical Association hope to carry out if sufficient financial support can be secured.

"In order adequately to excavate the site known as Melandra Castle—a piece of work which lies ready to hand—and to make a satisfactory beginning with other sites (in conjunction with the local committee in each case) it is estimated that an income of 100*l.* a year for five years is needed. A list of the contributions already received or promised is given in the circular, and further subscriptions (of 2*s.* 6*d.* or larger sums) to the excavation fund will be gladly received by the hon. treasurer, Mr. Harold Williamson, M.A., the Grammar School, Manchester.

"The excavation fund is kept distinct from the ordinary funds of the branch.

"Besides exploring new sites, the committee hope to co-operate with the 'Old Manchester' committee, of which the Lord Mayor is the chairman, in securing the collection and better preservation of any Roman remains discovered within the city itself.

"The committee hope that, as one result of their efforts, this excellent example of a Roman military station may be restored as far as is possible to the condition in which it was left, and preserved as a permanent contribution to

classical learning and a valuable object-lesson for generations of children and students.

"The committee wish it to be understood that they do not seek to become proprietors of any relics that they may discover. Their desire is to secure the proper custody and exhibition of all such objects in some public place as near as possible to the site upon which they have been found.

"Subscribers of 2*s.* 6*d.* or larger sums to the Excavation Fund, as well as members of the Association, will receive special tickets, which will secure them free admission to the site of any excavations undertaken or assisted by the committee.

"N.B.—The Melandra camp may be reached most easily by taking train to Glossop and then taking the Hadfield tram to the foot of the Camp Hill. The site is within twenty minutes' walk of Dinting station. The committee have arranged that one of their number shall be in attendance every Saturday afternoon up to the end of May. Keys may be obtained of Mr. R. Hamnett, High Street, Glossop.

"The subscription list shows an income of about 60*l.* for the present year, most of the amounts being promised for five years. The University of Manchester has authorised the Professors of Latin and Ancient History to devote a sum not exceeding 25*l.* from the departmental funds for the current year jointly, to aid the work of excavation."

The *Manchester Guardian* says that though the excavation committee of the local branch of the Classical Association have only been at work at Melandra for a few weeks, they have already succeeded in making an important contribution to a proper understanding of the way in which this military station was constructed. After some preliminary operations the committee decided to concentrate their attention for a time upon the north gateway. In searching for the gateway some 20 feet of the foundation of the rampart were first laid bare, and it has been necessary to remove accumulations to a depth of over 4 feet to disclose its plan. At present all that is seen of the stone rampart may be seen to the west of the entrance, beginning (at what must be the gate) with a stone marked upon the plan, which is 2 feet 9 inches square. This stone is broader than the rest of the corner and is itself protected by a rounded stone marked "Gate." Proceeding through the gate towards the camp from the boulder-like stone, we come upon what are apparently the western bases of two arches. The corresponding foundations on the other side are yet to be found.

In opening up the gateway an interesting section of road has been laid bare, showing that it was raised to the level of the footing of the walls and buildings. This footing seems to have been embedded in two kinds of cement, almost black and evidently containing iron, the other a light grey colour. Mr. Francis Jones, of the Manchester Grammar School, has kindly made an examination of the road and the first is found to contain ferric oxide, traces of iron and metals and sand; the latter consists mainly of silicate of alumina, with a trace of magnesium, which would suggest that it is merely a clay.

Concurrently with the excavation of the gateway a systematic examination of the Roman stratum within the camp area has been commenced. For this purpose the area has been divided into nearly four hundred square sections with 20 feet sides. The clay floors of the huts within the camp are still distinctly seen, the layer being several inches thick. The practice of sinking trial pits at odd points of the area has been discontinued on the recommendation of the committee, and in future complete floors will be carefully uncovered. Mr. Jones has also analysed the red substance of which these floors are composed, and which has the appearance of burnt clay. He finds that it contains siliceous iron and traces of other metals. Beneath one of these floors have recently been discovered the bases of a number of stakes, which evidently outline the building. The stakes were not pointed, but cut quite square at the bottom. They were evidently square oak poles, and when first taken out the wood showed the annual rings distinctly, but rapidly turned black. The bottom of the stake was 2 feet 7 inches below the base of the clay floor. In excavating this floor usual finds of glass, pottery, whetstones, &c., were met with. It was in the prosecution of work of this kind that the copper spearheads, lamp-stand and other relics were met with as well as the interesting set of about twenty marked Roman weights. These weights, as well as other objects made of lead, are thickly covered with a white coating, which Mr. Jones finds is composed of a double carbonate of lead hydrate of lead.

BIRMINGHAM SCHOOL OF ART.

It was lately announced that Alderman the Right Hon. William Kenrick, chairman of the Museum and School Art committee, presented to the Corporation of Birmingham the sum of 3,500*l.* for the endowment of scholarships in the Municipal School of Art. The matter was brought before the committee on Monday at the Council House in report presented by the management sub-committee. The money will provide ten scholarships of 10*l.* per annum each. On the motion of Mr. Edwin Smith (chairman of the management sub-committee), seconded by Councillor Murray and supported by the Lord Mayor, the following resolution was passed:—"That the hearty thanks of the Museum and School of Art committee be presented to Alderman the Right Hon. William Kenrick, chairman of the committee, for his generous gift to the Corporation of Birmingham of the sum of 3,500*l.* for the endowment of scholarships at the Municipal School of Art. The committee gratefully welcome in addition to the liberal gifts in furtherance of the work of education in the city which have from time to time marked the devotion to that work. The scholarships which he has provided since 1901 with the view of improving local craftsmanship have already enabled many apt boys to remain in the day classes at the central school longer than would otherwise have been possible; and the work of these William Kenrick's scholars leads the committee to regard with the utmost satisfaction not only the munificent endowment of the scholarships, but the opportunity thus afforded them of permanently associating with this valuable and important work the name of their chairman, to whose foresight and liberality the committee owe the inception of the scheme." A copy of this resolution is to be suitably lettered and bound in the school of art for presentation to Alderman Kenrick.

The management sub-committee reported the gift by Mr. Howard Wilkinson, Hamstead Lodge, Handsworth, of twenty-one birds and six glass cases for use at the Central School of Art. A vote of thanks was accorded Mr. Wilkinson for his acceptable present. The committee further decided to appoint Mr. Thomas Wright to a teachership of work at the central school on two evenings a week.

TESSERÆ.

Roman Aqueducts.

ROME was supplied with water from sources varying from thirty to sixty miles in distance, and at one period its history not fewer than twenty aqueducts brought as many different streams across the wide plain or campagna which the city stands. In the time of Frontinus (A.D. 100) the entire length of aqueducts exceeded 255 miles, the daily charge of which was about 300,000,000 gallons. Nor was it ancient Rome which alone reaped the benefits of these superb structures; the modern city is still abundantly supplied by three of them, which have undergone repairs and restorations, the most important of which was made by Sixtus V., from whose conventual name of Brother Felix the term Aqua Felice is derived. The chief provincial aqueducts of the Romans, as well as their own metropolis, were supplied with water by aqueducts; hence in Greece, Gaul, Spain, Italy, &c., portions of these extensive constructions remain to the present day. That of Nismes, built by Augustus, son-in-law of Augustus, is perhaps the most ancient of their provincial aqueducts. It was about thirty miles in length when entire, and traversed a very mountainous country, piercing through hills and crossing valleys by means of arches upon arches. It was constructed of squared stones throughout, and was coated in the interior, which is 4 feet by 5½, with finely prepared mortar. The "Pont Gard" is that part of the aqueduct of Nismes which crosses the deep valley in which flows the Gardon, or Gard. This part, considered alone, is one of the noblest monuments built by the Romans among the Gauls. It is composed of three ranges of arches one above another. The first range under which the Gardon runs is formed by six arches, the second by eleven, and the third by thirty-five, of which are semicircular and form a total height of 100 feet above the water of the river. The entire length of the bridge is 300 yards. This magnificent structure was destroyed by the barbarians about the beginning of the sixteenth century, but is still in such a state of preservation that it could be restored without a very great expenditure of

money. Passing over the ancient aqueducts of Lyons, in which the inverted syphon as well as the inclined channel-way was used, and of Bourgas, near Constantinople, the only other provincial structure of the kind to which we shall allude is that of Metz, of which a number of the arcades still remain. "These arcades," says an ancient authority, "crossed the Moselle, a river which is broad and vast at that place. The copious sources of Gorze furnished water for the representation of a sea-fight. This water was collected in a reservoir; from thence it was conducted by subterranean canals formed of hewn stone, and so spacious that a man could walk erect in them. It traversed the Moselle upon its superb and lofty arcades (3,600 feet long and 100 feet high), which may still be seen at the distance of two leagues from Metz, so nicely wrought and so finely cemented that, except those parts in the middle which have been carried away by the ice, they have resisted, and will still resist, the severest shocks of the most violent seasons. From these arcades other aqueducts conveyed the water to the baths and to the place where the naval engagement was mimicked."

The Parthenon as Hecatompodon.

The architects engaged on the works erected under Pericles at Athens having settled the general mass and scope of their buildings, found apparently already recognised the scheme which at any rate they used—a conclusion which cannot be resisted when one refers to the almost absolute identity of the measured features of the building with those which result from calculation. The Parthenon was planned upon the following considerations:—Above all things it was to be the hecatompodon, or the 100 feet; there was reason to believe that the cella of the Temple of Minerva, destroyed by the Persians, was 100 feet long, and that temple also bore the name of hecatompodon, although its breadth could not have warranted the epithet; but the new temple was made 100 feet broad on its upper step. To prove that it was so reference can be made to the comparative length of the standard measure of Greece compared with those of Rome and Egypt, and this comparison makes it certain that the breadth of the Parthenon on the upper step is accurately 100 Greek feet. A very interesting problem must have presented itself in the determination of the thickness of the stylobate on which the temple rests. There is a story that about seventy years later than the building of the Parthenon the inhabitants of Delos, being afflicted by a pestilence, were told by the oracle of Apollo that the pestilence should cease if they built him an altar cubical in shape and twice the size of the existing altar. This answer, it is said, perplexed the Delians, and they applied to the school of Plato at Athens, and it puzzled them also for a long time. The credit of a first solution, it is said, did not fall to an Athenian, but to a contemporary, Archytus of Tarentum. There is complete evidence, however, in the Parthenon that seventy years earlier, if the Delians had come to the Athenian architects instead of to the philosophers, they could have satisfied the demands of Apollo, for the cubic block of the stylobate is exactly one-tenth of the cubic block of the temple which it carries.

Falconet's Statue of Peter the Great.

The idea of Falconet, the French architect, commissioned to erect an equestrian statue to the extraordinary man at whose command a few scattered huts of fishermen were converted into the palaces of St. Petersburg, was to represent the hero as conquering, by enterprise and personal courage, difficulties almost insurmountable. This the artist imagined might be properly represented by placing Peter on a fiery steed, which he is supposed to have taught by skill, management and perseverance to rush up a steep and precipitous rock to the very brink of a precipice, over which the animal and the imperial rider pause without fear, and in an attitude of triumph. The horse rears with his fore-feet in the air, and seems to be impatient of restraint, while the sovereign, turned towards the island, surveys with calm and serene countenance his capital rising out of the waters, over which he extends the hand of protection. The bold manner in which the group has been made to rest on the hind legs of the horse only is not more surprising than the skill with which advantage has been taken of the allegorical figure of the serpent of envy spurned by the horse, to assist in upholding so gigantic a mass. This monument of bronze is said to have been cast at a single jet. The height of the figure of the emperor is 11 feet, that of the horse 17 feet. The bronze is, in the thinnest parts, only the fourth of an inch, and one inch in the thickest part; the general weight

of metal in the group is equal to 36,636 English pounds. Falconet determined that the subordinate parts should also bear an equal impress of genius. He found that the pedestals in general use have no distinctive feature, and adapt themselves equally well to any subject. A precipitous rock was fixed on for the pedestal, on which the statue should appear with characteristics distinguishing it from those erected to other sovereigns. The first idea was to form this pedestal of six masses of rock, bound together with bars of copper or iron; but the objection was urged that the natural decay of the bands would cause a disruption of the various parts, and present a ruinous aspect, while it would be difficult to insure perfect uniformity in the quality and appearance of the different blocks. The next proposal was to form it of one whole rock; but this appeared impossible, and in a report to the Senate it was stated the expense would be so enormous as almost to justify the abandonment of the undertaking; and even if made of six pieces, as first proposed, the outlay would be excessive. At length it was determined to transport to the city the largest rock that could be found, and add other portions to it as might be judged necessary. It is to be regretted that the effect of this unrivalled pedestal was marred by the diminution of its size. Under the directions of the artist, who had so successfully formed the statue, it was pared and chiselled until the weight was reduced to 3,000,000 lbs.; and the outline, instead of being left bold and broken, as best suited the character of the group, was made smooth and uniform.

Merchants' Marks.

Persons of the middle class, not entitled to coat-armour, invented certain arbitrary signs called merchants' marks, and these often occur in the stonework and windows of old buildings, and upon tombs. Piers Plowman, who wrote in the reign of Henry III., speaks of "merchauntes' markes ymedeled" in glass. Sometimes these marks were impaled with the paternal arms of aristocratic merchants, as in the case of John Halle, a wealthy woolstapler of Salisbury, rendered immortal by the Rev. Edward Duke in his "Prolusiones Historice." The early printers and painters likewise adopted similar marks, which are to be seen on their respective works. A rude monogram seems to have been attempted, and it was generally accompanied with a cross, and occasionally a hint at the inventor's peculiar pursuit. The heralds objected to such marks being placed upon a shield; for, says the writer of Harl. Manuscript 2252 (fol. 10), "theys be none armys, for every man may take hym a marke, but not armys without a herawde or purcyvaunte;" and in "The Duty and Office of an Herald," by F. Thynne, Lancaster Herald, 1605, the officer is directed "to prohibit merchants and others to put their names, marks or devices in escutcheons or shields, which belong to gentlemen bearing arms and none others."

Greek Heating.

Homer describes his princes undressing themselves in the palace, to kill with their own hands the sheep, oxen and swine they were to eat at dinner; roasting the entrails, and during the entertainment handing them to each other as delicacies. The repast being finished, he shows them sitting for their pleasure on the piled skins of the animals they had slain and devoured, and playing at games of chance, and one of them taking a pastern bone out of a basket in which it was lying, and throwing it at the head of a beggar, but on missing its aim, making a grease spot where it fell on the opposite wall. From this picture of the grossness of ancient manners it may be concluded that when the poet says Penelope's maids threw the glowing embers out of the braziers upon the floor and heaped fresh wood upon them, he did not mean to depict his immortal barbarians burning odoriferous fuel on purpose to sweeten what must have been a vitiated atmosphere. The fire that was quickly to blaze on the hearth had to diffuse the comforts of light as well as warmth; and the fragrant logs were known to abound with the resinous material of illumination. In the heroic age they had oil and tallow in abundance, but were ignorant of the method of burning them in lamps; and the only use they appear to have made of wax was to put it in the ear to shut out sound. Burning fuel was carried into the apartment where light was required, and sometimes placed on altars for the same purpose; and long thin pieces of lighted wood were carried in the hand when they moved from one place to another in the night. Coal, it has been thought, was known to the Greek naturalists. Theophrastus speaks of fossil

substances found in Liguria, and in Elis, in the way Olympia, and used by smiths, that when broken for use are earthy, and that kindled and burned like wood coals. The general fuel was green wood, and where that was unattainable other vegetable and even excrementitious substances were used on the hearth for combustibles. On days of ceremony it was also customary to burn fragrant substances. When Alexander the Great was at an entertainment, given in the winter by one of his friends, a brazier was brought into the apartment to warm it, the day being cold, and the king observing the small quantity of fuel that had been provided, jeeringly desired his host to say Plutarch, "to bring more wood or incense," the supply of the precious firing appeared to the king to be scanty for producing the required warmth; and if it arose from his host being niggardly of the costly fuel, he hinted that some even of the common sort would be acceptable.

"BE GENTLEMEN."

A SPECIAL committee of the Boston Society of Architects, consisting of Messrs. Robert S. Peabody, Edwin J. Lewis, jun., and Frank A. Kendall, appointed to consider the annual report of the retiring secretary,* have, according to the *American Architect*, discussed its most important suggestions as follows:—

The proposed adoption of a mandatory inflexible standard of practice regarding the furnishing of sketches to prospective clients is a far more puzzling question, and it is evident that such action cannot be effective unless it has the endorsement and support of every member of the Society.

All of us have noticed that the number of competitive bids has increased of late, and that there is increased willingness on the part of architects to volunteer sketches without payment. This condition partly arises from dulness in business throughout the country, combined with a great increase in the number of practising architects that our many schools have trained. Is this condition hurtful or advantageous to the individual? If it is a trouble, can it be lessened? Will resolutions on the part of the Society bring about a better condition? These are the rather searching questions on which, as we understand it, you wish a report from us.

Why is it that we all think an architect is not all that he might be if he competes without compensation, or, what has a similar effect, if he cuts the usual rate of charge? There is nothing immoral about either of these things unless while doing them one pretends that he does not do them. In what way, then, does an architect differ from a grocer who undersells his neighbour until his profit is the slightest? In what respect is he like the doctor who does not do so? How does the doctor differ from the apothecary who does cut his neighbour's prices?

These are difficult questions to answer. They lead to ask, What is the real underlying principle on which the professional spirit is based, either in the three old-time "learned professions" or in those that are struggling to place on a level with them? Is it perhaps based on the fact that professional men sell ideas instead of goods, drawings but design, not sermons but good counsel, medicine but sound advice? Is it perhaps founded more on the fact that to professional men bread-winning while it is a necessity of life, is not after all what gives them delight in the work each loves? Is it perhaps due to the leadership through intellect which should fall upon men in the professions?

We may not be able to state with exactness the reason why a high professional spirit actually exists among us, but the main fact is that happily it does so exist, and it exists

* NOTE.—The suggestion made by our ex-secretary was as follows:

I should like to find a general sentiment in the Society in favour of the following propositions:

"After three years of independent practice no member shall volunteer sketches or other professional assistance.

"No member shall furnish sketches without compensation less assured that he alone will be invited or permitted to do so. If other sketches are received he shall, claim a proper payment least sufficient to cover the reasonable cost of his drawings.

"No member of the Society shall, either personally or through another, submit sketches except as above, or in a proper competition (with professional adviser to assist in preparing the programme and judging the designs), or for an adequate payment according to the schedule of the A.I.A."

so with strength and life; and we all, young and old, feel and prize it. It does not matter on what reasons it rests. We have it and we want to nourish it and are willing to sacrifice for it, believing, too, that such sacrifice results in ultimate gain. Dignity does not come without some such sacrifice. *Noblesse oblige*, and "hustling" is not consistent with the truest dignity. To abstain from improper conduct is not only the price of a dignified position, but is a part of it. How far, then, should this professional spirit prevail among us in opposition to commercialism? What can the profession do about this whole subject?

Is not our position towards the public essentially that of a doctor towards his public, which is thus stated in the Medical Code of Ethics:—"The relation of practitioners of medicine to families and households is not like that of tradesmen to their customers. The kind of competition which might be considered honourable in business cannot exist between physicians without diminishing their usefulness and lowering the standard of the medical profession." "In his relations with another medical practitioner and his patients a physician should be governed by strict rules of honour and courtesy. His conduct should be such, if universally imitated, would insure the mutual confidence of all medical practitioners." This surely applies in respects to our own profession, and in great measure covers the subject under discussion.

The resolutions that are suggested by our ex-secretary properly indicate that the point of view of a youth and an older man may fairly be different. The youth wants to get started and sets less store by dignity than the older man. This difference must be reckoned with in any generous discussion of the subject. It is urged that a youth has no recognition if he takes the same stand that may fairly be required of older men; but who can fairly say that in this city and country? You have but to look around to see large numbers of young school graduates, fellowship men and Rotch scholars gaining prompt praise and reward for work obtained in legitimate ways. The public is always asking the best. Certainly we should be in the wrong for our professional habits and customs bar out youth. But we do not think that is the spirit of the profession. Our sympathies are heartily with eager and accomplished young architects. We recognise their difficult questions as conduct. The question of conduct is perhaps never harder than when a young man, thinking he has some work well in hand, is told by his committee that older men are clamouring for present sketches without pay, and that he must do likewise or lose his work. Our sympathies, it is unnecessary to say, are not with the architect who thus gets ahead of his fellows. Still, your committee cannot accept the position suggested by the resolutions—that there may be a period of probation during which youth may properly sow wild oats regardless of the interests of others and of his own ultimate interests. Youth should await opportunities that may be offered upon with reasonable dignity. Surely the only proper attitude towards these matters is one that is proper for all.

Nor does your committee believe that this is a matter that can be regulated by vote of the Society. Certainly such a vote cannot bind a dissenting minority. It is true that the consent of every member might possibly be obtained, and a new association might be formed which would accept certain obligations as to competitions and sketches and rates of compensation, but such a combination or trust would invite grave criticism from the public, and would surely be defeated finally by one or more architects who would not be bound by the trust, or by invaders from other cities. Your committee believes that any such trust is as undesirable as the combination which it is meant to remedy is undignified. They believe that these troubles will continue to a greater or lesser degree as long as business is a matter of competition instead of co-operation.

In short, your committee does not believe that you can suppress selfishness by rules or bind architects, as the secretary suggests, by a hard and fast resolution of the Society. The experience of every one of us shows that there are occasions when any individual would wish to break such a rule, and might do so with perfect self-respect and with the approval of his fellows. We cannot force observance of a rule that is more exacting than the profession at heart believes in, but we can urge on young and old that selfishness works to the general harm and is undignified and undesirable.

Your committee, therefore, believes that the only remedy for these evident evils is moral suasion. They think it should not be too often said and repeated that a commission

of 5 per cent. has been long agreed upon as a moderate bread-winning commission for work properly done; that a less charge is unremunerative; that a greater charge is perfectly proper for those whose skill makes them able to obtain it; that anybody who cuts these prices by lowering the rate is really breaking the lowest remunerative market price; that to volunteer, without pay, sketches and competition work is also practically cutting prices, as when a 5 per cent. commission was established as usual and proper for ordinary professional services it was never intended to cover expenditures for obtaining work; that if an architect does this, whether he is young or old, he will earn the name among his fellows of being unduly selfish. He will, in short, be a "hustler," and will have to take the odium that attaches to the name along with work thus gained. Young or old must be generous gentlemen, or else bear with others who find them selfish and greedy.

Practically, a code is complete when it says, "Be a gentleman always and in addition as good an architect as possible." That is the substance of the attorney's oath or of the Medical Society's code. It is when we consider details that our troubles begin, and, in fact, the ultimate guide must always be one's own sense in each case of what is decent and proper. The man who respects himself will be the most respected, but a hard and fast rule as to these details cannot be made and will not be regarded.

Your committee believes in stating our belief regarding this whole matter as fairly and squarely as we can see it, rather than in shirking the truth as to our belief and our practice and leaving our position vague and unexpressed. In view, therefore, of what has been said, your committee recommends the omission from our Code of Ethics of Sections 5 and 10, and the substitution thereof of the following, immediately before section which relates to unbidding other architects:—

"Section —. This Society is not a trust or trade union, and does not fix rates of charges to be made by its members. It has, however, recommended to architects and to the public a schedule of charges that through long experience have been found to be the minimum rates that yield a reasonable profit. Any member whose skill permits him to obtain it may reasonably charge more. Those who charge less break the lowest remunerative price and act contrary to the interest of the profession, and in the long run to their own interest.

"The regular rates of commission do not cover competitive work to obtain employment. This should be paid for separately. If such work is done without charge the result is the same as the charging of less than the schedule rates, and is in the same way undesirable and undignified. Such practices diminish the usefulness of architects as unprejudiced advisers and lower the standard of the architectural profession."



Re Waterproof Concrete.

SIR,—We have read with very great interest in a recent issue of your paper of the introduction of a cement "Made in Germany" that would render concrete roofs absolutely waterproof, and were not the least bit surprised that the firm who obtained the English rights, according to their own statement in a later issue, found it to be no better than ordinary cement, hence as a waterproof material a failure. But Messrs. Watson & Co., in order to demonstrate the excellence of their lead and bitumen damp-course, were bold enough to state that one reason of its superiority was that it did not "curl or blow like asphalt." If this has been the experience of Messrs. Watson & Co. in their use of asphalt they must have been most unfortunate in the selection of their material and labour, for without doubt asphalt laid under proper conditions by skilled labour and with proper regard to quality of material used is the only absolutely safe waterproof material. It is unhappily true in these days of competition that inferior brands of asphalt are used, with the result that bad work is turned out, but with a little trouble anyone requiring best class work in asphalt can get recognised brands that will not "curl or blow," but will stand all the fluctuations of our climate, and make any roof perfectly watertight for a guaranteed term of years.

After many years' experience in every variety of waterproof material, we hold firmly to the opinion that for roof-work asphalt is absolutely the best material that can be obtained.—Yours faithfully,

THOMAS FALDO & Co.

Somerset Wharf, Rotherhithe Street, S.E. :

March 15, 1905.

St. John's Gate, Clerkenwell.

SIR,—The hall at St. John's Gate, of which a beautiful illustration appeared with your last week's issue, is quite a modern structure, having been built only about two years ago as an annexe to the old building; but it is worthy of the best traditions of the Mediæval period, with its wainscotted walls, groined ceiling and parquetry floor, which are all of oak.

The gateway was rebuilt in the year 1504 by Thomas Docwray, then Prior of the Order, who thus completed the work of restoration, which had been continued since the time of the destruction of the Priory by fire in the year 1381. The external face of the stonework had since become seriously deteriorated, and it was decided that the fabric should be completely restored as a memorial to the first sub-Prior of the Order since its reincorporation by Royal charter. The armorial shields on the south side were found to be wholly defaced, and it was considered that the restoration might in this instance take the form of a panel of entirely new shields, with a suitable inscription recording the memorial. This was unveiled in June 1893 by the King, who was then Grand Prior of the Order.

The restored Brotherhood of the once world-famous Hospital of St. John of Jerusalem, whose headquarters are at St. John's Gate, is, as has been well said, "a striking and accurate revival of one of the most picturesque and influential groups of the most gorgeous and brilliant society the world has ever seen—the Society which lives in the stirring stanzas of the Roman de Rose, and along the glowing lilt of *trouvère* and *troubadour*. It is pictured in the brightly coloured pages of Froissart and Monstrelet; we seem with the old ornaments and quaint symbols and half-forgotten titles of honour to live again in the Courts of the Plantagenets, in the ranks of the chivalrous Crusaders."

I would also point out that the St. John Ambulance Association, which is a practical philanthropic and national institution, has its head offices at St. John's Gate, and that it had the honour to be incorporated in 1888 with the Order of the Hospital of St. John of Jerusalem in England as one of its principal departments, when it was made subject to its laws and regulations.

At the period when St. John's Gate was a tavern, I may add, it formed the home for a number of years of the Urban Club and of the Shorthand Writers' Association, in connection with which there are still some living who cherish very pleasant reminiscences of evenings spent within the ancient portals, when "the feast of reason and the flow of soul" was freely indulged in to the heart's content.—Yours obediently,

J. T. RAWLINGS.

GENERAL.

The Students of the modelling school in the Royal College of Art, South Kensington, will submit sketches for four of the sculptured figures required in the new buildings in course of erection. If approved the work will be carried out under the superintendence of Professor Lanteri.

The Excavations in the Abbey Field behind St. Augustine's College, Canterbury, are to be continued. The field, which was purchased in 1900 on behalf of the Church of England, comprises about three acres, and includes part of the site of the old Benedictine monastery founded in 598 by King Ethelbert and St. Augustine.

Commendatore Alberto Galli, the director of the Vatican Museums and Galleries, will be present as representative of the Holy See at the inauguration on April 8 at Aberdeen of an exhibition of plaster casts showing the history of sculpture.

The Recent Exhibition of Irish pictures at the Guildhall Art Gallery was visited by 72,268 persons. Catalogues to the number of 6,315 were sold, and the total expense was 694*l.*, less 157*l.* received from the sale of catalogues. The Dublin authorities guaranteed 750*l.* for the purpose of the exhibition.

The Project for converting the High School, Edinburgh, into a National Gallery has been abandoned by the authorities.

Various Sculptured Relics, historical mosaics and other remains of archaeological interest, discovered by M. Legrain at Luxor within the past year, are being transferred from the Temple of Karnak to the Kasr-el-Nil Museum, in Cairo.

The Entrance Gateway to the Inner Temple from Fleet Street has been temporarily closed while the alterations the widening of the street are being carried out. The gateway will be moved back several feet.

The Simplon Tunnel is to be formally opened on Tuesday next, the 28th inst. The Duke of Genoa, as representative of the King of Italy, will meet the President of the Swiss Confederation at the point in the tunnel where the two territories touch.

An Exhibition of the works of the late G. F. Watts will be opened in the City Art Gallery, Manchester, on May 2 and will continue until July 15. There will be no charge for admission.

The Incorporated Association of Municipal and County Engineers have announced their intention of issuing quarterly, in pamphlet form, to all members, associates and graduates of the Association, a digest of law cases, arbitrations, &c., bearing directly upon the work of the municipal and county engineer and surveyor.

The Bill which it is expected will be promoted by the Royal Institute of British Architects for the registration of architects has been drafted and is in print, for the consideration of the registration committee appointed by the general body of members of the Royal Institute. We hear that Fellows who are in favour of registration will be proposed for the offices of vice-president and honorary secretary of the Institute, as well as for ordinary members of the Council at the forthcoming elections.

The London County Council have decided not to place a commemorative tablet on one of Turner's residences because two of his other homes have already been marked in this manner.

The Leeds Art Club is taking an expression of opinion on the question, "What in your opinion are the ugliest things in Leeds?"

Mr. J. M. Swan, the animal painter, was on Wednesday elected a Royal Academician, in succession to the late G. H. Boughton.

Mr. Samuel Joseph Nicoll, architect, died on Tuesday, his seventy-ninth year. He designed several Roman Catholic churches, some of them being in a modified Romanesque style.

A Treatise on "Roofs and Floors of New Buildings: their Structure and Stability," by Mr. Ernest H. Essex, C.E., will shortly be published by the St. Bride's Press, Ltd.

The Mayor of Burslem has made a gift of 700*l.* towards the erection of a new art school, in addition to his present donation of a site valued at 5,000*l.*

The Aberdeen Town Council have decided that Corporation official be allowed to engage professionally any other work than that connected with the Corporation unless with the consent of the Council.

The Italian Minister of Public Works has vetoed the proposed demolition of the Lucca city walls by the Town Council for the purposes of expansion.

The Leicester and Leicestershire Society of Architects at a meeting on the 15th inst. passed the following resolution: "That we, the Leicester and Leicestershire Society of Architects, at a general meeting called to discuss the subject of statutory qualification and registration of architects do reaffirm our resolution of June 3, 1904, and are of opinion that it is the duty of the Council of the Royal Institute of British Architects, as representing the profession to make serious and immediate effort to obtain Parliamentary powers for the purpose of establishing statutory qualification of architects."

A Misunderstanding has arisen regarding the Clapham baths which are to be built for the Wandsworth Borough Council. The accepted design was prepared by Mr. Henry Drury, M.S.A., architect, 26 Great James Street, Bedford Row, W.C., who was responsible for the architectural work, and by Mr. E. R. Dolby, M.Inst.C.E., of the firm of Messrs. Dolby & Williamson, consulting engineers, 8 Prince's Street, Westminster, S.W., the latter gentleman being responsible for the design of the engineering work. The Wandsworth Borough Council are employing Messrs. Drury and Dolby to carry out the work, and have instructed them to prepare designs for the proposed Toot baths. There is no such firm as Messrs. Drury & Dolby and these gentlemen are only connected in the manner described above.



VIEW FROM THE SOUTH EAST.

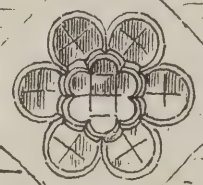
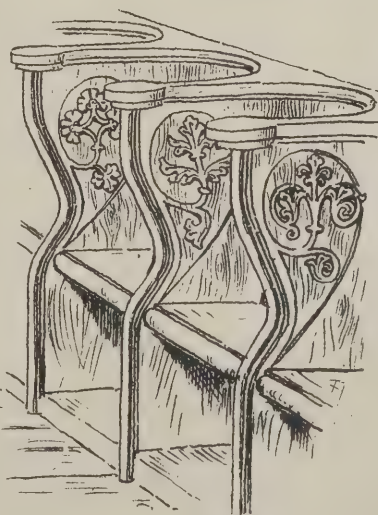


This was some years ago the appearance of the little tower to the west of the church; it was roofed in and used for storing corn in.

The former spire.



CHOIR-STALLS.



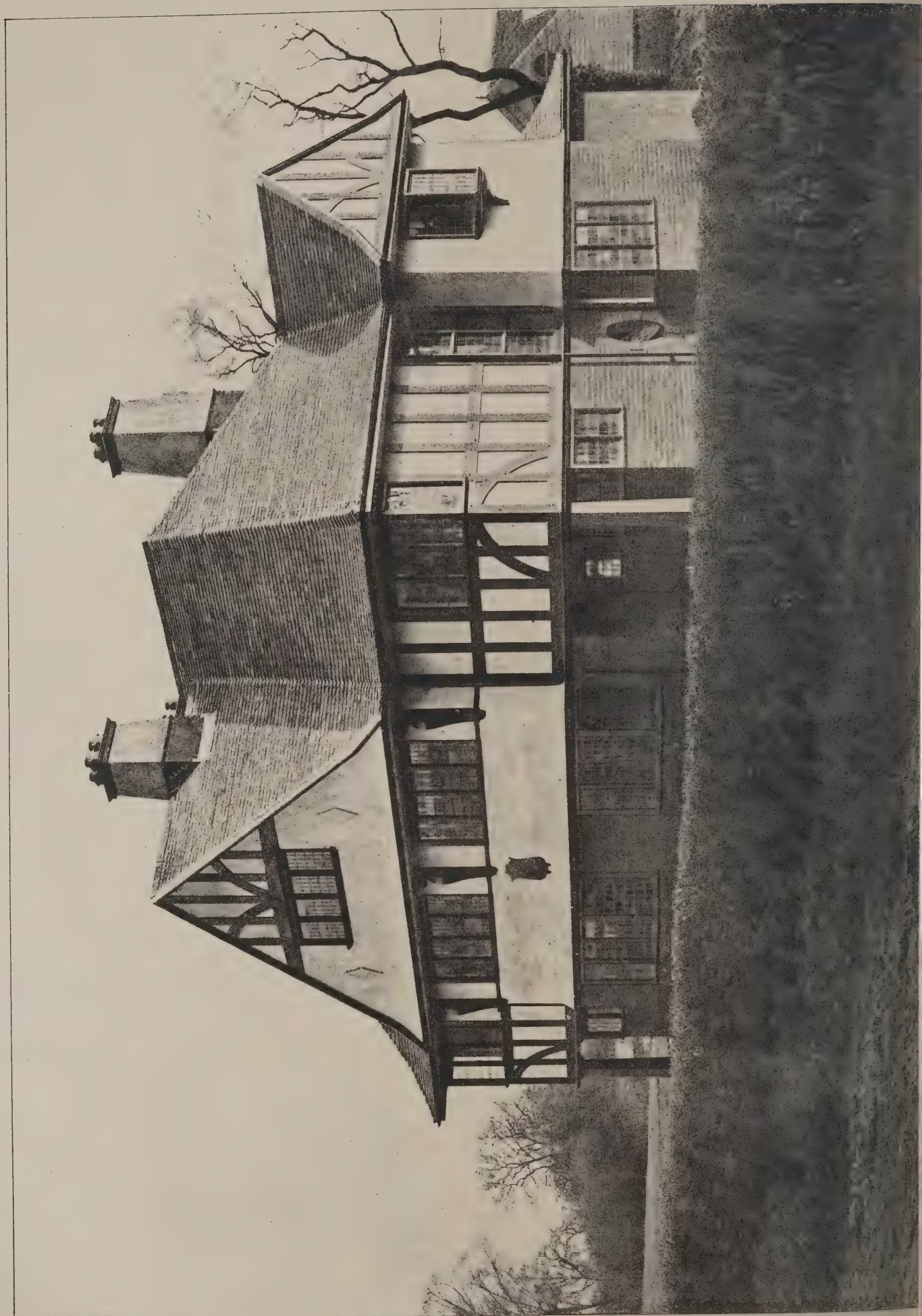
Small window, west side of tower, cut out of the stone.



TOP OF CHANCEL DOOR.

PHOTO-LITHO. SPRAGUE & CO. LTD. 4 & 5, EAST HARDING STREET, FETTER LANE, E.C.

*Continental Sketches by A. H. Haig
Church at Gothems, In the Island of Gothland, Sweden.*



The Architect, Mar. 24th 1905

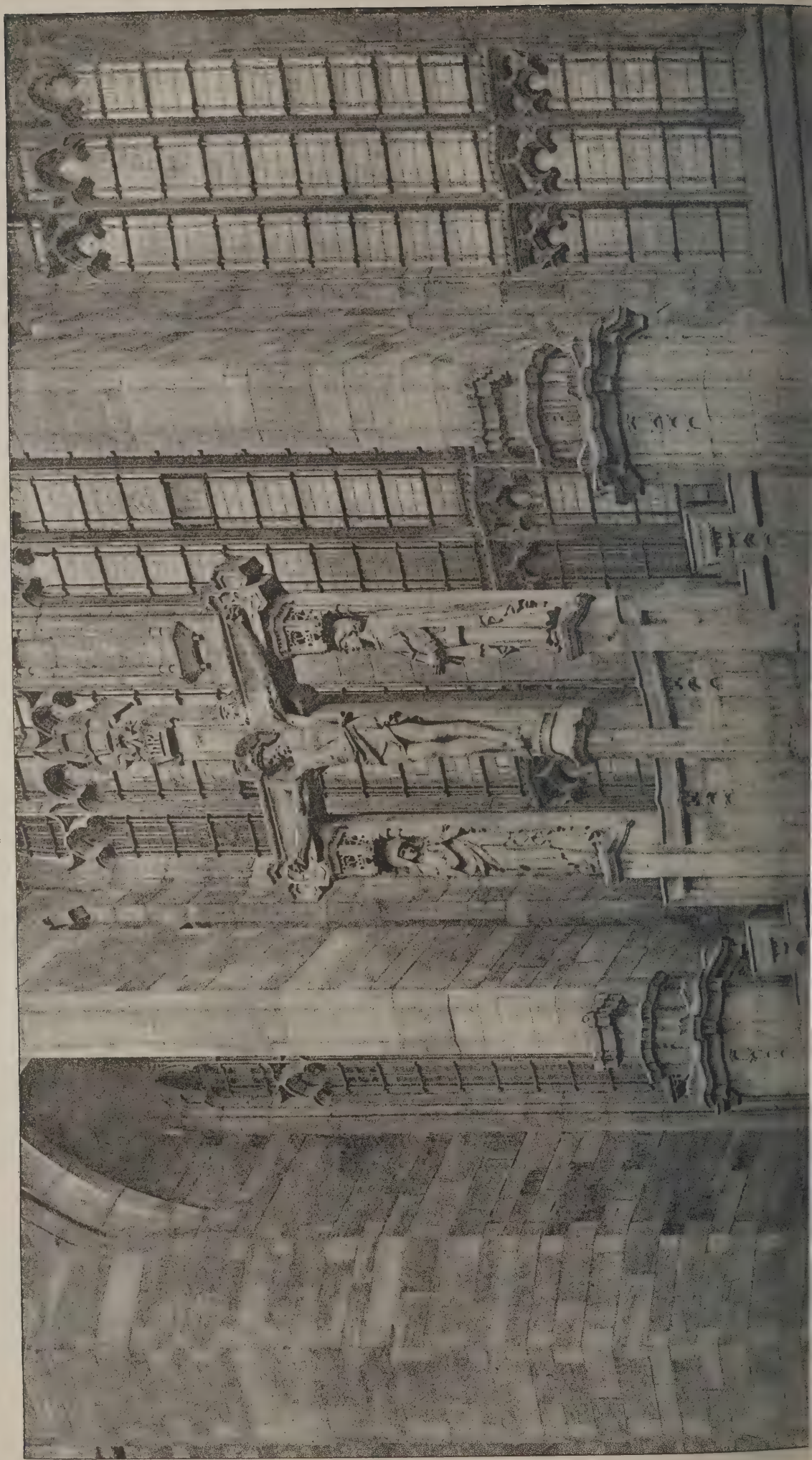


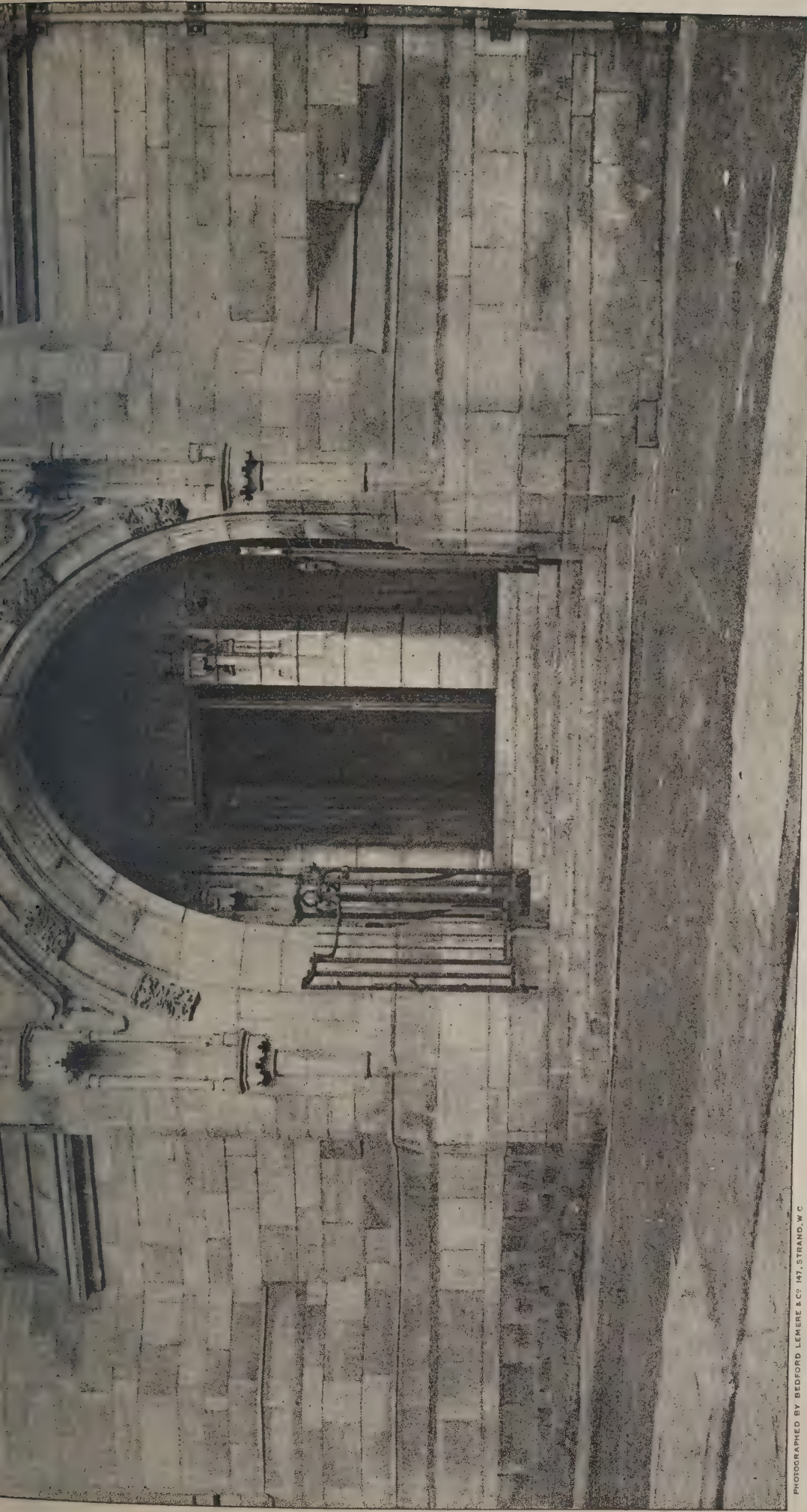
PHOTO-LITHO. SPRAGUE & CO. LTD. 4 & 5, EAST HARDING STREET, FETTER LANE, E.C.

ST. AIDAN'S CHURCH, BASFORD, NOTTINGHAM.

Messrs. EVANS & SON, Architects.

The Architect, Mar. 24th 1905





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ST. ANN'S CATHEDRAL, LEEDS.
J. H. EASTWOOD, Architect.

The Architect, Mar. 24th 1905





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"INK PHOTO, SPRAGUE & CO. Lth 4 & 5 EAST HARDING STREET, FETTER LANE, E.C.

"MOUNT STUART," ISLE OF BUTE, N.B.: THE ENTRANCE HALL.

SIR R. ROWLAND ANDERSON, LL.D., Architect.

The Architect.

THE WEEK.

It would be an advantage if the Courts could be persuaded to define what is a mineral in law. In leases and other deeds there are reservations of minerals to the landlords, and many lawsuits arise out of the difficulty of interpreting the term. Strictly speaking, a mineral is an inorganic body having a definite form and position, but in ordinary language it is taken to mean any unorganised substance found in the earth or on its surface. The decisions of the Courts do not always agree with either of those definitions. A test case in the Irish Courts affords an example. On a tenant's land were granite boulders, which he used for building stone. The landlord claimed damages, as minerals under the Land Act were reserved to him. The Judge of the County Court decided in favour of the tenant on the ground that boulders were not minerals, but the decision was confirmed in the higher Court. It is considered to be indisputable that granite is a combination of minerals, and unless we are mistaken in our notions to that effect have been given by judges, we have to assume that granite in the form of boulders is not a mineral, and is a nuisance which a tenant is entitled to remove.

EDWARD DALZIEL, who died on Saturday evening in the eighty-eighth year, was one of the last of the woodcutters. Since 1839 he was well known in London. Most of the men of his class were satisfied with their work, but the DALZIELS were more enterprising, and they only became heads of an establishment for the production of woodcuts, but they got out books to serve as a medium for their illustrations. The Brothers DALZIEL, besides engraving, sometimes drew upon the wood. But in such cases their work was inferior to that of other engravers. As they were connected with a great many different styles their work was necessarily varied, and it is difficult to determine what was their favourite style, as can only be done with HARVEY, W. LINTON and others of their contemporaries. EDWARD DALZIEL being courageous, departed from his legitimate field of wood-cutting, and his experiments were not always advantageous to art.

THE one-storeyed houses which Englishmen erected in India were intended to obviate the shortcomings of the buildings which the natives occupied. When bungalows were erected in England, the only resemblance to their Indian prototypes was in the avoidance of a second storey. The rule was not always observed, and it is possible to find many bungalows which have two storeys, and a larger area than ordinary houses. The name now appears to captivate people, and in consequence there is a desire to erect them as temporary habitations in picturesque districts. In some of the towns which have not yet become fashionable bungalows are to be seen on the beach quite close to the sea-line. A difficulty, however, arises with regard to their construction. To the owners there may be something attractive in having them constructed at an inexpensive rate. As they are only used in fine weather it is supposed that thin walls or partitions would suffice, and there is a partiality for timber construction. But the by-laws cannot tolerate such concessions to fashion. If labourers' cottages are subjected to strict rules it is not reasonable to exempt bungalows, which belong generally to rich people. Petitions are, therefore, being sent to the Local Government Board asking for concessions from various rural authorities. It is suggested that the thickness of walls, height of rooms should in all cases approved by the councils be allowed to differ from the by-laws, and especially when the bungalows are not placed close together and the danger of the extension of fire need not be calculated.

THE disaster which follows the bursting of the dam of a large reservoir is so serious, and the causes are so difficult to discover, it is no wonder theorists have for several years investigated the formulæ on which such construction is based, in the hope of discovering lines of pressure which will be more accurate than those in use. According to RANKINE, in a structure exposed to the overturning action of forces which fluctuate in amount and direction there should be no appreciable tension at any point of the masonry. But it stands to reason that if water finds admission in certain directions it must exert an uplifting and overturning pressure. All dams are calculated to sustain a certain amount of water. If it is desired to increase their capacity it is necessary to raise the height of the dam. It may then happen that the direction of the lines of pressure will be altered, and that a dangerous result will follow. The catastrophe in Epinal, when the Bouzey dam was actually overturned, is evidence of how little can overcome the stability of a dam. We can therefore understand the alarm which has been excited by the hesitation to raise the Assouan dam. The Bouzey dam slipped, and it is not impossible that the foundations of the Assouan dam might also move if the conditions which at present exist were altered. The authorities are acting wisely in waiting, because the great dam has been so lately constructed, all the conditions can hardly be said to be known. It has to be acknowledged that there is a "scour," and precautions have therefore to be taken in protecting what is sometimes called the toe of the dam. It is, however, absurd to say that any new discoveries have been made respecting the theory of dam construction.

A CASE relating to an error in a tender has been determined in Scotland. The owners of some property in Stonehouse were desirous to have it reconstructed. They issued schedules. Messrs. WEIR & HAMILTON, builders, filled in one of them in which they charged for one item at a rate of 1s. 6d. per yard. On the completion of the work it was measured in the way that is usual in Scotland, and the measurer altered the rate from per yard to per foot. The full amount was paid. Afterwards the error was discovered, and the building owners took an action to recover 78l. 1s. 3½d., the amount of the overcharge. The builders pleaded that they supposed the item in the schedule related to a foot-rate. They also counterclaimed a sum of about 18l. for extras, errors in measurement, &c. Sheriff THOMPSON, who heard the case, came to the conclusion that the building owners had nothing to do with the error, that they accepted the builders' tender without knowing of the error and without fraud on their part, and finally that the builders were bound by the contract. The counterclaim was set aside, and judgment given for the full amount overpaid.

THE report of Mr. GOLDSTRAW, the building surveyor, shows that whatever may be the state of trade in Liverpool a great number of buildings were erected during the past year. The new dwellings number 2,174, the larger number being in the West Derby district. The number of workshops, stables and minor buildings was 110, besides forty-one public buildings and manufactories. Efforts were made to have means of escape from fire provided. There are many buildings which at present the Corporation cannot interfere with. But the Home Office is now conducting an inquiry on the subject. Means of egress from public buildings is another subject which has engaged attention. It was necessary to take down 293 houses on account of dilapidations; of these 111 were demolished owing to the action of the housing committee. Out of 1,158 plans which were submitted only ninety-nine were disapproved.

LANDSCAPE IN MURAL DECORATION.

THERE was reason for the complaint of Mr. ALFRED EAST that landscape art had been neglected by architects as a medium for mural decoration. In the paper which he read last week before the Institute he said that his art was kept strictly in the background. He could have added that almost from the beginning of the history of architecture the advantages which paintings of scenery offered were unrecognised. Indeed, modern architects might set up as an excuse the plea that they had been strictly following the advice of the great lawgiver VITRUVIUS. In his time an artist named LUDIUS introduced the fashion of ornamenting rooms in Roman houses with landscapes, seascapes, forest scenes and still life. VITRUVIUS bewailed the change, because, as he affirmed, the subjects for wall-paintings had been always derived from the history of gods and heroes, and he feared the grand style was at an end.

The lament of VITRUVIUS shows the extraordinary influence which custom can exercise over clever men. He gave no reason for the preference in an architectural sense of mythological legends. No doubt in temples subjects of the kind might be apposite. In the public buildings of Rome it would also be fitting to have representations of historical incidents connected with the city or of the myths which suggested that some divinities were desirous of its prosperity. But there could be no æsthetic canon against the employment of landscapes in other buildings, for they would be more easily adapted to fill wall spaces than figure-pieces.

The Romans no doubt imitated the example of the Greeks; but the circumstances which caused figure-subjects to be preferred in Greece did not prevail in Rome. The early Greek paintings were executed in conventional colours which were prescribed, and that system was adhered to during a long period. Custom prevented the critics from observing the unnaturalness of painting a man or a woman with vermilion. But a system of that kind would appear ridiculous if applied to landscape, although some Roman examples denote that the colours of the landscape were occasionally subordinated to the colour of the wall. There is no doubt that landscape-paintings for wall-decoration were sometimes produced, although the landscape was made subservient to the figures. This is evident from the descriptions by PHILOSTRATUS. He mentions a painting of the Nile in which children and other attributes were introduced, an arrangement which recalls the famous group in marble. Of other pictures there is enough related to suggest that some of the characteristics of land and sea were represented.

We should remember that the Greeks, with all their susceptibility, do not appear to have given much attention to the beauty of nature. To the artist, man was the measure of all things; and the Greek legends offered innumerable opportunities for presenting figures of men and women in groups that would add to their interest. Sculpture, however, obtained precedence over painting as a medium for the display of beauty and power. As a consequence, perspective was neglected. It was therefore difficult to represent landscape in a way that would recall an actual scene. It is always much easier to describe a view than to paint one. But neither in the prose nor poetry of the Greeks do we find any recognition of the picturesqueness of Greek scenery. Splendid opportunities were offered, as in the "Prometheus," to describe a wild mountain region, but the dramatist was unable to take advantage of them. It is possible that the Greek mind, with the instinct for order, regularity and symmetry, could not appreciate such scenery as would be essential to the imaginary Caucasus, where PROMETHEUS was bound. The Greek looked on land with the eyes of a farmer, and cared only for its fertility.

Men, however, are compelled, in spite of themselves, to change their opinions about life and nature. A comparison of the "Iliad" and the "Odyssey" with the

"Eclogues" and the "Georgics" will show how different the world appeared to the Roman and to the Greek poet. VIRGIL evidently was able to realise the importance of the earth for much else besides produce, and it is obvious he enjoyed its beauty, and could happily in the country away from the capital. Nature is remarkable, although critics do not seem to have noticed the fact, that VIRGIL was a contemporary of LUDIUS, the landscapist, and we thus find a like manifestation in contemporary poetry and painting. It is also possible that in spite of the opposition of conservatives like VITRUVIUS more landscapes were produced by Græco-Roman artists than is generally known. A few of the works of that period have escaped, and are figure-pieces. The barbarians would be likely to prefer them to pictures of scenery.

With the Christian era it could not be said that man became more enamoured of the earth than in the time of the Greeks. The latter were utilitarians, and looked on land as on a slave, while the Christians found the earth as a place of exile and temptation. The places selected by anchorites were generally deserts where monotony prevailed. What chance had landscape art at such a time? Paintings of vineyards were necessary as expressive of the doctrine, and trees were frequently introduced in church walls between figures of saints in friezes. In the course of time conventional landscapes became usual, and the painting in the Sistine of the *Calling of St. Peter and St. Andrew*, by D. GHIRLANDAJO, shows remarkable powers in treating a varied if conventional background. LORD LEIGHTON considered that the revival of landscape art, or, rather, its re-creation in form beyond anything which existed previously, must be attributed to the influence of a scientific spirit which characterised the Renaissance. He said:—"By the side of this scientific fever the joy in rediscovering nature manifested itself in a new delight in landscape. The summary indication of earth and vegetation which sufficed to the school of Giotto, soon gave place to an almost undisciplined exuberance of treatment. Who does not remember the riot of hill and dale, tree and shrub, of vineyard and pleasure-ground, of men and beasts, in which, on certain walls of the Camposanto of Pisa, GOZZOLI, for instance, celebrated the joyous spectacle of the world? And when to this sense of simple gladness is added the spirit of scientific inquiry which I have spoken, we get such amazing studies of leaf and flower as LEONARDO loved to draw. Through the Tuscan artists the new movement brought the love of nature and the light of science." Whether the credit of being the first to reveal the beauties of nature should be assigned to GOZZOLI, MASOLINI or MASACCIO is a subject of controversy.

TITIAN, we suppose, was the first who can be considered as utilising landscape not merely as a ground to give relief to figures, but as an auxiliary to the subject represented by them. If the trees were removed from the *Peter Martyr* or the picture of the two monks, much of the interest would vanish. He gave a new interest to landscape art. The desire to produce examples was so general in Italy, a factory was started in Antwerp for their manufacture. The Bolognese school entered into competition with the Flemings. Several examples are to be found on the walls of churches and palaces in Italy. Indeed, landscapes occasionally be seen in some of the Belgian churches, and they were probably intended to represent scenes in Palestine.

Although there are far more precedents for the use of figure-paintings in decorating buildings, it does not follow that modern times should be compelled to be bound by them. Why should the province of decoration be restricted because Greek artists were ignorant of perspective? Nature, moreover, is now regarded very differently to what it was either in Classic or Mediæval days. It would not be possible in any Greek or Roman dramatist to find so many admirable descriptions

s of landscapes as we have in SHAKESPEARE'S plays. RON was not afraid to create scenes which are more time than any painted by TITIAN. The history of nature offers no prototype for WORDSWORTH. Land is not alone in representing modern ideas of nature. France has shown some indications of the same kind, although subjected to a perverse, official system. Germany has in some ways gone beyond England, for observation has been impelled by various systems of philosophy to try and pluck the truth out of the mystery which surrounds the earth. France, however, deserves the credit of being more consistent than either England or Germany, for it enjoys views of town and country for decoration as the most important kind.

In this country people are glad to buy landscapes to hang them on their walls, but there is still a large fear of using them as subjects for the decoration of buildings. This is to be partly explained by the facts concerning the necessity of pictorial decoration. Only sixty years have elapsed since the proposal was made for the decoration of the Houses of Parliament with wall-paintings. The committee who had charge of the project were all serious men, and they could not think of anything more fitting than the representation of historical scenes which would instruct the people who looked on them. It might be supposed that books did not exist. The Germans had also about the same time covered big walls with historic scenes, and it was proved we could have no better exemplars. It would be interesting to discover how many of the visitors to the Houses of Parliament have been enlightened or moved by what remains of the wall-paintings. Indeed, with such failures before him, it is courageous of a part of an English figure-painter to advocate his work. It is needless to say that in not one of the paintings was the least attention given to the style of building or the colour of the materials used in the interior, which should be the first thought of an architect who understood his business.

As in the Houses of Parliament, the primary use of decoration is to appeal to children and ignorant people, then we suppose the commonplace representations of incidents deserve to be taken as models. But if decoration is to enhance the interest of a building, and to afford pleasure, then a different class of subject is advisable, and those which can be produced by landscapists should be accepted as eligible. Parisians have done so in their Hôtel de Ville and other public buildings. Some of the panels recall scenes in Paris or in the surrounding district. It is pleasing to the eye to look on a reposeful stretch of country than on a scene of carnage, and a glimpse of green trees, sparkling waters and brilliant sunlight is preferable to the incidents with which the majority of historical painters seem to be enamoured. Then landscape has an adaptability to spaces, however restricted, which is not possible when using figures. It also, as Mr. EAST pointed out, conform to all variations of scale and colour. No doubt custom has made people feel that landscape is unsuitable for decoration. But it should not require many experiments to prove before that conclusion would be altered.

It cannot be expected that in treating landscape for a particular purpose detail is to be expressed, nor is it necessary. General effects are all that is desirable, and the artist works on a grand scale. As HACKERT says, man does not seek in detail for the truth of nature. A landscape is recognisable at a distance without putting one under a microscope. Indeed, it is this quality which makes landscape peculiarly adapted for the purposes of mural decoration. There is, too, the advantage, and it is a great one, that in landscape there is no need to perpetuate lies. Among all the historical paintings in the Houses of Parliament only the two by NELSON and WELLINGTON by MACLISE have claims to be regarded as faithful. The artist took enormous pains to attain accuracy of detail, but experts

say he failed. The other paintings are all imaginary, and therefore deceptive. A building is, or should be, an embodiment of truth. If it were otherwise, it would fall to pieces. It is therefore wrong to have its adornment made up of lies, although supposed to be sanctioned by the name of art. Far better would it be to substitute views which would recall the source of the materials of which the building is constructed.

BUILDING OWNER'S RIGHT TO PLANS.

IT was remarked by counsel in a case which was heard a few days ago that England was a free country, to which the reply of the Judge was, "but, subject to law." The words are applicable to architects, and especially when they refer to the retention of plans which are claimed by a building owner. They, like other men, are free to act, and may refuse to part with their plans, but there is no escaping the law on the subject if it should be put into action. It should be remembered that the law takes no special cognisance of architects either as artists or as members of a profession. Surveyors and builders are supposed to have certain duties to perform, but the office of an architect may be said to be unsupported by any Act of Parliament. In that way they resemble the majority of citizens.

One of the consequences is that when a case arises like *GIBBON v. PEASE*, which was heard before the Court of Appeal on Friday last, there are few precedents for the guidance of the Court. When first heard by Mr. Justice RIDLEY, he came to the conclusion that he was bound to follow the decision in the solitary case of *EBDY v. MCGOWAN*, and decided for the plaintiff. The argument for the defendant on appeal was that the circumstances in *EBDY v. MCGOWAN* differed from those in *GIBBON v. PEASE*. Their lordships, consisting of the Master of the Rolls, Lord Justice MATHEW and Lord Justice COZENS-HARDY, also came to the conclusion that the two cases corresponded, and the appeal was dismissed. The inference must therefore be drawn that a building owner never applied to an architect for plans before Mr. MCGOWAN arose, or that architects did not insist on keeping plans until 1870. It may also be added that very few cases of other kinds are to be found which would throw a direct light on the subject. When it is maintained that an important professional privilege is at stake, and that architects are suffering under a grievance which is intolerable, it must be allowed that the records of the Courts do not bear out either supposition. As there are only two cases of resistance to a demand for plans, it cannot be said that much suffering has been caused.

The leading case of *EBDY v. MCGOWAN*, which is likely to become historical, differed from *GIBBON v. PEASE* inasmuch as the plaintiff was an architect. The defendant had given him a commission to build a vicarage. Plans and specifications were prepared. Before the contractor's work was undertaken, defendant put an end to the plaintiff's employment as architect. He then requested him to send in his account as well as the plans and specifications. Mr. EBDY made out his account, but defendant declined to pay unless he received the plans. There was no agreement about the retention of the plans. At the trial plaintiff gave evidence of the custom that in the event of the employment of an architect being stopped he was entitled not only to payment for the plans but to retain them. Lord Chief Baron KELLY said that if such a custom existed it was not reasonable, and there must be an express stipulation in the contract to that effect in order to make it acceptable in law. According to his lordship, it appeared contrary to reason, good sense, and justice that, in the event of a contract being put an end to, the architect should retain the plans for which he was entitled to be paid. Baron BRAMWELL agreed with the Lord Chief Baron. He said he entertained a very high opinion of architects as a

body. "But he contended that such a usage as had been pleaded was impossible. He described it in rather unusual language as perfectly suicidal, for as soon as it came into being it cut its throat by its own absurdity. Two or three gentlemen might say there was such a usage, but he would like to see the public in the box and hear what they had to say about it. The result was that the defendant obtained judgment in his favour.

The circumstances in *GIBBON v. PEASE* were supposed to be different. The plaintiff claimed the plans prepared for him by the defendant for the conversion of some houses at Bayswater into flats. The work was executed, the architect's fees were paid, and then application was made for the plans and specifications. As they were not given up, an action to recover them was brought, and, as we have already said, the trial came before Mr. Justice RIDLEY. Evidence was given that, according to custom, the plans belonged to the architect. Mr. Justice RIDLEY would not admit the evidence, believing that the case was governed by *EBDY v. MCGOWAN*.

When notice of appeal is given after a trial it is generally on the ground that there are other judgments which support a view different from that taken in the case in question. But there is only one to rely on in respect to the ownership of plans. It was, we suppose, contemplated to create a new precedent which would override *EBDY v. MCGOWAN*. It might easily have been realised that, according to the principles of English law, when an architect receives money for the preparation of documents those documents correspond to other material products and belong to whoever paid for them. Under certain circumstances it may be possible to erect a building without plans. According to Sir GEORGE BIRDWOOD, that appears to be a custom in some parts of India. It may also be possible, as was exemplified in *KIMBERLEY v. DICK*, to prepare plans and enter into a contract for a building of a very different kind to that which was executed. But under ordinary circumstances drawings are essential for the carrying out of a contract, and the Courts must look on them in the same way as they would on the signatures of witnesses or on the affixing of proper stamps to a deed. Drawings and specifications are the grounds and data upon which the contract is usually founded. The drawings are therefore material things and not metaphysical abstractions.

The appeal in *GIBBON v. PEASE* was brought under the auspices of the Royal Institute of British Architects. That body, we suppose, inspired the plea adopted by counsel that a building owner was entitled to the benefit of the lines upon the plans, but that he had no claim on the sheets of double-elephant on which the lines were drawn. So refined an argument was worthy of the Academy of Laputa. It was also said that an architect was entitled to make use of his plans for other clients. That was, perhaps, the more amusing argument of the two. Does the Institute wish the public to imagine that plans or other documents which bear signatures of various kinds can be made the basis of a different contract with other signatures, and that such documents might on all occasions be presented in Court if there were lawsuits? Or was it a revelation that architects are disposed to repeat their designs without any alteration? The truth is, the appeal stood on grounds which were without strength, and it is no wonder their lordships did not call upon counsel for the plaintiff to reply to the novel arguments.

As might have been anticipated, their lordships had to rely on *EBDY v. MCGOWAN* because there was no other case available for that purpose. The Court of Exchequer had decided that even if the custom existed it was unreasonable, and that if plans are to be retained by the architect there must be an express stipulation between the parties to that effect. The Court of Appeal on Friday considered that if custom was bad in one instance it must be equally bad in the other, and the appeal was promptly dismissed.

It is remarkable that in both cases no damage could be proved as likely to arise to an architect by sur-

rendering plans to his client. Nor was it stated either of the building owners would gain any advantage from the possession of them. The litigation in cases was somewhat academic, and might have been carried on by JOHN DOE and RICHARD ROE if they were allowed to survive. Lord Justice COZENS-HARDY introduced the question of a possibility of damage to a party when he asked was a building owner who was in some difficulty about his drains or flues obliged to enter into a new contract with his architect in order to retain the position of those conduits? Hitherto a majority of building owners have been indifferent to plans. Perhaps they could not understand them, but must now be expected that they will take the suggestion from his lordship. Plans are likely to be regarded as a convenience, and possession of them demanded by architects. It will therefore be evident that no gain has been derived from the proceedings except a further demonstration of the position of architects. What, worse, the public who read the reports of the case, might conclude that architects are unreasonable and refuse to accede to the just requests of their clients. Under the circumstances, and especially after the remarks of Lord Justice COZENS-HARDY, it will not be wise to stipulate that a building owner has no claim upon the plans if it might be interpreted as an endeavour to evade the law of the land.

NATIONAL GALLERY.

ACCORDING to the report of the Director of the National Gallery the pictures purchased during the year were:—"Portrait of a Lady," by Bartholomew Van Helst; "Portrait of His Father," by Albrecht Dürer; "Portrait said to be of Ariosto," by Titian; "Portrait of the Actor," by William Hogarth; "The Virgin and Child with Saints," French school, fifteenth century.

Mr. George Gilbert bequeathed four works by the Sir George Gilbert, R.A., viz. "Old Gravel Pit in Green Park," "Bringing up the Guns," "Cardinal Wolsey and Duke of Buckingham," "The Happiest Land."

Sir Henry Thompson bequeathed his "Portrait," by J. E. Millais, Bart., P.R.A.

Other gifts were:—"Portrait of Paul Sandby, R.A., Francis Cotes, R.A.; "Outward Bound," by Sir Edwin Poynter, Bart., P.R.A.; "Landscape, Holmwood, Dorset," by Samuel Bough; "Kept in School," by George Leighton, R.A.; "Portraits of King William IV. and Queen Adelaide (a sketch), by Sir David Wilkie, R.A.; three ivory models used by Sir Francis Chantrey, R.A.; "Portrait of Peral," by Francisco José de Goya y Lucientes; "Portrait of Group of Mr. and Mrs. Edwards," by Henri Fantin-Latour; "Bust Portrait of G. F. Watts, R.A., O.M." by A. Gilchrist, R.A.; "A Reclining Nymph," by Sir Francis Chantrey, R.A.

The three following works of art were purchased for the National Gallery by the President and Council of the Royal Academy of Arts under the terms of the Chantrey Bequest:—"St. Silvestro," by Henry A. Pegram, A.R.A.; "London River," by C. Napier Hemy, A.R.A.; "Fate," by Arthur Wardle, A.R.A.

The two following pictures from the Chantrey Collection have, with the sanction of His Majesty's Treasury, been temporarily lent to the following institutions, in pursuance of a custom initiated by the Royal Academy, in response to a general desire that they might be seen in the provinces before being finally housed in the National Gallery of British Art:—"London River," by C. Napier Hemy, A.R.A., to the City of Liverpool Walker Art Gallery; "Fate," by Arthur Wardle, to the Royal Birmingham Society of Artists.

The portrait of Mr. Herbert Spencer, by H. Herkness, R.A., which was lent to the National Gallery in 1898, transferred in January last from the National Gallery of British Art to the National Portrait Gallery.

"The Yeoman of the Guard," by Sir J. E. Millais, Bart., P.R.A., has been transferred from the National Gallery of British Art, Trafalgar Square, to the National Gallery of British Art, Millbank.

The Gallery in Trafalgar Square was visited by 463 persons on the free days during the year, showing an average attendance on such days (210 in number) of 2. In addition to the above number, 33,128 persons visited

Gallery on the thirty-one Sunday afternoons on which it was opened during 1904, showing a daily average attendance of 1,068. On students' days (Thursdays and Fridays) 43,846 persons were admitted between January 1 and December 31, 1904; the admission fees (at 6d. each) amounting to 1,096l. 3s., as compared with 1,154l. 9s. received in 1903. The National Gallery of British Art, at Millbank, has been visited by 187,899 persons on the free days during the year, showing a daily average attendance on such days (210 in number) of 894. In addition to the above number 32,363 persons visited the Gallery on the thirty-one Sunday afternoons on which it was opened during 1904, showing a daily average attendance of 1,043. On students' days (Tuesdays and Wednesdays) 31,937 persons were admitted between January 1 and December 31, 1904; the admission fees amounting to 798l. 8s. 6d., as compared with 849l. 9s. received in 1903.

Copying Pictures in the Galleries.

The total number of students' attendances at the Gallery in Trafalgar Square on Thursdays and Fridays throughout the year was 15,489. Independently of partial studies, 675 oil-colour copies of pictures have been made, viz. 393 from the works of eighty-eight old masters and 282 from the works of twenty-two modern painters. The total number of students' attendances at the Gallery of British Art on Tuesdays and Wednesdays throughout the year was 7,732, and 288 completed copies of the pictures have been made in oil-colours and eighty-seven in water-colours and sixteen in pastel.

The most expensive addition is the Portrait of Ariosto, which cost 30,000l., and is thus described:—The portrait is of a man about thirty years of age with a golden brown complexion, long dark brown hair and a brown beard. The face is in three-quarter view, looking out of the picture with a somewhat scornful expression. His right shoulder is turned to the front of the picture with the arm resting on a parapet of a dark colour. He is dressed in a grey satin doublet, of which the large quilted and slashed sleeve is a conspicuous feature. Above the doublet is seen the edge of a pleated shirt, which leaves the neck and upper part of the shoulder bare, and is crossed by a thin gold chain. Part of a black fur mantle is seen on the further side of the figure and is held in the right hand, which is just visible in the shadow. The whole is relieved against a grey background of a warmer tint than the grey satin. On the parapet is the signature TITIANVS V., with another v at the further end of the parapet. This picture is supposed by Rowe and Cavalcaselle ("Life of Titian," vol. i. p. 198) to be the same as was in the Lopez Collection in the time of Charles I., and perhaps the lost original sent from Ferrara to Virginio Ariosto at Padua in 1554. On canvas, feet 7½ inches high by 2 feet 1½ inches wide.

INDIAN CRAFTSMEN.

A COMMUNICATION from Sir George Birdwood appears in the Journal of the Society of Arts containing further remarks relating to Mr. Hankin's paper on Mohammedan art:—"In expressing my personal opinion that Mr. Hankin pushed his ingenious theory too far, I stated that while in India I had employed all classes of craftsmen under my own eyes, and that on whatever work I employed them they never used any kind of design whatever. The designs in jewellers' books were mere advertisements for the attraction of Europeans, and never worked from. It was fatal to success to tell Indian craftsmen to work from a previous masterpiece of their own if you told them to produce it exactly, for in duplicating it with mechanical exactitude they destroyed all its artistry—the beauty and the life the artist's thought and sleight had given to it. The only way to possess yourself of your desire was to say:—'May God help you to devise another thing of beauty [sparkling, dancing, or prancing thing] like this you had for me before, of the same weight and size, and equally alive and exquisite [sparkling, &c., over again], and equally to my delight and your honour; and you know I shall not haggle over the price.' When you get all you desire, and better. It was always in that way I consulted and dealt with these craftsmen. I would never accept trash, and, without any bargaining, I always paid in cash; and for myself and friends I always secured the best 'Sidonia wares' of my

day in Bombay. Never haggle about prices and you will always get the best value for money in India, as well as everywhere else in the world. The ivory and wood-carvers would execute the most intricate "arabesque" designs in wood and ivory, not only without a trace of geometrical, or even mechanical planning, but seated on the floor, crumpled up on their haunches, and using their knees as the only support of the strip of ivory or wood they held with the left hand and worked with the right. They would work on like that all day, with no more thought of the geometry or the anatomy of ornament than have the bees in moulding their wonderful hexagonal cells by the rotation of their little heads. All the time I was in India I never saw a "template" or a stencil of any kind used; and I said at Mr. Hankin's lecture that I was sure he had not and he at once acknowledged that he had not. I was observant also of a great deal of house building in Bombay, nearly all of European design and under European superintendence. The only exception was a little mosque in the north-east quarter of the island, near the sea-shore, under Chinchpoo Hill. It was built by a small body of stonemasons, and from first to last not only without a draughted plan, but without measurements. I have often cited the case in opposition to my distinguished friend Sir Caspar Purdon-Clarke's contention that no one could build a house without a plan. I was officiously with these masons daily, and only occasionally would they have an aside consultation over some hitch in the construction, or some point of decoration—which was nearly all in the proportion of the construction—and then they would trace out their casual "plannings" in the dust on the ground, and with their forefingers, or I would help them with my walking-stick. I do not know how it is done—by instinct, by rote, or by divine inspiration (*i.e.* genius). I only know that the thought of "Glory to God" works wonders by the hands of these men, Hindus and Muslims, and that honest payment, as God's blessing on their work, fills them with devout gratitude and enthusiastic gratification in it.

VENTILATION OF THE HOUSE OF COMMONS.

THE following are the recommendations offered in the report of Dr. M. H. Gordon for improving the ventilation of the House of Commons:—

With regard to the Inlet at the Terrace.

There can be no doubt that the present air intake would be improved by raising the inlet a few feet and at the same time widening it. The difficulty, however, is to do this without interfering with the appearance of the building. A systematic survey of the structure of the building at this point might, perhaps, lead to the discovery of some way in which these ends could be attained without unduly interfering with the façade. If it could be done, a good plan would be to draw the air in through some opening already existing above the level of the terrace. In any case traffic over the north inlet should be abolished.

In view of Dr. Hurtley's observations, I would recommend that the fine spray at present in occasional use for moistening the air at the inlet should always be employed in the future for the purpose of purifying the air passing through the airway.

With regard to the Airway between the Terrace and the Equalising Chamber.

Owing to the fact that the fan which draws in the air from the terrace is separated from the inlet by a distance of about 100 feet of airway, and also owing to the resistance to the inflow of air offered by the comparatively small size of the present inlet, there is a great tendency for air in the basement and engine-rooms which abut on the airway in this interval to be drawn into the air-stream passing to the debating chamber. The air in the engine-rooms and basement contiguous to the airway in question is, in my experience, somewhat "stuffy;" at any rate it is undesirable that any of this engine-room air should be drawn into the airway and passed to the debating chamber. There are three wooden doors into the airway between the fan and the inlet. One of these doors gives access to the airway from the basement under the central hall, the others are situated on either side of the airway near the inlet. The door giving access from the basement under the central hall is a double one contrived on the principle of a river lock. No special means are in use to make these two doors airtight. The

other two doors, one on each side of the airway near the inlet, are also not airtight. Moreover, when the House is sitting, and a stream of fresh air is being drawn by the fan along the airway towards the debating chamber, occasionally one of these doors near the inlet is opened for the purpose of passing a policeman or perhaps a workman across the airway. Though traffic in this sense is infrequent, every time the doors open air from the basement and engine-rooms must needs be drawn into the air stream and forwarded to the debating chamber.

I am of opinion that all three of these doors should be airtight or at least should be made absolutely airtight. In any case no one, policeman or other, should be allowed to pass across the airway when the House is sitting.

If it be determined that the doors that are in question be made as airtight as possible, their imperviousness to air should, when this is believed to have been accomplished, be proved when the House is not sitting by generating hydrogen sulphide gas on that side of them in each instance without the airway, for the purpose of testing by the sense of smell whether or not the gas thus generated can find entrance within the airway. The smoke test could be used as well, but hydrogen sulphide is far the more delicate test, and therefore the more trustworthy.

The need for imperviousness of the airway between fan and inlet is increased now that the fan power is greater. On the other hand, the outward leaks located between the fan and the equalising chamber are of less importance than when the fan power was less.

With regard to the Debating Chamber.

I would recommend that shallow pans of water should be suspended in the battery chamber over the heating apparatus in order that the increased avidity for moisture that air obtains through its temperature being raised should be satisfied. The pans and water should be kept absolutely clean, and should be examined as a matter of routine every day before the ventilation is started.

Possibly wet mats suspended in the battery chamber may be found useful for moistening the air. It would also be an advantage to use warm water for moistening the air. The question of these and other details, however, can only be decided by experiment upon the spot.

After the air has been warmed and moistened, means should be taken for insuring the uniformity in these respects of all the air passed upwards into the various parts of the debating chamber.

That all steam pipes passing through the airway between the inlet and the floor of the debating chamber be covered with asbestos or suitable composition, so that these irregular sources of increased temperature should be isolated from the air as much as possible. There is a steam pipe in the cotton-wool filter under the Speaker's chair, another in the equalising chamber going to the Treasury bench, and in the battery chamber under the Government side of the debating chamber and over the Commons' pipe vault are a number of steam pipes. All of these steam pipes should be screened from the air as much as possible.

That by means of numerous hygrometers the humidity of the air and its capacity for absorbing moisture* should be observed and controlled throughout the equalising chamber, debating chamber and division lobbies as regularly and systematically as the temperature now is. It is of great importance to have a large number of hygrometers in use and to observe them frequently. Further, it is as important to prevent the air of the debating chamber becoming too damp as it is to prevent its being too dry.

That, with view to diminishing the liability of the air of the debating chamber to be polluted by material continually being brought in upon members' boots, a tray be, as a makeshift arrangement, placed beneath the grating of the centre gangway between the bar and the lobby door under the clock. This tray should be in close apposition to the grating so as to prevent particles of dirt being carried up by the air currents. An alternative plan, also makeshift, would be to place a movable metal plate over the top of the grating and under the present matting. The exact spot should be determined on by observing where the traffic at this point is most active during use of the chamber. Whatever remedy is temporarily adopted here might also be applied behind the Speaker's chair and perhaps under the side gangways.

It may be added that a considerable amount of dirt falls

through the floor of the division lobby between the entrance to the debating chamber from the Commons' lobby, and the folding door under the clock of the debating chamber.

It is necessary to insist that any arrangement such as is above indicated should be regarded as temporary only: it would necessarily operate to diminish the area of air entry. As, however, there is reason to think that in order to remedy the faults in the present distribution of the incoming air through the floor it will be necessary to increase the resistance to the up-flow of air through the gangways, it is possible that the prevention of pollution of the air from material brought in upon members' boots, and also the prevention of air-waste, may be combined in the same remedial measure. But before the exact form of that remedy can be arrived at, it is first necessary to carry out an investigation of the present distribution of the air over the floor area.

While there cannot be any doubt that so far as the gaseous products of respiration are concerned the upward system of ventilation as in use in the debating chamber at the present time is not open to objection, it is equally clear from the results of this investigation that so far as particulate contamination by material given off in the breath is concerned, the existing upward system cannot do away with it.

Several new buildings are now being supplied with downward ventilation. Unbiased and detailed evidence of the value or otherwise of this system is not available, but an investigation on lines such as I have adopted could be made, and useful, perhaps valuable, information obtained. I venture to submit that, in view of the unsatisfactory results of the present conditions at the debating chamber, some better means of dealing with the particulate contamination to which the air is continually subjected during debates is desirable, and that such better means should be sought diligently.

That the distribution of the incoming air through the floor of the debating chamber be determined in detail and that measures be taken for insuring that the air is directed equably to the parts where it is required.

I may here add that from Dr. Boswell Reid's book on ventilation, a copy of which I have only recently been able to obtain as it has long been out of print, it is quite plain that he designed the present equalising chamber of the House of Commons "that local currents, otherwise apt to form unequal eddies, might be broken and terminate in a uniform supply to every part of the floor."

Dr. Reid used hair matting on the floor of the debating chamber in order to increase the diffusion of the air passing up through perforations in the floor. The hair matting he caused to be changed daily. It is worthy of serious consideration whether this hair matting used by the designer, and evidently in his mind when he designed the present system, should not replace the present string matting. Besides increasing diffusion of the upgoing air, another advantage the hair matting has is that it permits of being sterilised by steam. The present string matting is liable to injury by steam, and therefore it is only formalinised—a disinfection process that kills some, but by no means all, micro-organisms. Steam, on the other hand, as applied in a modern steriliser, kills all micro-organisms at a single exposure. An instance of the relative value of the two processes is seen in the fact that anthrax spores escape when subjected to the action of formalin vapour,* but are killed by steam.

I would recommend that a more effectual withdrawal of air be obtained at the end of the ceiling over the Speaker's chair and ladies' gallery, and that whatever the means adopted for securing uniformity of withdrawal from the chamber, anemometer tests be made to prove its efficacy.

I would suggest that the ventilating men when on duty between the inlet and the floor of the debating chamber wear clean white linen or drill, &c., clothes or overalls, and that before coming on duty they change their boots or wear felt slippers. The latter would have the advantage of making their tread noiseless. The white clothes should, of course, be washed frequently on a routine system, and at the same time the felt slippers might be sterilised by steam.

These precautions are taken to prevent particulate pollution of the air of operation-rooms. There is no reason, therefore, why they should not be employed with the same object elsewhere.

For maintaining the uniform efficiency of the ventilation it is desirable to have a continuous record of its most important features. This is at present carried out up to a

* These two qualities of the air should not be confused. A cubic foot of air containing 75 to 76 per cent. of humidity absorbs, at 40 degs. F., .7 grain of water, but at 80 degs. F. 2.7 grains.

* Report to the London County Council on disinfection by Drs. Klein, Houston and Gordon, 1902.

certain point, but the record is not complete enough. I would strongly recommend that blank forms of charts be printed, and that on these charts should be recorded in continuous curves the temperature, the relative humidity and the evaporative power of the air in the equalising chamber, debating chamber and division lobbies respectively. The quantity of air passing into different parts of the debating chamber and out at different parts of the ceiling should also be constantly observed and recorded, and for this purpose some graduated form of static anemometer that could be fixed, for instance, on the gratings in the equalising chamber, and some form of self-recording anemometer in other parts of the air courses are needed. It is only by controlling all these features scrupulously and continuously that the desired end can be secured.

Force is added to the above suggestion from the fact that, since it was written, I have obtained the copy of Dr. Reid's book to which reference has already been made, and on page 328 he gives the elaborate printed form which was used at the House of Commons when he had charge of the ventilation. It is interesting to note that the velocity of the air was observed, as well as the temperature and other points. The scrutiny of all features of the ventilation was so elaborate that in some cases, where debates had been continued for a long period, he made, with advantage, from 50 to 100 variations in the quantity or quality of the air supplied in a single night. Dr. Reid's success in ventilating the House of Commons is beyond doubt, as the following statement of his contemporary Arnott shows:— "Until the late House of Commons existed as ventilated by Dr. Reid, there was never in the world a room in which 600 persons or more could sit for ten hours in the day, and day after day for long periods not only with perfect security to health, but with singular comfort."

Finally I venture to ask your lordship to regard these recommendations and suggestions as the outcome of an investigation which, though as detailed as I could make it in the time at my disposal, has not covered the whole ground. Although the ventilation of the debating chamber of the House of Commons has taken 250 years to reach its present stage, it could, in my opinion, be much improved even in the present building with systematic and continual study. I have merely indicated what constitute, I believe, the chief lines along which this improvement may be obtained, and the vigour, comfort and health of members advanced so far as the air of the debating chamber is concerned.

WHAT IS ART?

THE annual exhibition of the Dundee Art Society was opened in the Albert Institute by Mr. Pittendrigh Macgillivray, R.S.A., who delivered an address on the subject, "What is Art?"

Mr. Macgillivray, in the course of his address, according to the *Scotsman*, said:—I would ask you to consider most works of art, in either music, sculpture, painting or poetry, as serious human documents—efforts at the expression of things indefinable and in the only language possible to them. Serious works of art we confront, so to speak, a window into the mind of the artist and a mirror wherein to study our own soul. The old saying which defined the duty of the artist to be the holding of a mirror up to nature is not to be taken literally. We do not take the artist to be a person with a glass eye, like a photographer's camera—being, with an inhuman lack of personal prejudice and living interest, one thing to be as good as another, and nothing to be of passionate importance. It would almost seem unnecessary to say, did not the walls of every exhibition show the necessity, that a work of art is not a reproduction of any material object. Nature in art is not the vehicle, like words in language, whereby emotion expresses itself. There is, perhaps, nothing in the practice of art I, as a workman, am so much impressed by as the uselessness and fruitlessness of trying to reproduce or imitate natural forms and surfaces. It might for me almost be set down as an axiom that the nearer a statue is to the actual nature in its execution—the more a picture has of photographic accuracy and deceptive presentment—there is the further remove from a work of art. In brief, that which is realised is past and dead. Besides the presence of the unique eye and dead hand of materialism which is to be met with in the art world, there are other less obvious and more debatable factors—side issues, I deem, from the high way of art's purpose. These may be defined in painting as colour, atmosphere, design and incident, or story-telling. A, no doubt, in some indefinable way go to the making of

a great picture, but the side issue, to which I have referred, consists in this: that each factor has a body of exponents who will scarce consider the others in the making of a picture. There is, for instance, the Whistler faction, whose special shibboleth is that blessed word atmosphere. If only the picture have atmosphere and all the objects in it be within their proper envelope, much will be forgiven. The subject may be old factories and smoke stalks, yet shall they pass, in the mystery of atmosphere and the language of the master, for palaces and haunts of beauty. Granted the proper veil, the residue of the sordid and ugly becomes metamorphosed into the quality of beauty. But this metamorphosis, the master has wisely added, is for the artist only, alas! Then we have colour men. They don't mind about atmosphere; tone by balance of colour is more in their line. They see things with kaleidoscopic vision, and sometimes produce pictures in such a patchwork of colours as to be unintelligible save from the Eastern carpet point of view. Personally, I think the ideal aimed at in this case is much to be preferred when it takes the form of a Persian or Bokhara carpet. Colour without sufficient intellect of form is like sweet sounds without that measure of time which creates order and music. We find another group of artists who are fascinated by the play of lines and shapes. They overstep the balance with a love of decorative forms, and so long as these have a certain quality of rhyme and rhythm akin to music, other matters of deeper meaning, may go by default. The tendency in this direction is to become formal and ornamental—to generalise and become abstract at the expense of that individual or personal quality which is the real interest of one self in another. Lastly, we have the pictures of the incident painter or story-teller, who is so intent upon the literary aspect of his subject that the factors of artistic fitness and beauty go past him unheeded. As an artist he is something of a hybrid, and might with advantage be recommended to take the veil of atmosphere and pray to the genius of Whistler. The purpose of art is not, I think, to be a mere decorative embroidery on the hem of the garment of life. It is not the toy of an idle hour, although much done under the name might lead us to such a conclusion. The fine arts are, I believe, our highest educational forces, for they appeal to, and deal with, our spiritual being, which after all is the only element worth considering and continuing for. From this point of view no work undertaken in the neutral, mechanical manner of reflex action—no work of the artist which is not illumined by that manifestation of the spirit we call imagination—can avail. A true work of art must be the symbol and tally of a noble and ennobling state of the emotions on part of its creator. It must embody expression of his highest aspiration in the matter dealt with, and, in proportion as it is sincere, true and vital, it will move others to an equivalent condition perhaps for the first time, and so be a means of spiritual development. It should be a matter of religious faith on part of the artist-poet, painter, sculptor, or musician, that he, according to his gift, can add to the wealth of spiritual life and be strengthened and enriched himself in so doing. A great work of art may be defined as a beautiful act of worship, and of the arts in their range it may be said that they enable us to see and hear, think and feel, through sympathy, something of the subtle, indefinable things that move that whole of which each of us is but a unit. I shall hear about the foolishness of the didactic in art, and probably I shall be able to agree. I do not advocate parables in paint, or any other kind of subject matter in pictures or sculpture requiring language in explanation, nor do I sympathise with the morbid nightmares of sexual decadence which in some regions pass muster for poetry and soul in art. The right thing is clean and healthy, and tends to vigour and sweetness of life and mind—to spiritual illumination, not moral decrepitude. Again, What is art? Who shall say? Is it perhaps an effort of the spirit towards reincarnation? In some way the spending of life in the creation of art makes for the profit of self-perfection and the perpetuation of personal force, and long, long after the artist has ceased from his pain and travail—long after his body has disappeared, and the eyes and hands that saw and shaped a mystery of beauty have been lost in the general dust, the reincarnation of the best of him continues in us, to awake emotions that increase our spiritual stature. After twenty-four centuries the soul of Phidias lives, and like a vestige clings to those half-ruined symbols which survive from his hand, and with a vitality which makes of the Parthenon room in the British Museum a Mecca whereto all sculptors irresistibly tend in homage.

NOTES AND COMMENTS.

ALL the Proprietors of the London Institution are not satisfied with the prospect of amalgamation with the Society of Arts. The dissentients prefer that the property should in some way continue to be associated with the City of London. Lord AVEBURY proposes that a building or a group of buildings resembling Burlington House should be established for the members of the London Institution, the Society of Arts, the Royal Society of Literature, the Authors' Society, the Irish, Anglo-Russian, Elizabethan and other literary societies, the Harleian Society, and all similar institutions. The building could be accepted, his Lordship considers, as a memorial of WILLIAM SHAKESPEARE, whose statue might be set up in the common hall. In that case an opportunity would be presented for the erection of a building that would worthily represent the architecture of the twentieth century.

LOCAL authorities seem to be desirous to erect cottages for the working classes instead of large blocks of model dwellings. If they all resemble the Guildford Town Council, architects are not likely to become millionaires by the premiums which are offered. The Council are desirous of erecting twenty-four or twenty-five cottages, each having three rooms upstairs, a large living-room and scullery. For the best set of plans, specification and estimate a sum of 20*l.* is to be awarded. The Corporation do not bind themselves to engage the successful architect, but if he is engaged to supervise the work the 20*l.* will be considered as part payment of his charges. But if the architect's estimate is exceeded by more than 5 per cent. in the tenders, the premium will not be paid. The offer seemed to be so munificent there was a long debate before it could be decided what architects were to have the chance of participating in the reward. One member wished that the competition should be unrestricted. The Mayor considered it should be confined to local architects. Another member generously proposed the competition should be open to architects living within a radius of thirty miles. Eventually it was decided to give the Guildford architects the monopoly. As the chairman of the committee anticipates that the new cottages will not increase the architectural beauty of the town, we suppose architects in other parts of England will not envy their brethren in Guildford.

THE late Mr. GEORGE HENDERSON, who died on Friday last, was an architect whose practice was important, although, like representatives of the old school, his name was unknown to the majority of people. He was a son of Mr. JOHN HENDERSON, who was also an architect. He began practice in Australia. On his return to Scotland he entered into partnership with Mr. HAY. Among the works with which he was associated were, according to the *Scotsman*, the restoration of St. Giles's Cathedral, St. Mary's Cathedral, Old Coats House, Trinity College, Glenalmond; Hirsell and Douglas Castle, additions to Bowland House, additions to Colliston Castle. For Dr. WILLIAM CHAMBERS he restored the tower of the ancient church of St. Andrew at Peebles. At Galashiels he built St. Paul's parish church and the free library. The parish church at Distington, in Cumberland, with the schools adjoining, was also his work. Under his care the nave of the beautiful St. Mary's Church, Haddington, was restored. The parish church of Craiglockhart, near Edinburgh was his work, along with the tower added to it by Sir OLIVER RIDDELL. Mr. HENDERSON was also employed for buildings of importance in Canada and other colonies. The cathedral at Bermuda, in the West Indies, now nearly finished, was designed and built by him, as was also the residence of the Governor of that colony. At the time of his death Mr. HENDERSON had just completed the extension of the nave, with the

addition of a side chapel, to the interesting building of St. Paul's Episcopal Church, Carrubber's Close, Edinburgh. He was also engaged in the restoration of the ancient parish church of Corstorphine.

ILLUSTRATIONS.

CALEDONIAN STATION HOTEL, EDINBURGH.

CATHEDRAL SERIES.—ST. ASAPH: SOUTH AISLE FROM WEST END, LOOKING N.E.

YORK CITY AND COUNTY BANK, SHEFFIELD.

OLD FARM-BUILDINGS AT SAINT-GERMAIN DE LIVET, CALVADOS.

IN the valley of the Touques, some miles from Lisieux, lies an old moated manor-house, and near it the farm-buildings shown in Mr. HAIG's sketch. The mansion is in the form of a quadrangle, three sides of which, with their round corner towers, date apparently from the sixteenth century, and the fourth, a plain late Gothic building, from the fifteenth. The later Renaissance part of the work is, as to its lower portion, faced with alternate light and dark squares, like a chessboard, the light squares stone and the dark brick, with a greenish glaze; and as to its upper part, stone, enriched with small niches and delicate mouldings, and sparsely pierced with square-headed windows. The gateway is of rather good sixteenth-century work, and the courtyard, arcaded on one side, is partly and rather flimsily restored. The older portion of the building is of stone, and buttressed as to its lower and half-timbered as to its upper part, and from the outside more picturesque than the Renaissance portion. The water of the moat of course adds a great charm to this old *manoir*, as it does to similar structures in England. The farm-buildings are separated from the house by the moat, and present a pleasant picture seen from the little wooden bridge with the water in the foreground.

CATHEDRAL OF OVIEDO, SPAIN.

THE rebuilding of this cathedral was commenced in 1301 with the chapter-house (east side of present cloister). In 1345 an impulse was given to the completion of the cloisters by a visit from ALFONSO XI. The church was begun in the episcopate of Bishop GUTIERREZ DE TOLEDO (1376-89), continued through the fifteenth century, and brought to completion in the time of CRISTOBAL DE ROJAS (1546-56). The spire was added in 1575. The south tower is the open porch of the south aisle. It has a large turret at the south-east angle and large double buttresses at the others. Traceried windows surmounted by ogee-crocketed and finialled labels occupy the three stages above the great lower arches, and a boldly projected gallery with openwork parapet terminates the tower proper. The next stage is somewhat smaller than that below the gallery. Each of the circular turrets at the angles has a spirelet. There are a couple of crocketed pinnacles on each side between the turrets. Another openwork parapet crowns this midway stage—part tower, part spire—and makes the transition easy to the openwork spire, octagonal on plan, crocketed at the angles, which reaches the total height of 269 feet (English). From the south the outlines and the not too elaborate piercings of the rich yellow sandstone spire are well defined by the intensely blue sky, the great mass of the Sierra-de-Naranco forming the background to church and tower. Altogether this is one of the best of the pierced spires. The relative heights of tower and spire, the moderate length of the pierced octagon, the transition from the square through an intermediate stage of mixed outlines, the proportion of the tower buttresses and of the pinnacles terminating near the top of the intermediate stage, all seem incapable of improvement. A thorough simplicity is made to result from complexity of idea and detail. The fullest value is given to the height of the tower by the square form being so long continued and so emphatically crowned.

THE ARCHITECTURAL ASSOCIATION.

MEETING of the Association was held on Friday evening last at Tufton Street, Westminster, Mr. E. Dawber, president, in the chair.

On the motion of the President, a vote of condolence sympathy with the family of the late Mr. C. B. Arding passed. Mr. Arding was the oldest member of the Association, having joined in 1848. A second vote of condolence was passed to the family of the late Mr. H. D. Grey.

House List, 1905-6.

The following gentlemen have been nominated for election April 7 to hold office during the next session:—

President—Mr. E. Guy Dawber. Vice-presidents (two elected)—Messrs. J. Murray, Louis Ambler and Peter Cave.

Committee (ten to be elected)—Messrs. R. S. Balfour, J. Clapham, H. Gregory Collins, Alfred Cox, J. B. Fulton, Theodore Fyfe, J. S. Gibson, H. T. Hare, R. P. Jones, Keen, F. Lishman, Geoffrey Lucas, A. Mitchell, H. Moore, W. A. Pite, E. A. Rickards, J. MacLaren Ross, Tatchell, M. E. Webb, R. Douglas Wells and A. J. Wilson.

Hon. Treasurer—Mr. F. Hooper.

Hon. Librarian—Mr. W. A. S. Pettit.

Hon. Secretaries—Messrs. H. Tanner, jun., and A. Lyon Watson.

Hon. Assistant Librarians—Messrs. Edwin Gunn and J. Crickmer.

Sketch Plans and Working Drawings.

Mr. A. NEEDHAM WILSON read the following paper. He

was asking an architect to read a paper on such a subject. It is I venture to think a mistake has been made. The subject should have been dealt with in two separate papers, one from the point of view of the person most interested—“Sketch Plans, by a Client,” and “Working Drawings, by a Designer”—then I think we could have looked forward to a very interesting evening, for I take it that our committee has no intention of arranging for a dissertation on the history and development of draughtsmanship—which has been frequently done—but wished to consider the subject generally. Personally, I hardly think an architect best qualified to lay such a subject before architects, and any attempt at criticism would be altogether beside the mark. Though general broad rules govern our procedure in these matters, there is happily so much individuality shown by practising architects that no one with the smallest sense of decency can well say, “So and so is the right way to prepare working drawings, and such and such is the wrong way.” In an open meeting like this, too, it would be impossible to lay down rules for the guidance of students who are probably being taught better ones elsewhere—rules, which might be contradictory and only lead to confusion. Given a proper basis upon which to work, I hold it is better to allow every student to develop along the lines of his individual fancy rather than he should be hampered by stereotyped methods or cut-and-dried ideas. I think that this wise latitude is being reflected in what we may term the “broad-mindedness” which I think I can find in our architecture of to-day.

Therefore I shall only attempt to deal with my subject in broad lines, and if I talk round it a little bit and utter a few well-worn platitudes, at least I shall hope to avoid being dogmatic.

The practice of architecture involves many trials, many anxieties and many anxieties; but one of its compensations is in the preparation of sketch plans, and, perhaps to a lesser degree, working drawings. And yet even these are their drawbacks. When those first enthusiastic conceptions so brilliantly drawn come back to us mutilated and recognition, and we are bidden to carry out the thing from the poor remains, then we feel this is a sorry world.

If we could not clothe the dry bones of commonplace ideas—other people's ideas and not ours—with some architectural flesh in the working drawings, we should find but little comfort in the bald satisfaction of a client.

It is astonishing how great a sense of gratification may be derived from a good drawing. The dulllest routine work becomes interesting. Even a detail of a rivetted girder can be made attractive in skilful hands. And we can redeem what is dull and monotonous in our labour by the noble pride evidenced in the attempt to do adequate

justice to the architecture by the drawing. That is how I look at it. How the client looks at it is another matter, but how the builder looks at it I soon find out, if my enthusiasm has led me astray from the path of working-drawing veracity.

The consideration of the means by which an architect translates his ideas and conceptions into hard matter-of-fact bricks and mortar must always be of interest to architects if not to anyone else. Working drawings scarcely appeal to the man in the street. He can only judge the architect by his works as evidenced by actual buildings, and too often any appreciation is limited to their utility. Should such utility fit in with the usage of the man in the street he rarely casts a thought to the process by which the building was evolved—scarcely to the building itself. To him it is sufficient that it is there, it grew spontaneously, or developed under the hands of the builder by some intuitive perception of the requirements of the man in the street.

If he be a particularly well-informed man, he will know that some architect has been employed, and if he casts a thought to him at all it will be only to revile him. Occasionally the man dabbles in building, and becoming daring, talks to his nearest friend in an airy way about employing an architect, and in the tone that he would of a strange order of beings of whom he has heard but with whom he has never come in contact. The friend is impressed, but warns the man that he has heard that architects demand 5 per cent. for doing nothing at all, and he, becoming alarmed, straightway goes to a builder. How many outside our profession have the smallest conception of the process which must be gone through to enable the architect to erect his building? Even those who are best informed have an idea that an architect does nothing more than spend a pleasant hour or two occasionally in toying with a pencil and colours and producing pretty sketch plans which, when approved, are handed over to the clever builder, who turns the thing into a structural success. The ring of the trowel, the hammer's thud, the crisp sound of sawing are realities to him, something tangible, whereas the means by which the architect achieves his end are a silent, unseen force and therefore unknown. He neither knows nor appreciates the concentration of thought, the focussing of years of hard work or arduous training that may be incorporated in the dashing sketch, the few clever lines or splashes of colour which show him his building as it is to be, or rather as the architect thinks it ought to be, furnished with ideal surroundings which do not exist and never will exist. It never strikes him that those slight sketch plans, in which everything is so perfectly arranged, are the result of much anxious thought and expenditure of midnight oil. He never dreams that the ingenious arrangements which fit together so well are integral parts of a harmonious whole, and probably indulges in some cheeseparing economies which upset the balance of the architect's scheme. It is nothing to him that those features he wipes out so light-heartedly have cost hours of patient labour and thought, and that the architect must again draw together his scheme and endeavour to cast over the mutilated remains the glamour of his individuality. If this be so of the sketch plans, which he necessarily must see, what of the working drawings which he only sees when he signs the contract? I am not grumbling, or even speaking with a sense of bitterness, unless it be against the idea that we earn our money too easily. The preparation of preliminary sketches is its own compensation, and no architect worth the name begrudges the time or labour expended in expressing his ideal of the problem immediately before him, and reaps his reward in endeavouring to do it justice with pencil and colour. According to his success in translating it into matter-of-fact building materials is that reward increased, and his delight at success cannot be measured by pounds, shillings and pence. Other people, even his professional brethren, may consider his effort a blot on the fair face of the earth, something to frighten intractable children with, but to him it remains a thing of joy until he becomes discontented with it by doing something better. He is an artist for art's sake; he wishes to express the beautiful, and cannot be bound by sordid considerations of 5 per cent. The painter expresses his conceptions with his pigments and brushes on his canvas in the best manner he can according to his artistic capabilities, and the architect similarly expresses his, but with different materials, each being actuated by the love of the beautiful. The one has completed his work, and appeals to a wide circle of admirers or critics. The other has not completed his work, and has appealed to an infinitely narrower circle, and must go through the procedure of working

drawings, specification, quantities, details, superintendence and settlement of accounts (to say nothing of "extras") before he can appeal to the public. The work of the painter enlists the sympathies of the public far more than the work of the architect, and the same public would little appreciate the artistic merits of a set of drawings, even if "sketch plans." The expression of the painter's ideal on canvas is fostered to a large degree. The expression of the architect's ideal upon paper is relegated to a little back room at the Royal Academy, probably to provide a secluded nook from the "madding crowd." The public will pay a shilling to see the painter's work, but they would not flock to see the architect's work, even if they were admitted free. And yet the architect plods on, taking his delight in his obscure "sketch plans," and sends his dashing sketch to his client, not wholly actuated by sordid motives in so doing, but anxious to express his ideal in as favourable a manner as he can for the very love of it.

What if he does idealise over much? What if he frames his building (on paper) in an imaginary setting? What if the skilfully blotted-in mass of redundant foliage only exists on paper, and the lovely formal garden with yew hedges will yield to serpentine walks and a tennis lawn? That is the fault of the client who chose the site, not of the architect who designed the building; and if the client is eventually disappointed because the actual structure looks so different from the clever sketch, well, it cannot be helped. The setting ought to have been there, that's all, and the architect has extracted a considerable amount of compensatory pleasure from his sketch, which he forthwith sends to the Royal Academy. I am afraid these sketches and sketch plans have a great deal to answer for.

I have even known them induce a client to spend more money than he originally intended. Unless this is artfully worked it leads to trouble, I believe. The client says to his friends, "Most expensive man, that architect fellow; made me spend far more than I wanted." Still, I am told it is surprising how a client may be led on by a judicious succession of sketch plans.

On the other hand, I am informed that "sketch plans" may lead a client to expect something that he does not get. Then he is dissatisfied and feels defrauded. Also, I gather that sketch plans occasionally lead to costly estimates and the abandonment of the work. Then the would-be client declines to pay for them, and the architect has to decide between a lawsuit and endeavouring to live on what pleasure he can extract from making beautiful drawings. This is what I am told, but I do not believe it. Indeed, I see sometimes from the papers that clients like the plans so much that they insist on keeping them. Some, indeed, claim a legal right to do so. Why, when they buy a picture, do they not claim the painter's colours and brushes? They are but the painter's tools, the means to an end, as are the architect's drawings. As the opposite to the man with a passion for architects' plans, commend me to the man who does without plans, and who employs a builder to erect a *potpourri* of details sneaked from other buildings, and who pats himself on the back in appreciation of his cleverness in saving architect's fees.

The great advance that has been made in water-colour work is not the least striking sign of development in our profession. I can well remember the time when the power to turn out a water-colour sketch of real merit was in the hands of a few men of conspicuous ability. Other men who wanted that sort of work went to specialists. There were more men certainly who could produce able work in pen and ink, but the vast majority produced sketches which now strike us with amazement.

To-day, every man almost can handle a brush, and more often than not in a most creditable way, and the number of those who produce work of really artistic merit is largely on the increase. To this desirable end I think our Association has contributed to a marked degree, and recently I have been greatly struck by the manner in which a large number of our students have represented their designs, many of the sketches being of great merit, and, indeed, much better than the architecture. It used to be a complaint that the drawings on the walls at the Royal Academy were the work of specialists employed to give fictitious merit to the designs. The fictitious merit may still be there, but at least it is now most usually the work of the designers themselves. Personally, I am not one of those who think working drawings and details should cover the walls at the Royal Academy.

I think the buildings should be represented as they will appear when executed. Working drawings appeal only to

he limited circle of the profession itself, whereas we ought to enlist the sympathy of an infinitely wider circle, not a sordid point of view, but from an educational one.

As it is, the tasteful work exhibited attracts the public not at all, for as yet we have not succeeded in creating more than a languid interest in our work which, apart from our professional brethren, is only seen by our dutiful admiring friends and the man who thinks he is swindled of his shilling's worth unless he examines every picture in the place. Some years ago the editor of a leading professional journal asked the question of many of our laymen "why the exhibit attracted so little interest?" One of the published answers was, "Because there are so few good architects." I do not think so at all. The fault lies with the public, if it lies anywhere, and the necessity of placing our work before it as attractively as possible is bringing its own remedy.

It is natural, too, that the average client should want to see how his building will look when completed, from an actual point of view and in its actual surroundings. He should not be expected to transform himself into a spirit for the time being, or to view the building from the upper floor of an adjoining building. Elevations may be nearness to him, however ably coloured.

I wonder how many architects take the trouble to sketch the actual setting for their building—so essential to the ultimate effect, but surely so very necessary to a harmonious whole? How often do we see a house which would be delightful if embowered in trees, but which looks distressed in the nakedness of a bare field?

I am only pleading for a little more honesty in sketch plans, which, I take it, include the very necessary "perspective view."

An architect is apt perhaps to represent his design under the most favourable conditions. He conceives it possible to show it to advantage in a blaze of sunshine to show it to advantage. But in this country we do not live under such weather conditions, and the conception may suffer materially when beheld under a grey sky and pouring rain. I do not suggest that he should present it before his client under such conditions. The result might have a damping effect, but I do suggest that the architect should consider such effect on his design. These observations may be commonplace and trite to my more experienced brethren, but I would commend them to my younger fellow students as suggestions worth some consideration.

May I offer another hint?—which is this. Instead of preparing a fictitious perspective from the drawings, why should the architect not make an actual sketch—in whatever medium he prefers—from his executed building? A faithful drawing, without exaggeration, with all the blemishes strictly reproduced, and send that for exhibition or publication, as the case may be. You may say, Why not a photograph at once? I do not think so. It would not teach nearly so much of the defects in his work, and he would lose all the pleasure to be obtained from such a sketch.

It will scarcely be denied that the art of the draughtsman has made enormous progress during the last twenty years or so. I was educated in an office where the traditions of the old "hair line" still lingered, and I can well remember the feelings of awe with which I contemplated the daring departures made by the leaders of the new school of draughtsmanship. The old method was suited to the architecture—very correct, but singularly tame and unattractive. Now, the poorest architecture can be made attractive—on paper—and the disappointment must be the keener when the executed building comes to be displayed to public gaze. There will be few who will detect that a great advance has taken place in our architecture. Buildings of striking merit and individuality are springing up on every hand, and such violent oscillations as the Gothic Revival and the New Art have brought their inevitable reaction. Personally, I feel that the advance in draughtsmanship has somewhat outstripped the advance in our architecture, and the rather coarse and dashing methods are apt to be reflected in the ultimate buildings. This has been forced upon my notice somewhat strongly of late in examining the work of our students, and I think I can detect a decided tendency to slur over the study of detail. Careful consideration of parts is sacrificed to effect in the drawing, and the architecture is subordinated to a prettily coloured sketch. I admit that this fault chiefly occurs in the cleverer or more brilliant designs, and that the sober efforts are often distinguished by tamer methods. But I do suggest that there is a source of danger in the cult of the new draughtsmanship which, if pushed to extremes, may

disastrous effects. The application to actual practice possibly be a restraining influence. An architect really wishes to exhibit his conception in the most effective form to his client, and, moreover, his sketches are his idea of the appearance of the finished building and everyone will agree that, so far, considerable latitude is not only legitimate but laudable.

But what shall be said when these methods are applied to working drawings—when the traditional manner of engravish materials gives place to artistic colouring, and ink lines leave a considerable margin for conjecture on the part of the quantity surveyor or builder?

Only recently I heard of an instance where the skilful draughtsman who prepared certain drawings contrived to tint some work so that the unlucky surveyor confidently took it for a finished drawing. And anyone who has seen a disconsolate foreman trying to scale with a 2-foot rule from an $\frac{1}{8}$ -inch plan prepared by a modern draughtsman will readily understand that the architect must not be too particular to 3 inches or 3 lines. The moral is that the methods which are legitimate in sketch plans require modification in the working drawings—no difficult matter in these days of sun prints. Probably the process by which careful and accurate working drawings are made from the sketch plans commends itself to the draughtsman, and better preserves the spirit of the original conception than a translation into a series of carefully worked pencil drawings prior to such tracing. I think it will be generally agreed that a surprising loss of original freshness of spirit may occur when the first conception is filtered through a number of drawings.

As I have said, in such a paper as this any attempt to lay down rules for others would savour of impertinence. Criticism would be out of place. Each man must necessarily use the means which he finds best suited to his purpose, and the mere observer who is ordered to comment on a paper on such a subject by an implacable critic can only comment; for between the man who sketches the building with the slightest material in the way of working drawings and the man who furnishes the building with elaborate and fully figured and written-up drawings such a wide field of experience and custom works towards the same end that any attempt to harmonise the two would be futile. The one man expects his builder to take into his mind and identify himself with the thoughts which the drawings are only the expression—maybe an inadequate expression. Neither the builder nor the builder's draughtsman have been trained to this, and the question of success largely depends upon how the architect can imbue them with his individuality, how fire them with his enthusiasm, how stamp his work with that indefinable something which cannot be expressed on paper. The other man, practical to the very ends, finds himself in conflict with a building draughtsman and workmen trained in technical schools, and, in the honest attempt to combine art and practice, succeeds in imparting a certain hardness to his work which he finds unpleasing and which he cannot understand.

Do not suppose there can be two opinions as to which of the two methods we should prefer; but, unhappily, we train our workmen differently, and something of the old craftsmanship methods can be recovered, we are suffering under great disadvantages. It seems to me that the forces are operating at the moment—an artistic force and a technical force—and that they are operating on conflicting lines. Nor do I know that we are doing much to harmonise those forces. I think we should as a body have a larger say in the training of our workmen and turn our effort for technical instruction in the right direction. The constructional methods born of the technical schools, creeping into use, mainly, I think, where the architect has such points in his artistic working drawings; and finally, though desiring to be progressive, I have grave doubts whether these new methods are improvements on the old, and I am sure the actual workmanship is inferior. Not many draughtsmen seem to fear that they will lose beauty and interest of the design if the working drawings are elaborated? In detailing, no time is begrudged to the strictly architectural part; but too often, I suggest, the constructional niceties are left to the imagination. It is a slip, perhaps, to imply that the little tricky methods and mannerisms which lend spice to a drawing should be abandoned, but are not many of them meretricious and meaningless and confusing to the builder?

It is a sore temptation to give to one's working drawings the deft touches which suggest that the hand of Time has already dealt kindly with the building as yet on paper. Then, when it comes to be erected, the designer is

disappointed at its stiffness and lack of interest. There must be some fault in the design that has to depend upon an appearance of premature old age for its beauty, and now, forsooth, we have architects who go to the length of applying these tricky methods to the actual building. The "cocked up" apex of a gable, caused by the sagging of weak timbers, certainly adds piquancy to an old building, and one is tempted to exaggerate the tilt of a double tile verge on a drawing to soften the stiffness of straight lines, but the deliberate imitation of such effects by false construction appears to me to be bad in principle.

I know an unfinished house at this moment where the architect has not only suggested that his ridges have dropped a foot below the gables, but he has by artificial means given a wavy line to the main ridge, and a sagged appearance generally to portions of the roof. He might have built his walls out of plumb while he was about it, laid his floors out of level and thrown in a few settlements. What is the effect? That of an interesting bit of architecture, with all the glamour of age to soften its angularities? Not at all. It suggests an ordinary bit of modern work, with an extremely ill-constructed roof. I only trust it may be condemned as a dangerous structure by the local surveyor. To my mind, such methods are a dragging of architecture in the mire, and totally unworthy of the high ideals we ought to sustain. But are they not the logical outcome of the new draughtsmanship, pushed to extremes?

I am not advocating in any sense a return to the old methods. I do not desire for a moment to return to the days of "hair lines" and stock colours of distressing rawness to indicate materials. I only advocate the keeping of the great development in draughtsmanship within legitimate limits without the aid of false and tricky methods.

The architect pictures his building in his mind. He conceives the effect which he wishes to produce, and conjures up a vision, sometimes vividly clear, sometimes vague and shadowy, and in his sketch plans his endeavour is to realise that vision. To do so any means almost are justifiable. He wants to judge of the effect of his windows in the balance of parts, and "patches" them in, and having secured the desired arrangement he adjusts them to his plan and modifies their appearance according to the manner in which they are glazed. He wants to see the effect of shadows and projections, and scheme of colour, and to see it in its perspective aspect. He wants to set it in its surroundings and blend it with them, and the nearer he can hit off the ultimate appearance of his building the better for him and for his client. But should he produce something which cannot be realised through the medium of the working drawings, and cannot be faithfully reproduced in the finished building, something is at fault—either his power of realising his vision or the means by which he does so. As I have tried to show, each man's individuality is necessarily reflected in his methods of draughtsmanship.

The "picturesque" man will draw picturesquely. The cast-iron man will produce cast-iron drawings. The academic school will proceed by academic methods, as we see exemplified by our French brethren.

Happily we are bound by no traditions. Each man roams "fancy free" over his paper, so to speak, and strikes out a vigorous line of his own, and as a result I venture to think we are producing domestic and ecclesiastical work second to none in the world in its variety and robustness, the first in its adaptability to the home life of our nation and the character of our country, and the second to the requirements of our religious life.

We fail, I think, in the one thing wherein academic methods would be advantageous—in our public buildings, to which we apply too often the "prettinesses" more appropriate to our domestic work. We are not an "official" race, and we cannot think officially or stamp our public buildings with an official character. Our railway stations are a disgrace to a civilised nation, and like too many edifices allotted to the public use, frankly utilitarian. Our French friends beat us handsomely with their official work, and, despite their academic training, without slavish adherence to Classic prototypes.

We have not much to learn from them in the way of draughtsmanship unless it be the scrupulous care with which their drawings are prepared. We might certainly gain something by an examination of their studies for carving. I well remember being shown some full-size working drawings for stone capitals by the late M. Henri Révoil, executed with the brush on dark-toned paper, the high lights being touched in a white medium, and which for brilliance of execution beat anything I have ever seen.

On the other hand, he was pleased to bestow unstinted praise upon my poor little pencil efforts, which, he said, were so unlike the methods obtaining in his country. Please forgive the personal allusion in this incident, but it is the only case I can produce to show the effect of our methods upon our French friends.

It is only my own opinion, but I must say I feel our American brethren are considerably ahead of us in matters of draughtsmanship, in spite of their French training, and they have struck out on vigorous lines characteristic of their nation.

I have looked through some of the illustrated catalogues of their recent architectural exhibitions, and I confess to a little feeling of chagrin that our representatives make a comparatively poor show in matters of draughtsmanship. I may be wrong, and probably am, and you must please take my opinion for what it is worth. But if we are behind at all it will not be for long, for, having decided to change our conservative methods, we develop rapidly. Only let us beware that we do not rush into the opposite extreme. We want to breed architects, not draughtsmen merely, and must not neglect the study of our art for the sake of the drawing of it, for, after all, the drawings are only a means to an end.

I have seen many a working drawing most beautifully executed, exquisitely coloured, and I have envied the man who could produce such delightful architecture. It was not until I saw the actual executed work that I realised there was a something lacking. I could not tell why the executed work should not look as well as it did in the drawing. I have compared such drawings with the executed work line for line, and could only come to the conclusion that the clever draughtsman had cast a false glamour over the design, which disappeared when materialised.

I wonder how many architects feel as contented with the executed work as with its delineation on paper; and yet, after all, the former is the ultimate goal, conceived in the mind, and its concrete form should satisfy that conception, and not accord with the means by which it is brought to fruition.

Have not the exigencies of competition drawings largely led to this "falsification?" The temptation to attract the interest of the assessor by meretricious means is but natural. A design, meritorious in itself, sinks into insignificance in the company of others more cleverly manipulated, and delicacy of draughtsmanship is altogether killed by the bolder methods. This leads not only to competitive designing, but to competitive draughtsmanship also, and I suggest that its dangers, not only to architecture but to ordinary practice, are already apparent, and that the present generation of students are too apt to consider mere telling draughtsmanship the be-all and end-all of an architect's career.

I do not mean to deprecate for a moment the loving care and deep interest which any architect worthy of the name should put into his drawings. Any such man will always find himself wrapped up heart and soul in his drawings, and the mere worthy rendering of the most commonplace construction will be a source of interest simply for the love of the work.

I only ask that we may be judged by our materialised work—a living, vitalised, educational force—rather than that we should appeal to the senses by the imperfect and traditional means by which we achieve our ends.

There would be an immense field before the man who could invent a method for registering our thoughts as the camera will register the desired view. It would save much distasteful routine work. We do not know what the science of the future may have in store for us, but it is to be hoped no savant will devise means for thinking a building into existence, for then we should lose much that delights and compensates in our sketch plans and working drawings.

I must not conclude these imperfect remarks without offering my heartiest thanks to those gentlemen who have so kindly lent drawings, I will not say to illustrate my paper, but to give an object lesson to those who hope to follow in their footsteps. It must be of great interest to us all to see the methods of other men, especially men whose work we admire, and I feel sure an intelligent examination of these drawings will point a lesson to our students present in a way that no remarks of mine on such a subject can ever hope to do.

Mr. W. MILLARD, in proposing a vote of thanks to the author of the paper, said they had been told to treat the subject in a broad-minded way and not to be dogmatic. Personally he should wish to narrow the subject for the

benefit of junior members of the profession, and more particularly on one point. He should like to narrow it to those who were doing little exercises called designs—descriptions of imaginary buildings on imaginary sites according to imaginary conditions. He wished to know what happened to the junior students when they came to the real thing, the making of working drawings. It was then that the untrained man ran up against such difficulties as brick walls, and wanted to know how thick they should be and the height. It was no use said the speaker being broad-minded because the questions had to be settled. At such time a student was generally at sea about the sizes of things, the floors and sections of steelwork and other details exposed the profundity of his ignorance. It was therefore necessary to clear away that ignorance before he could be of use either to himself or any one else. Engineers held the opinion that working drawings were meant to work from and that men who were always in the office could not produce drawings that could be used in that way. They should be drawings that a quantity surveyor could read, and also the builder's foreman in order to work safely by them. To attain such efficiency involved knowledge and understanding—the ability to apply knowledge—and it involved decision. The man who had acquired those qualities would not stop to consider about the style or the beauty of his drawing. His standard of measurement would be, Is it workmanlike? Is it fit for its purpose? Working drawings in themselves were the indispensable means of producing their building work—the means to the end. They might be the inefficient means, and therefore suggested that the training of students should be to enable them to acquire a higher capacity for producing working drawings, for until they could do so they would never be of real use to architects, still less were they likely to become architects.

Mr. WALTER CAVE, who seconded the motion, said that paper perhaps attached too much importance to sketching. In addressing students it was well to try to teach them to complete their working drawings. The perspective sketch was of no value except to the architect. The remark in a paper that a sketch of the site should be made before a building was erected was a suggestive one, because the actual setting to a building was too often omitted, and careful sketching of the site would help the architect to proportion his work. With students' drawings they often found that details were suggested but not shown, and when the foreman or builder tried to work from them delay was caused owing to the omissions, and whereas a more complete drawing would have involved more time at the commencement, yet perhaps five minutes more work on the drawings would have saved hours to the architect and the builder in the end. It was well to be told that they were architects and not draughtsmen, but at the same time they must remember that architecture nowadays could not be produced without draughtsmen. There were so very few intelligent workmen that nothing could be left to them. Details had to be made clear, and the architect had to teach the workman in matters of taste, and if the impression could be conveyed by good drawing the workman would improve and architecture would advance.

Mr. A. MITCHELL said there was one point in the paper he would allude to, and that was the importance in the preparation of working drawings of giving all the information that it was possible to give and in the simplest way, so that the drawing could be easily read by the builder. They must regard the builder as a duffer in the reading of drawings, so that the draughtsmen should do all they possibly could to make their work clear. Small sheets were an advantage both to the builder and the quantity surveyor. The drawings, too, should be figured throughout, as innumerable troubles were avoided by it.

Mr. A. KEEN said the great danger of sketch drawing was that the architect often deceived himself as well as the client by them. Before a sketch was made everything should have been considered very fully, and though the sketch should embody the whole building, yet it should omit details which were not essential at the moment, but still show that the architect had realised the building for himself. Working drawings to be sufficient must leave room for questioning at all. Students as a rule would not carry their drawings far enough, allowing the builder to settle details for himself.

Mr. J. MURRAY said that in working or sketch drawing accuracy was all important. If they could remember that drawings and sketches were their thoughts depicted on paper the drawings when finished would be more satisfactory. There was the question of scale and proportion

and no sketch or drawing could be successful unless both had been considered. In colour sketches he felt that they should as far as possible show the colour of the materials.

Mr. H. P. G. MAULE suggested that with regard to the student engaged on working drawings, the one question he must put to himself was, Would the foreman or workman interpret his ideas? and if the student had that question constantly before him he would get face to face with actualities, and the drawing would become a working drawing in its true sense.

The PRESIDENT, who was in accord with the discussion, said it was seldom that an architect could design a building at the start and not alter details as the work progressed. Such alterations did not mean additional expense nor would they delay the work. It therefore seemed to him that the system of carrying drawings through from the start was open to question.

LEEDS AND YORKSHIRE ARCHITECTURAL SOCIETY.

AT the rooms of the above Society on Thursday, March 23, Mr. Percy S. Worthington, of Manchester, read a paper on "Past Tradition and Modern Design." The President, Mr. G. B. Bulmer, was in the chair.

The lecturer said:—When your honorary secretary conveyed the honour of an invitation to read a paper before you, it occurred to me that, as you already had a number of historical papers on your list, and as I had myself some years ago inflicted upon you something archaeological, you might care to discuss some phase of the educational problem, and that of the relationship of theoretical study to actual practice in design might be interesting. I sent you a title from Norway, far enough away, you would think, from architectural microbes, and set about writing as soon as possible, and have spent the time since in periodical fits of desperation as paper after paper, and article after article, have appeared in the professional papers dealing with the same subject that I had, in my innocence, chosen. Why should men's minds all go working in the same direction without any apparent reason? It must be microbes. The taking stock of the architectural position of to-day, the difference readily occurs to us between the conscious effort after design and the arbitrary choice of styles: in other words, individualism as opposed to national co-operation in design. We acknowledge how much is owed to tradition in the past, and ask ourselves how we may make the best use of our inheritance. We have heard a great deal lately about national degeneration, both mentally and physically, and one of the remedies most generally suggested is education. In our professional education we are certainly behind that of some other countries. Theoretically our haphazard system (or want of it) should be fatal to any excellence of the art. Practically, I don't think we are in such a bad way. In fact, one is inclined to think that the work now being done is equal to, if not better than, the average work of any other country, France perhaps excepted. The student or apprentice of the fifteenth, sixteenth and seventeenth centuries was trained in the three arts of sculpture, painting and architecture, and in after years practised all three. Buildings were books then as now, and their measurement formed the self-education of the architect, whether he did it as Peruzzi did, with an eye to the composition of his architectural backgrounds, or as Brunelleschi, with the definite idea of constructing his dome at Florence. With us in England it is different, but we can hardly afford to ignore their experience, and we may take it as an axiom that for the intelligent study and practice of design a knowledge of the history and architecture of past times generally is essential. Taste may be acquired to a degree by education and experiment without being inborn, and they are within the reach of all. As an example of saving experiments with antiquity, one may cite that fine and distinguished work, the new Westminster Cathedral. With regard to planning, certain types of plans are still more or less traditional, that, for instance, of places of public worship, though even here one sees no reason why the modern type might not be evolved which might appeal to religious instincts as much as old.

The following were elected officers for the ensuing session:—President, G. B. Bulmer; vice-presidents, H. S. Morley and R. A. Smithson; hon. secretary, R. P. Lesby; hon. treasurer, W. H. Thorp; hon. librarian, F. Bowman; council, Messrs. R. Marshall, F. Musto, J. Hill, H. A. Chapman, P. Robinson, G. E. Reason.

THE SCOTTISH NATIONAL GALLERY.

A MEMORIAL has been addressed to the Secretary for Scotland by several citizens of Edinburgh who are opposed to the removal of the National Gallery to Calton Hill:—

That your petitioners are amongst the number of those who greatly value the privilege of having within the National Gallery in the city of Edinburgh a valuable collection of artistic work at all reasonable times open to the public.

That your petitioners are aware that it has been proposed to remove that collection from its present situation, and they understand that the opinion of the public has been invited on the question of the most suitable site. Your petitioners also learn that one suggestion has been to remove the pictures to the High School as a suitable place for them, and that another suggestion has been to erect for their accommodation an entirely new building on the top of the Calton Hill.

Without arrogating to themselves the right to speak for the public at large, your petitioners have reason to believe that a considerable section of the community agree with them in thinking that neither the High School nor the top of the Calton Hill are suitable situations for the National Gallery; and further, that the present situation is probably the best that can be found in the city for a public collection of works of art. The following are some of their reasons for arriving at this conclusion:—

Your petitioners respectfully submit that in selecting a site for a public exhibition of any kind there are two considerations of the first importance. It should be easily accessible and it should be central. Now it humbly appears to your petitioners that the High School is not central, and that the top of the Calton Hill is neither central nor easily accessible. To remove the gallery to either of these sites would practically close its doors to the man in the street with an interest in art and a half-hour to spare; to the visitor to the city, who has much to crowd into his holiday before he leaves for home, and even to some extent the leisured class, who during many days in the year could not find their way to the Calton Hill without being exposed to wind and rain.

Your petitioners submit that either of the handsome structures on the Mound is better suited for a public gallery than either of the sites above referred to. The Mound buildings stand in the very centre of the city. From the North, the South, the East and the West they are accessible by tramway lines which actually meet there, while they are distant only a few hundred yards from the two main railway stations for the city.

Your petitioners have been informed that when the Antiquarian Museum was removed from the Royal Institution to its present situation in Queen Street the attendance declined from 72,000 to 18,000 persons annually, owing simply to the fact that the new rooms, though much more commodious, were neither so accessible nor so central as the Royal Institution. The National Gallery is visited by upwards of 70,000 persons annually, and it is impossible to doubt that a very great declension in numbers will follow its removal to either of the sites proposed.

Your petitioners are as much interested in the Royal Academy as in the National Gallery, and it seems to them that everything points to the conclusion that of the two buildings on the Mound one should be devoted entirely to the Academy and the other entirely to the Gallery. Your petitioners would respectfully recommend that the building now partly occupied by the Gallery should be wholly appropriated to the Gallery, and that the building now occupied by the School of Art and the Royal Society should be wholly placed at the disposal of the Royal Academy.

Should it be objected that the present National Gallery building is not sufficiently spacious, your petitioners beg leave to record their humble opinion that, with slight internal alterations, it may be made large enough for all the works of art worthy of a National Gallery which are likely to reach Edinburgh for a long time to come, and it might even be better to part with some of the pictures of doubtful merit than to sacrifice a situation so absolutely ideal and unique as the present.

The arrangement which your petitioners have with diffidence ventured to suggest, if carried out, will necessitate other accommodation being provided for the Royal Society and the School of Art, both now housed in the Royal Institution. Your petitioners humbly submit that another and more convenient situation further west may easily be found for the Royal Society, while it is well

recognised that the School of Art is entirely out of place where it now is.

Your petitioners trust that your lordship will discourage any proposal to remove the National Gallery from its present site.

THE RHIND LECTURES.

THE subject selected for this year's course of Rhind Lectures in Archæology is "The Origin and Development of Coin Types," by Mr. George Macdonald, M.A.

In his first lecture, after explaining the scope of the course and laying down certain preliminary definitions, Mr. Macdonald gave some account of the method by which archaic coins were produced and the characteristics by which they are distinguished. The invention is not so old as has sometimes been supposed. It dates from the eighth century B.C., and it had its origin in Western Asia Minor, probably among the Lydians. The earliest coins were minted in electrum, a natural alloy of gold and silver. The introduction of a bimetallic currency is usually attributed to Croesus. Such a system was in full force throughout the Persian Empire in the sixth century. A knowledge of the art of striking coins had also spread westwards with great rapidity. By 600 B.C. the practice was general throughout the civilised world, except among the Phœnicians, who, in spite of their keen commercial instincts, were extraordinarily slow to adopt it. In Europe silver was practically the only metal employed for coinage purposes for about 200 years. Gold was but little used until after the Thracian mines had been opened up about 350 B.C. by Philip, father of Alexander the Great. The almost bewildering variety of Greek coin types is due to the fact that each city was a separate political entity, and prided itself upon its possession of the right of striking money. The use of a distinctive type for each minting centre was regarded as imperative, in order that there might be no confusion with the coinage of its neighbours. In spite of the variety, experience soon learns to detect affinities between the issues of cities that lay within a given geographical area. There is always a certain degree of homogeneity between the devices employed as types in a given district at a given time, a principle that forms a useful touchstone for testing the theories that have been advanced to explain the origin and essential nature of types. The religious theory and the commercial theory are the most important of these. The religious theory has the support of eminent names like Curtius and Head, and may fairly be said to represent numismatic orthodoxy. Starting from the indubitable fact that many types have a religious significance, it insists that there is an intimate connection between religion and the minting of money. Its advocates hold that if the oldest coins were not actually struck within the sacred precincts of the temples, they were at least impressed with Divine symbols in order that the gods might be called to witness that the quality of the metal was good and its weight full and true. One serious objection to this view is that it fails to account for "canting badges," or devices that contain a pun on a place-name, like the rose at Rhodes. Another is that the further back one goes the less pronouncedly religious do the types become. The religious influence is most obscure just where we should expect it to be most obvious. The commercial theory, which was first propounded by Professor Ridgeway, of Cambridge, ingeniously endeavours to establish a direct relation between the devices on the most archaic coins and the primitive barter-units, such as the ox, which was superseded in the various districts by the institution of a metallic currency. Hence the types of coins often represent what we know to have been the chief article of trade in the neighbourhood of the city under whose authority they were struck. Attractive as this view is, and skilfully as it has been defended, it will not bear detailed examination. It breaks down in particular cases, and it fails to stand the test supplied by the principle of local homogeneity. The true point from which to start is the fundamental identity between type and symbol, the symbols being subsidiary devices which indicate the responsible magistrates, just as the types proper indicate the issuing cities. The objects chosen for representation are precisely the same in the two cases, and "canting badges" figure in the one group just as in the other. That the functions they discharge are also analogous is shown by the readiness with which type and symbol can be interchanged. This point was illustrated by examples from the coinage of Abdera

and of Athens, as well as from the beautiful series of pieces struck at Cyzicus and at Lampsacus.

The second lecture began with a description of the ancient practice of sealing. There was a probability that the minting of money was originally nothing more than the act of impressing a seal upon a piece of metal as an official guarantee of its weight and quality. Like other public documents, coins might be attested either by the seal of State or by the signet of a responsible magistrate. On much of the electrum currency of Asia Minor the types were of the nature of private signets. On other series the badge was generally indicative of the State, not of an individual. The clue to the origin both of types and symbols was to be sought for in heraldry. Just as a magistrate might employ his hereditary crest as a symbol, so a city might employ its coat of arms as a type. In the case of some fifteen or twenty Greek cities there was epigraphic or literary evidence as to the device which was regarded as the town arms, and in every single instance that device was found upon the coins. On the other hand an examination of the coinage of Athens of the "New Style," where the opportunities for observation were particularly favourable, revealed the fact that the emblems used by magistrates were sometimes specially selected, the precise motives of choice being discoverable. Similarly it was shown that types were not necessarily coats of arms, and that the likelihood of their being so was certain to decrease as coinage grew and developed an independent importance. The influences that could be traced as affecting the selection of devices were grouped under four heads—the decorative, the imitative, the commemorative and the religious. In its widest sense the decorative instinct was always present. At some epochs it was always paramount. The art of coin engraving reached its zenith in the fifth century B.C., some of the finest dies being signed by the artist who executed them, a feature far more significant on coins than corresponding signatures on painted vases or on gems. The influence of the decorative instinct in its narrower sense betrayed itself in the tendency to arrange objects in pairs or in groups of three—to design patterns, in fact—and also in the extent to which the older coins reproduce subjects that were consciously borrowed from that far older art in which Greek art, as we understood it, had its roots. This latter characteristic might equally well have been treated as a manifestation of the imitative impulse. But it seemed best to reserve the term imitation for cases where the type of one coin was deliberately borrowed from that of another. Specially successful devices might be copied through sheer admiration for their beauty. The creations of the Syracusan engravers, Kimon and Euainetos, for instance, enjoyed an immense popularity. They were imitated throughout the whole Mediterranean basin from Thessaly in the north to Carthage in the south, and from Spain in the west to Cilicia in the east. But appreciation of artistic excellence was not the sole, or indeed the main, reason that prompted imitation. The fact that coins enjoyed a high reputation commercially was sometimes sufficient to single them out as desirable models. This was the ultimate basis of what were called "barbarous imitations." The silver tetradrachms of Athens were copied as far east as India. Their very popularity led to their style being stereotyped at a comparatively early period, with the curious result that the coins of the age of Pheidias were immeasurably inferior to the contemporary issues of other States. The popularity of the Athenian silver was subsequently rivalled by the popularity of the gold staters of Philip of Macedon. Philip's coins had a particular interest for students of British history, since it was upon them that the oldest currency minted in our island was modelled. Its first beginnings might be placed about 150 B.C. The coins were of native gold, and the types were borrowed from the Gaulish imitations of Macedonian coins which had made their way to Western Europe either through the seaport of Marseilles or overland by the valleys of the Danube and the Rhine. Early British coins had been made the subject of a special study by Sir John Evans, who had not only been able to throw much light on the unwritten history of the ancient Britons, but had also placed the whole question of barbarous imitations on a scientific footing by deducing the general laws that governed the evolution of types. These laws were found to be equally potent everywhere, controlling, for instance, the whole process by which the currencies of Parthia, Bactria and India developed out of the money of Alexander the Great and his successors.

Mr. Macdonald, in his third lecture, began by discussing the commemorative influence as it affected the selection of

coin-types. There are many ways in which this influence might betray itself, its object being to secure some device that would serve as a shorthand sign for the place itself, and the meaning of which could hardly fail to be understood by those into whose hands coins bearing it might come. Canting badges were commemorative in this sense, and so were allusions to natural features such as rivers and mountains. It was for a similar reason that local plants and local animals were chosen, and closely akin to this was the practice of representing local sports and pursuits, like bull-fighting in Thessaly or chariot-racing in Sicily. References to the origin of a city were common. Colonists, for instance, might continue to employ the types they had used in their old home. Imaginary portraits of legendary founders were very popular. Indeed, local mythology generally was largely drawn upon, some of the fourth century Arcadian types conveying a complete story. Allusions to actual incidents of contemporary history were very rare in early times. Political alliances were, however, sometimes commemorated by a process of uniting two or more single types or by the adoption of some symbolical emblem. Thus the federated cities that combined against Spartan oppression, in the beginning of the fourth century B.C., selected as a common type a figure of the infant Heracles strangling the serpents that had attacked him. Passing on to speak of the religious influence, the lecturer pointed out that it was in all probability ultimately derived from the preceding. It could not but happen that the most striking characteristic of a city, that by which she was most anxious to be known amongst her neighbours, was often an intimate connection with some deity. Athens was a case in point. The types in use there were the head of Athena on the obverse and her sacred bird, the owl, on the reverse. The same relation between the two sides is frequently observable elsewhere. But if it was through the promptings of the commemorative instinct that religious types first found a place upon coins, in the course of centuries the commemorative influence, where it survived at all, sank to a level of secondary importance. Examples were given of series which were completely dominated by the religious motive. The types of the fourth century B.C. were contrasted with those on the archaic coinage of the same towns, with the view of showing what a remarkable change of fashion had occurred in the interval. The actual process of this change was traced in several typical cases, when it was seen that one or other of two things was apt to happen to the device that had originally been the most important if not the sole type. It might be reduced to the rank of a mere symbol in the field. If, however, it continued to be employed as a type, it was usually transferred to the reverse, in order to make room for the head of a god or goddess. Examples and exceptions were discussed in detail. Finally attention was drawn to the close association that existed between the original type and the inscription giving the name of the issuing State. This association accounts for the growth of the custom of placing that inscription on the reverse. Apparent exceptions really confirm the rule.

TESSERÆ.

Indian Cave Temples.

THE most interesting and important groups of these caves are at Karli, between Bombay and Poonah; at Kannari, near Bombay; at Ajunta and Ellora, in the Dekkan; at Nashik, in the valley of the Nerbudda; and in the Island of Elephanta. They consist of temples, vast halls serving as places of assembly, monasteries for the residence of many monks together and small detached dwellings. To these excavations temples for Brahminical idols and for Jaina worship were subsequently added after the extinction of Buddhism; so that frequently in the same group are found vestiges of very different periods, extending over many centuries, the earliest being the Buddhist, the next the Brahminical, the latest the Jaina. It would be difficult to imagine any scene more picturesque, yet more savage and more desolate, than that offered by these remains of an ancient Hindu civilisation. At Ajunta, Kannari and Karli the caves are for the most part in deep, rocky ravines, from whose sides hang the spreading boughs of the sacred tree of the Hindus, and whose bottoms are filled with the densest jungle, the resort of tigers, leopards and other beasts of prey. The entrances are concealed by enormous masses of fallen rock and by tangled brushwood

which almost exclude the light. In the holy Island of Elephanta the solemn temples are surrounded by more gentle scenery. From their entrances the eye wanders over the blue waters of the bay, fringed by the richest tropical vegetation, the spreading palm, the plantain and the coconut tree. The precipitous cliffs of Ellora overhang vast fertile plains, once speckled with thriving villages. Secluded spots appear to have been chosen for retirement and study, and few or no traces of buildings are to be found near these mysterious caves. Their sole tenant is now some crazy fanatic, who, in wasted nakedness, with matted hair and hideous deformity of limbs, passes his days in motionless prayer or daubs with the sacred red the images of the forgotten gods. The silence is only disturbed by an adventurous traveller or by the wild animals that seek shelter in their dark recesses. In an architectural point of view the most remarkable of these excavations are a class of Buddhist temples, singularly like Christian basilicas. They have a centre nave, very narrow side aisles and a semicircular apse, in which stands a domical shrine containing the sacred relics. The ceiling is vaulted in the form of a wooden ribbed roof. Light is admitted through and above the entrance facing the nave, and, streaming through the centre, is concentrated upon the shrine and idol. The side aisles being left in almost complete darkness have an appearance of depth and vastness by no means corresponding with their real size. Altogether the effect of these excavated basilicas is singularly solemn and mysterious.

Bronze Casting.

The method of the ancients in casting bronze statues is not described by any ancient writer, but it is supposed to be this: a fireproof core was first built up of plaster, clay, earth or other materials, and over this a thin and even coating of wax or pitch was spread, or perhaps, which is not so probable, the surface was rasped down to the thickness intended for the bronze, and afterwards covered with a thin coating of wax. In either case the result would be the same. The outside of this wax being then completely covered with sand or packed clay-dust, there would be a thin coating of wax enclosed between the two surfaces, which, melting away before the fused metal, would allow that metal to take its place. This would account for the remarkable thinness and evenness of the ancient bronzes, for by such a method the core would be perfect, and the artist would naturally put on as little wax as possible. If we suppose the statue, after it was nearly completed in plaster or clay, not to have been rasped down but simply to have been covered with wax, we shall see that the result would be that the bronze cast would be a little fuller in size and thicker in proportions than the original model. And this is a peculiar characteristic of the ancient bronzes, especially to be observed in the limbs and joints, which are generally larger and puffier in bronze than in marble statues.

English and French Churches.

The French architectural student would be as much struck and learn as much on visiting a group of English churches in some district where neither design nor workmanship is spared—for instance, Lincolnshire or Northamptonshire—as we should by a corresponding group of French village churches. The former exhibit a depth, purity and delicacy in mouldings, a studied elegance in the tracery of windows, a symmetry of outline and refinement in proportions, with a careful exclusion from an early period of every incongruous element, which are not so apparent in the French specimens. But in the latter we find a massiveness and grandeur which we look for only in our own large conventual churches. Most of them are either wholly or in part vaulted with stone. Many have the main features belonging to a cathedral—the pier arch, the triforium and the clerestory; and these are so designed as to avoid giving the idea of a model in miniature. The central tower is, on the whole, more prevalent than in England. In some districts it forms the rule rather than the exception, while in others it is very rare. In Burgundy it is the property of all the styles, from Romanesque to Flamboyant; in Touraine it is apparently confined to the Romanesque, or early Transition. As in Germany, it is often octagonal, and the spire shows itself at an early period. The apse is also a more common feature than in England, though in many districts it by no means prevails to the exclusion of the square chancel; indeed, in the smaller Romanesque buildings in the north of France it is doubtful if the latter is not of more frequent occurrence. In southern France the apse is more nearly universal.

Where there are aisles or transepts the main apse is usually flanked by two smaller ones. This arrangement, however, was not unusual in England, as is proved by the large arch so frequently visible in the eastern wall of a transept. The apsidal aisle with radiating chapels is of frequent occurrence in the larger Romanesque churches; in the succeeding styles it became commonly the eastern finish of cathedrals. Where later additions have been made the most unexpected and picturesque combinations present themselves. The large and lofty chancel is added to the nave designed for a smaller structure, or the raised clerestory and roof of the nave almost swallow up the low central tower. The original nave becomes an aisle to a nave of later date, and the central tower becomes a lateral one. Aisles and chapels are added with but little reference to the scale of the buildings, and frequently have the effect of a series of transepts joining each other and terminating in gables. These may not be architectural beauties, but they increase the interest both to the student and the artist.



Professor Adams and his Pupils.

SIR,—Mr. Henry Adams is retiring from the Professorship of Engineering and Surveying at the City of London College, which he has held for upwards of thirty-five years. A committee of some of his former pupils has been formed and has met at the Surveyors' Institution for the purpose of commemorating the occasion. It is desired to communicate with as many of his old pupils as possible, and for this purpose I should be very greatly obliged if you would give publicity to the matter by publishing this letter in your valuable columns. Mr. Adams has lectured to about 4,000 pupils, the great majority of whom cannot now be traced except through the courtesy of the Press. Would any of them who see this announcement kindly communicate with me? Their signatures only to an address are sought.—Your obedient servant,

J. L. CROUCH, Chairman.

29 Basinghall Street, London, E.C. :
March 29, 1905.

GENERAL.

Mr. J. W. Simpson has been appointed architect to the Honourable Society of Lincoln's Inn.

The Edinburgh Architectural Association are arranging a week-end visit to London from April 14 to April 18. Several visits will take place on the Saturday and Monday.

Dr. Maurice Letulle, a Professor of the Paris Medical Faculty, has protested against the scheme for letting out the site of the razed fortifications of the city for building purposes. The health of Paris will, he declares, infallibly suffer.

The Kelvingrove Gallery, Glasgow, has been opened to the public two years and two months, and was visited during that period by nearly three and a half millions of people.

The French Council of Technical Education have adopted a proposal to make technical education compulsory under certain conditions. It is recommended that persons of either sex under eighteen years of age in commercial or industrial employment should have to go through a study adapted to their occupations.

Mr. Stanley Dunkerley has been appointed Professor of Engineering in Manchester University. Since 1897 he has held the office of head of the department of applied mathematics at Cambridge.

A Paper on "The Ancient Architecture of the Great Zimbabwe" will be read by Mr. R. A. Hall at the meeting of the Society of Arts on Wednesday next.

The Chancellor of the Duchy of Lancaster has delivered up the old seals (of Queen Victoria) of the Duchy and County Palatine of Lancaster and received from His Majesty the new seals, which have been executed by Mr. Frank Bowcher from designs of the late Mr. G. W. de Saulles.

Mr. Douglas Willis has been appointed county architect and surveyor by the Denbighshire County Council at a salary of 650*l.* per annum and expenses. Mr. Willis is forty years of age, and is engaged in the borough engineer's office at Norwich.

Excavations are now proceeding at Metz for the enlargement of the town. Among other finds are the ruins of the old Roman amphitheatre, which had, unfortunately, to be completely extirpated, in order to get foundations for the new railway station. Under a lunette to the west of the old station was found the crypt of the ancient abbey, containing the tombs of Louis le Débonnaire, of Saint Arnoul and the Empress Hildegard, which was wrecked by order of the Duke of Guise in 1552 during the siege by Charles V.

The Secretary of State for India is now prepared to receive applications for about thirty-five appointments of civil engineers for temporary service in India. Full particulars may be obtained from the Secretary, Judicial and Public Department, India Office, Whitehall, London, S.W. Candidates must be between twenty-four and thirty years on July 1, 1905.

The French Minister of Fine Arts has refused to give permission for the construction of the underground railway beneath the Louvre or under the Arc du Carrousel. It was proposed to have a station at the latter place, but the inhabitants prefer to have it nearer the Palais Royal.

Mr. William Sturge, who was president of the Surveyors' Institution from 1878 to 1880, died on Sunday last in Bristol. He was in his eighty-fifth year. For fifty years he was head of the firm of Messrs. T. P. Sturge & Son, surveyors. He was land steward of Bristol for many years.

The Exhibition of Designs prepared in the competition for houses for the working classes on the Rothschild foundation will be exhibited in the Hôtel de Ville, Paris, from Monday until Saturday in next week.

The Applications for the chief-engineership of the City of London have been reduced to the following:—W. Nisbet Blair (St. Pancras), A. E. Collins (Norwich), Wm. Oxtoby (Camberwell), Norman Scorge (Hackney) and Frank Sumner (Woolwich). The salary commences at 1,000*l.* a year and rises to 1,500*l.*

The Secretary for Scotland has invited a number of parties interested to a conference with him on the Scottish National Gallery and other allied questions, to be held in Edinburgh on April 7.

M. Jousely has obtained the first prize of 35,000 francs in the competition for laying out new suburbs for Barcelona. There were only five competitors.

Mr. Andrew Murray, the City surveyor, retired on a pension on Saturday after an association of over half a century with the Guildhall. The staff of his office presented him with a Chippendale cabinet, and eighty of the men in the works department gave him a tandalus.

Mr. Walter Thomas is engaged in preparing a report on the suitability of Carnarvon Castle to serve as the Welsh National Museum.

A Party of members of the Edinburgh Architectural Association visited Inveresk on Saturday. Note was taken of the Roman remains in Inveresk House grounds, and the leader of the party declared that, if the proprietors of the villa houses in Inveresk were to unite, they might, at very little expense, conduct some excavations on a very complete plan, and make the Roman town of Musselburgh so that people would be enabled to form a better idea of the importance of the place in Roman times, an importance which at present was not at all understood.

The Margaret Stokes Memorial Lectures at Alexandra College, Dublin, are this year being delivered by Mr. Romilly Allen. The subject of the first lecture, which was delivered on the 28th inst., was "Celtic Origins and Celtic Metal Work of the Pagan Period." The remaining two lectures will be on "Celtic Metal Work and Illuminated MSS. of the Christian Period" and "Celtic Sculpture and the Evolution of the High Cross of Ireland."

Mr. Frederick Sandham Waller, architect, of College Green, Gloucester, died on the 22nd inst. at the age of eighty-two years. Mr. Waller was at one time in partnership with the late Mr. Thomas Fuljames, Gloucester. For many years Mr. Waller was entrusted with the charge of Gloucester Cathedral, and he was associated with the late Sir Gilbert Scott and Mr. John Pearson, R.A., on the restorations carried out from time to time. He was also largely associated with church restoration in the diocese and elsewhere.

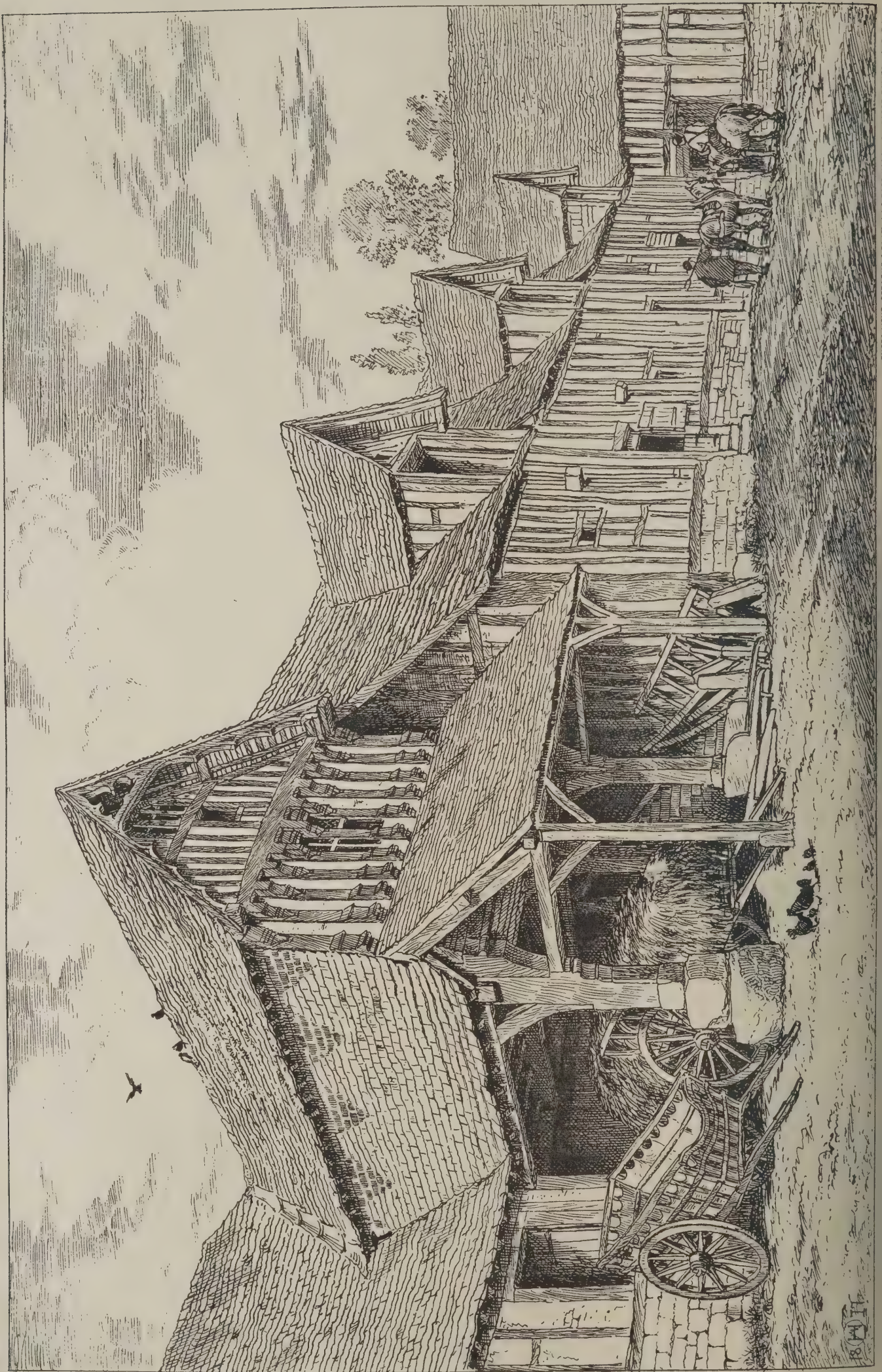




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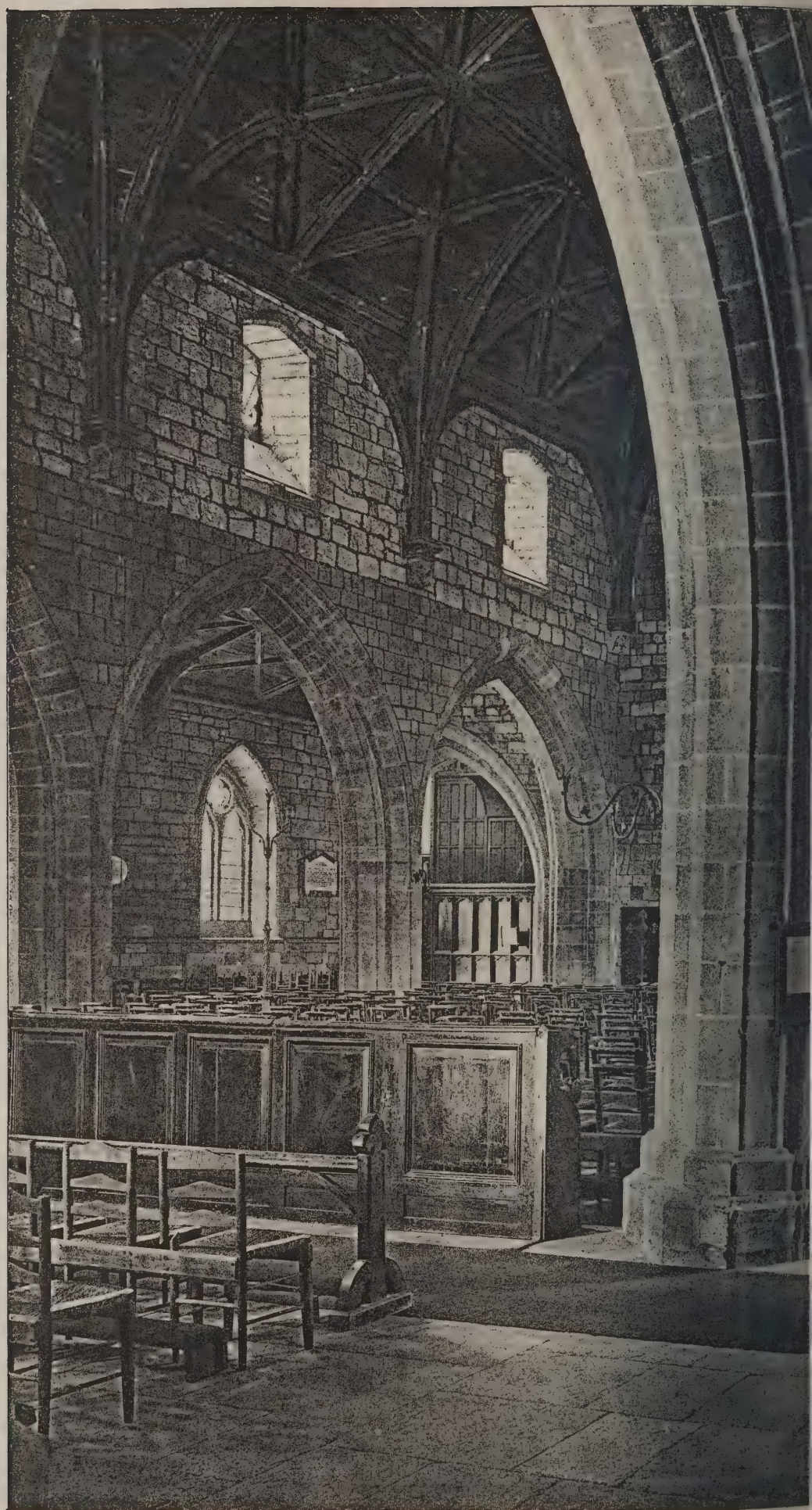
*Continental Sketches by A. H. Haig
Cathedral of Cordoba Spain.*



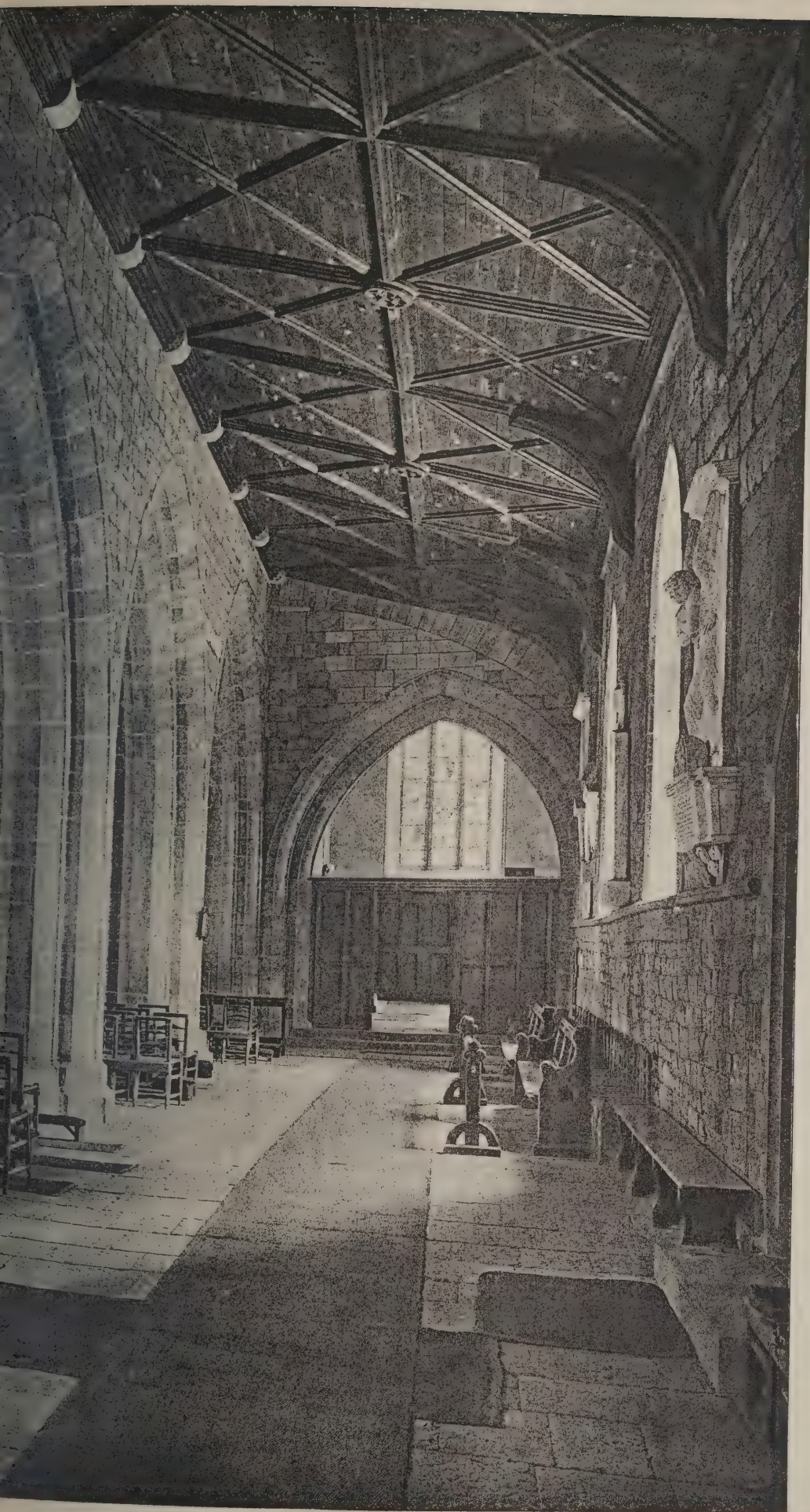
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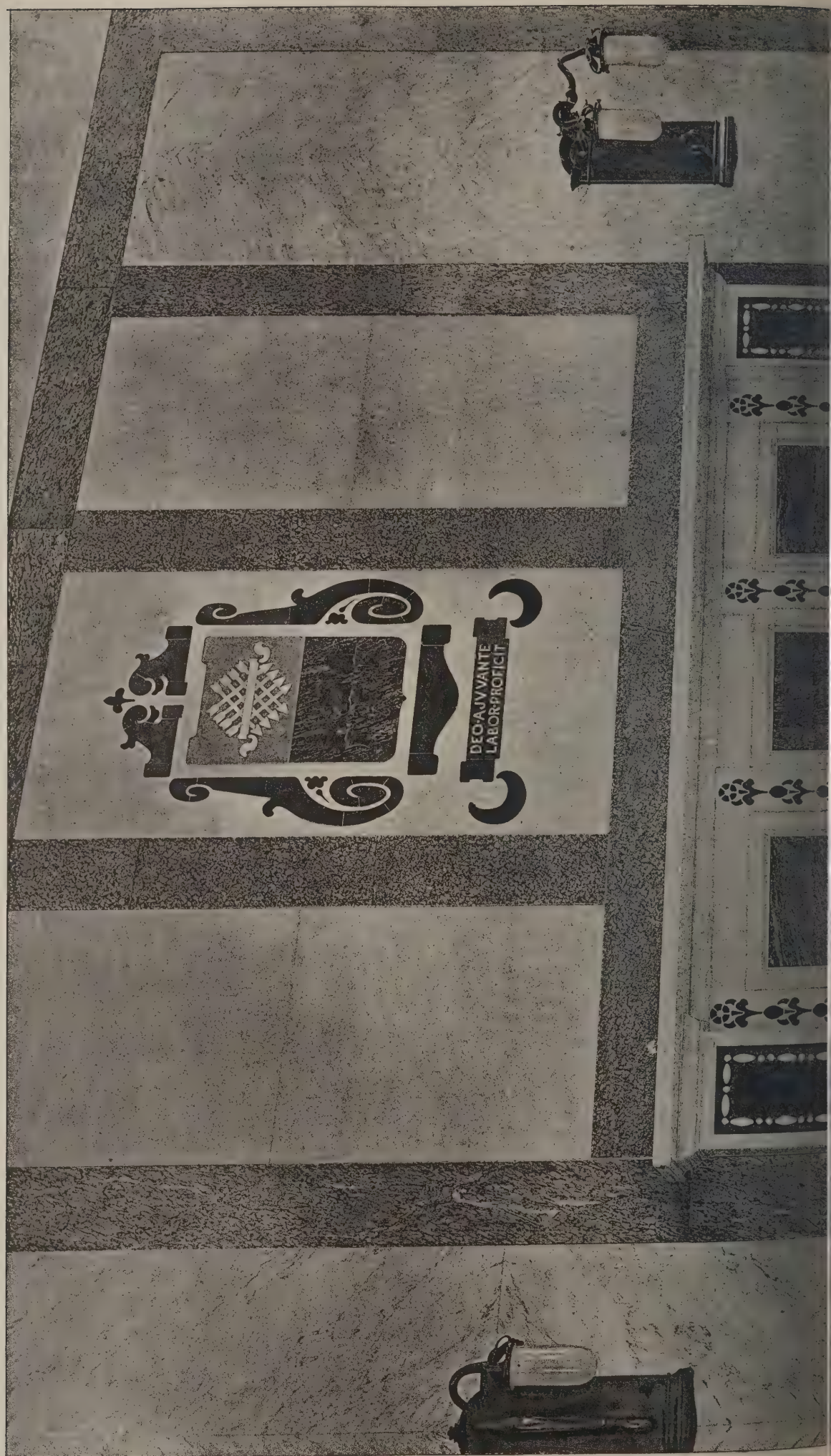
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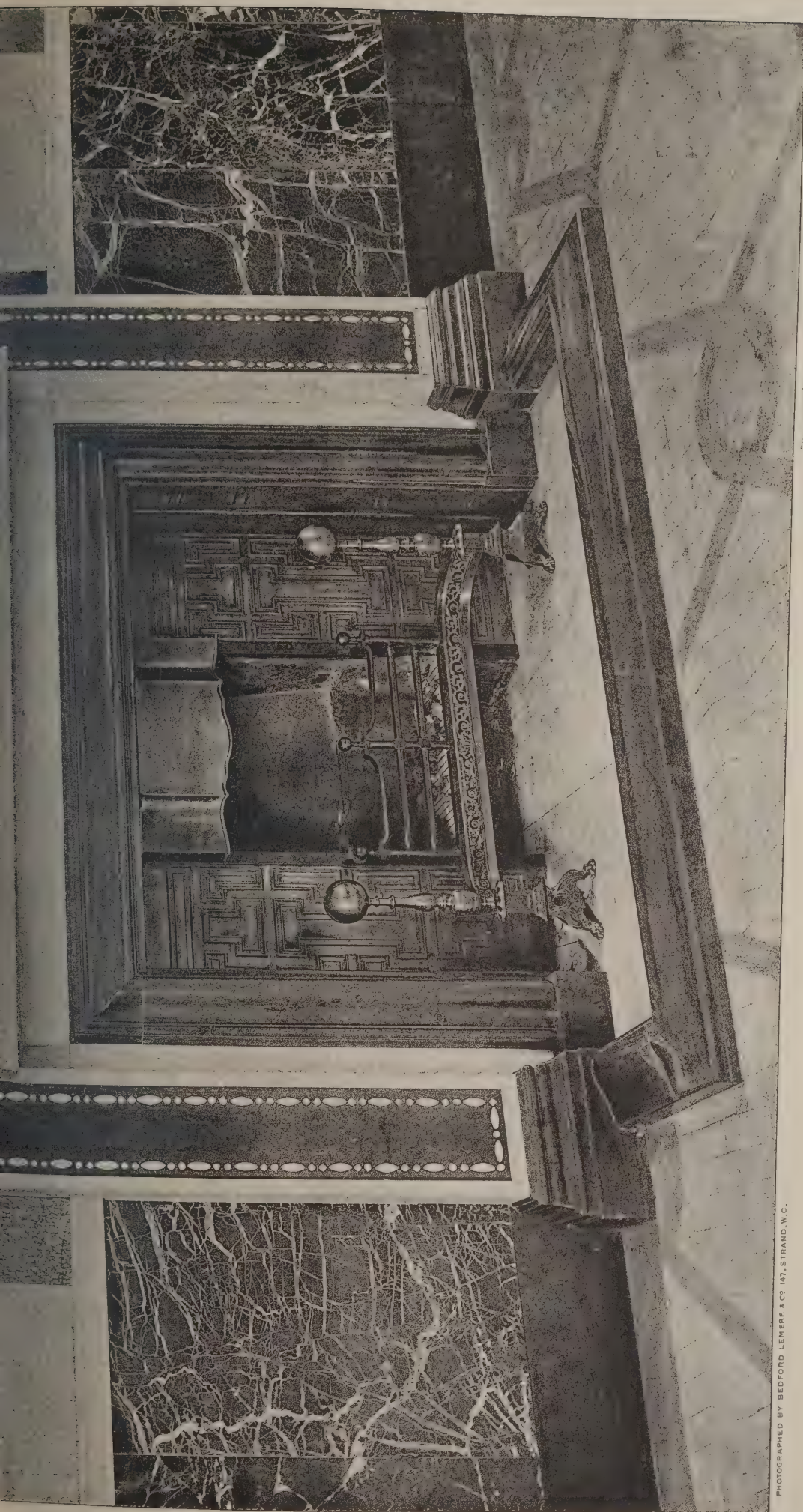


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GLE FROM WEST END, LOOKING N.E.

The Architect, Mar. 31st 1905





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YORK CITY AND COUNTY BANK, SHEFFIELD.

WALTER BRIERLEY, Architect.

The Architect.

THE WEEK.

It is to be hoped the Workmen's Compensation Bill, which was read a second time on Tuesday, will be introduced before it receives the Royal assent. The original Act was a masterpiece of bungling, and the variety of decisions on different points testified to the ineptness of the draughtsman. But when we find a lawyer with the experience of Lord DAVEY declaring that the new Bill was very hard to understand and that he was not satisfied it would prevent the most serious defects in the existing Act, we have an intimation of the difficulties which are sure to arise in County Courts. Lord DAVEY was of opinion that the old Act should have been repealed; and builders will be sure to agree with him for they must believe that the new Act will repeal the old, and they are doomed to suffer as formerly. Another peer considered the Bill was the most unintelligible of all within living memory, and Lord JAMES OF CRAWFORD, an able lawyer, acknowledged the difficulty of understanding the Bill, and therefore of interpreting its clauses. Benevolent legislators are likely to make use of the warnings, because the scope of the Bill is much wider than that of its predecessor. But what should be kept in mind is the working of the Act here. It is well to guard the interests of workmen, but care should be taken to avoid injustice to employers. There can be no question about the existing Act having created prejudices between employers and employed which should not be perpetuated or embittered.

CONSTANTIN MEUNIER, whose death was announced on Wednesday, was one of the most remarkable of modern artists. He was equally successful in painting and in sculpture. He resembled MILLET to some extent, although he was wanting in tenderness. He treated the workmen in foundries, coal-mines and on the peasants at field-work. The result is realism of a kind which some people were unable to admire. There is no question of the energy of his figures, and in seeing them the remarkable prosperity of Belgium is easily understood. His work is no doubt a departure from the old system through which heroic figures were supposed to be suitable for sculpture. However, the innovation corresponded with social changes, and hereafter his figures will be taken as a sign of the spirit of the time when they were created.

The action between the Corporation of Plymouth and the firm of PETHICK BROS. suggests that the old system of contracting has deteriorated in England. The work undertaken was difficult, and it had to be left to the control of overseers. But evidently because it was not from work which was executed above ground, it therefore could not be always under close observation by both workmen and those over them executed the work in an unauthorised manner. In 1900 the Corporation entered into a contract with Messrs. PETHICK to construct an outfall sewer which was to be carried into the bed of Plymouth Sound until a depth of 20 feet below water was reached. The contract was for £21,000. When the work was completed Mr. PETHICK, the engineer, employed an assistant to inspect it. But as that was troublesome he was not with taking information from the contractors' after the completion of the work the result appeared unsatisfactory. Divers were employed, and it was found the pipes were not carried to the proper depth. The Corporation therefore claimed £25,421.10 for the cost of contract and expenses which followed. The case lasted for eight days before Mr. Justice LAWSON. For the defence it was stated that when Messrs.

PETHICK discovered the facts of the case they were ready to guarantee the work for ten years. Everything had been done to have the work carried out satisfactorily. Counsel for the defendants came to the conclusion that it would be wiser to settle the case. It was fought because a charge of fraud had been made which involved the late Mr. PETHICK. An assurance was then given on the part of the plaintiffs that there was no fraud attributed to Messrs. PETHICK, but at first it was difficult to distinguish between them and their agents. The Corporation agreed to accept £20,000. and costs. At one time "contractor's men" were found to be not only skilled but trustworthy. It is to be hoped that they are not becoming deteriorated, for that would be fatal to one variety of English enterprise.

VISITORS to continental churches are sometimes annoyed when they find masterpieces of architecture wholly or partially concealed by drapery, which is sometimes twisted round columns or hung in front of statues or reliefs. On such occasions festivals which have interest for the congregation are being celebrated, and a stranger has perhaps no right to complain. In English churches there is at Christmas and Easter a similar veiling, although vegetation is employed instead of textiles. The arrangement is not always satisfactory, but there is no hope of a change so long as the clergy and ladies of the church exercise control. One protest has come from the Rector of Hawarden. In suggesting that the decorations of the church at Easter should consist of flowers in pots, he adds:—"There is a danger (and it has a tendency to grow like all other dangers) in the over-decorating of our churches and in the spreading of such decorations all about a building, often to the concealment of its natural beauty and outline and to the injury of its furniture, which may contain perhaps articles of beauty that should not be hidden. In proportion as a church is adorned with beautiful and artistic furniture the greater should be the care taken in avoiding injury to or concealment of such articles at our chief festivals." It would be an advantage if a similar mode of decoration were adopted generally in churches, and it would be more suggestive of the interest of the parishioners than the usual mode of decoration.

As light and air cases usually relate to important buildings, there is novelty in finding one arising out of an alleged obstruction to the windows of a house which cost £425. by the extension of the gable end of the adjoining house which cost £400. The pair are in Edgbaston, and plaintiff and defendant are ladies. There was an array of architects and house agents on a grand scale. The kitchen it was testified on the part of the plaintiff had been rendered very gloomy, and it was impossible to read or sew without the aid of gas. Defendant's witnesses were no less convinced the lighting was satisfactory. Mr. Justice BRAY visited the premises and he found he was able to read the smallest type of the *Birmingham Daily Post* in the darkest corner of the kitchen. His Lordship said he could not under the circumstances come to the conclusion that there was a substantial deprivation of light enough to render the occupation of the house uncomfortable according to the ordinary notions of mankind. There might have been some diminution of light, but not such as to give a right of action. If the building had been raised 2 or 3 feet higher, as was intended, it might have made a substantial difference, and although he could not say that even then there would have been a right of action, there would have been a reasonable excuse for bringing the action. His Lordship, in giving judgment for defendant, allowed all costs of proceedings after August 5. In this case, as in several others, the influence of the COLLS judgment is apparent.

THE PARTHENON.

THE announcement that M. CAVVADIAS, the Greek official archaeologist, intends at the congress in Athens, which opens to-morrow, to raise a discussion about the principles to be adopted for the restoration of ancient monuments, and particularly of the Parthenon, has fluttered many academic and artistic dovescotes throughout the Continent. It would seem that individuals and societies have interpreted the proposal as if it advocated the practices which are most obnoxious to them. Some think the Greeks are about to attempt to rejuvenate the Temple of Athéné. They see visions of coloured and gilded architecture, sculpture restored in plaster, and much else which is assumed to have characterised the structure when it was in a state of perfection. As there are many theories about the building, some archaeologists are afraid that those of their rivals may be exemplified.

There are, however, other archaeologists who realise that a new spirit is beginning to inspire those who are engaged in explorations. They are not satisfied with the discovery of a few treasures over which they can rejoice and then leave the major part of the remains to be regarded as *débris*. Out of the fragments they endeavour to reconstitute architectural or sculptural details, and in that way an astonishing amount of success has been attained. M. CAVVADIAS, in spite of limited means, has been able to reveal the buildings of Epidaurus with a clearness and completeness which would be considered impossible during the greater part of the nineteenth century. M. HOMOLLE, having a more restricted task, was enabled not merely to reveal, but to make a restoration of the treasury of the Athenians at Delphi. In this work he has employed only fragments of the original, and his structure is, as he says, not a work of the imagination, but one marked with absolute certainty and indisputable truth. The enterprise required unusual patience, for some pieces of stone were found at a long distance from their proper site. We must suppose that M. HOMOLLE does not exaggerate, and that he describes his treasury with as much exactitude as if he were a witness in a Court of Law. His description has been corroborated by other archaeologists. M. CAVVADIAS has also been able to add to the interest of the Erechtheum by utilising fragments which were on the site. He has, moreover, been successful in experiments at the temple of Phigaleia. May we not then suppose that something might be added to the Parthenon by means of the large and small stones which are scattered around the temple, an addition which would increase our knowledge of the arrangements?

It is impossible to tell until an effort has been made how much of the Parthenon is to be found in these remains. Seeing such a heap of fragments, the early travellers took a despairing view of the situation. DODWELL, who visited the Acropolis in 1801, said that, a little more than a century before, the description of PLUTARCH was still applicable to the Parthenon. According to the biographer of illustrious men, the "structures which PERICLES raised are the more admirable, as being completed in so short a time, they yet had such a lasting beauty; for as they had, when new, the venerable aspect of antiquity, so now they are old they have the freshness of a modern work; they seem to be preserved from the injuries of time by a kind of vital principle, which produces a vigour that cannot be impaired, and a bloom that will never fade." DODWELL wished to show what was the result of the bigotry of creeds and the plundering of artists and amateurs. Like other enthusiasts for Greece he was shocked by what was done by Lord ELGIN, whose example was followed by men of a different class. But, like some of his contemporaries, his thoughts were mainly occupied by sculpture, and he gave no attention to the character of the architectural relics which were lying at his feet. Lord ELGIN'S success incited other people to obtain fragments. The ignorant Turks, who

looked on all representations of the human figure as idols, preferred to use carved marble for the walls of their houses or for making lime. The practice continued, for, according to JOSEPH WOODS, the architect, who examined the Parthenon in 1818, the young Turks endeavoured to break off fragments to sell to the Franks, and the petty officers and sailors belonging to merchantmen and ships of war were no more respectful of the temple. "Thousands of broken pieces, evident from the building and which they might almost find lying about," says WOODS, "but nothing will save them unless they perform their share of mutilation and repeatedly on my visits to the Acropolis I have beheld with sorrow new fractures on the drapery of caryatides, the only objects within their reach." There is no record of any desire to obtain pieces of columns or of the walls, for to the ignorant people there was no virtue in the marble; one stone was as good as another. If at the beginning of the nineteenth century there was a civilised Government in Athens and if an archaeologist of the type of M. CAVVADIAS was allowed to have control of the ruins, there is no doubt that the Parthenon and some of the other buildings in the Acropolis would present a very different appearance at the present time.

When a stranger looks at the ground he is likely to be convinced that any arrangement of the stones and columns is a hopeless task. But an enthusiast such as CAVVADIAS may see possibilities which would not strike ordinary men. It used to be said that limekilns at one time existed in the neighbourhood of the Parthenon, which were used for the burning of marble from the temple. But no credit is now given to the statement. It is more likely that the marble was reduced to rubble through neglect, and that it forms a part of the soil. Nothing is supposed to be lost in nature, it is easy to imagine that some of the stones which now appear without character were at one time part of the inner or outer columns. If one example of the former could be reconstituted by genuine fragments the world would be enriched and an important problem solved.

When the difficulties are considered which await man who attempts to make a satisfactory column out of the remains which have survived, it is absurd to suppose there is a conspiracy to transform the ruins into a complete temple. Greece is not rich enough to undertake such an enterprise, and there is no civilised country that would be a party to one of the grossest acts of vandalism ever committed. The ruin in its present state has a tragic beauty which would vanish if any attempt were made to alter its character. M. CAVVADIAS should, however, be allowed to try an experiment with the stones which are to be found near the Parthenon; they would not suffer by any effort to bring them into a tectural order.

Enthusiasts who may wish to see the Parthenon restored into some semblance of its former self must be allowed, offering a tribute to the power of ancient architecture, or rather of Athens. Although we live in an age in which yesterday almost appears as antiquity, ancient Greece exercises its power over us. The goddess of the Parthenon is still supposed to symbolise wisdom; or, if we will, genius or intellect. As such it seems sacrilege to have in any way desecrated the Temple of Athéné. RENAN was no doubt posing for a kneeling on the sacred hill, he implored pardon for the who had stolen the sculpture belonging to the temple to enrich Western cities. He and other sentimentalists believed that one day there would be solemn restitution. In order that the victory over selfishness might be complete, it was desired that the temple should be prepared to receive its original, its proper adornment. Men have to change their nature before heroism of that kind is possible. The sculpture, wherever it is, is an extension of those arts which ATHENS represented. The noble figures compel men to think of Athens and the dispersion has therefore apparently rendered

service to the goddess. They are not perfect, and it is not perhaps possible to restore them to their original condition. But it is far less feasible to renew the temple. Its original arrangement cannot be revealed. It is better therefore to leave it as it stands as a memorial of knowledge may die out, and that the victorious combatant of NEPTUNE cannot cause a few columns to rise with the same facility as the olive tree once sprang from the barren soil of the Acropolis.

PLANNING.

THE general significance attached to the word "plans" exemplifies how easily the most important part of a collection of things can be taken for the whole. A majority of people will accept a series of designs as plans. This mode of interpretation is not due to accident. The statues of early Eastern kings which we see in the Louvre all have slabs on their knees on which plans are inscribed. It would be more interesting to see the rough sketch of a building were given in each case, but evidently in those remote times the importance of a plan was recognised. It may have been accepted as a symbol of orderly government. When a statue of an architect is commissioned his office is suggested by a scroll on which a plan of one of his most noteworthy buildings is graven. Modern criticism does not underrate the importance of the plan. Many errors of error in building can be rectified, but if the planning is inconvenient or unsuitable the only proper course is re-erection.

There are some architects, or perhaps it would be more correct to say there were some, who have a fear of following the plans of their buildings to be seen by one except their clients and the contractors. Some of that class sometimes propose the registration of plans, and we believe there is one case where a plan has been patented. But there is little use now in concealment. When we find inspectors asking for a plan of a school as an exercise for students in geography, it becomes evident that even at an early age children can be made to know something about the nature of a plan. In technical classes what used to be a mystery is explained, and there are few builders who have not apprentices who are competent to make a plan of any building. Plans of convenient houses are now often copied than is generally supposed.

When Mr. PERCY MARKS's book on planning first appeared we were glad to welcome it, because it was a protest against that secrecy which is more common in architecture than in any other profession. It presented a variety of buildings, and, what was of no small value, it explained the broad principles of planning. The author did not adopt the professorial tone, but spoke as if one student were addressing another. The book was successful, and a second edition has now appeared, which may be said to be nearly double the size of the original work. Instead of eighty there are now 126 plans, and 126 pages of text have grown to 220. In addition the same anxiety for accuracy, even in details, is to be observed, for, as the author says, "an architect should not deem any point too trivial;" the new book is deserving of a place in every architectural student's library. Among the buildings which the author selects as additions are the new Theatre, the Colchester Town Hall, Lord Mayor's town house, Mount Street, W., the Carlton Hotel, Battersea electric power station, examples of business premises, barracks, a Congregational church, a synagogue, a provincial post office, houses, a village hall, stables and a golf club-

In many ways we can see the effect of a further continuation of the subject. For instance, in describing

The Principles of Planning. An Analytical Treatise for Architects and Others. By Percy L. Marks. Second edition, revised and enlarged, with many additional examples. (B. T. Batsford.)

model dwellings on the Millbank estate it was said "the minimum size of a living-room may be taken at 120 feet super, and one bedroom should be not less than about 130 feet and a second 90 feet to 100 feet superficial." It is now added:—"In the dwellings provided at Tottenham by the London County Council the minimum size of a bedroom is 96 feet superficial; the provincial authorities are frequently less liberal, 85 feet superficial or less as the minimum size being in evidence." Mr. MARKS believes that "science is measurement," and his pages abound in dimensions of all kinds. He gives a table of them, which will often save trouble in planning. In the first edition there was no plan of a synagogue. Now one is given of the West, London, which we are told, though not typical from the orthodox Israelite's standpoint, is full of interest and information. The illustrations of clubs are extended. The dairy is an addition. It is remarkable that in describing hotels the provision of stock-rooms was neglected, but it is now corrected. An extract from a paper by Mr. JOHN LEIGHTON, the book-binder, relates to libraries or book-rooms in private houses:—

There should be but one external wall, and that north, thus ensuring an even, steady light, without glare of sunshine or heat, which parches and causes the colours to fade. A room on the first floor or above a vaulted chamber is preferable as tending to keep the books dry. Bookcases should not approach too near to the ceiling, where the air is hot and vitiated, tending to destroy leather. The lowest shelves may well project at least 18 inches for folios, thus providing a ledge whereupon to rest these and similar large and bulky works. A gallery is a useful feature in a library. The shelves throughout should by preference be of one width, so that books may be transposed *en masse* when necessary. Bookcases may be advisedly not more than 4 feet wide and not deeper than royal 4to on the upper tiers.

Instead of the plan of the asylum at Brentwood, one is given of the lunatic asylum at Horton, of which there is a replica at Bexley Heath. A comparison of the two plans will suggest the extraordinary development of the system. A plan is given of the public market in Cardiff, and the borough surveyor, who is the designer, remarks on it, "the gallery shops and stalls have proved unworkable generally throughout the country, the ground floor having to accommodate all classes of goods. The butchers' shops would be better if fitted as two to each 24-feet bay instead of three to the bay." Market people are difficult to please. The costly market at Bethnal Green which the Baroness BURDETT-COUTTS erected failed from its opening to attract buyers or sellers. The only reason that could be adduced was that from its Gothic character the people imagined it was connected with ecclesiastical functions, and that they would be subjected to sermons if they attended. An article relates to refreshment-rooms. The regulation of the London County Council, that if possible inclines should be used instead of steps in theatres and other places for public entertainment, the gradient not being more than 1 in 10, enables Mr. MARKS to alter the chapter on staircases. He adopts the rule of giving 66 as the result of multiplying tread and riser; 8-inch and 9-inch treads would therefore be rarely adopted, and 10 by 9½ would have the preference. Mr. MARKS, although he is an enthusiast for planning, does not assume that by itself it is all-sufficient, or that a well-planned building must necessarily be a beautiful one. In his concluding chapter he writes:—

Beauty of plan exists merely on paper so far as buildings are concerned, and in the process of transference from the draught to the embodiment the lines of the plan lose their significance as elements of beauty as they become merged in the lines of the elevations; it is in the latter that beauty as a factor of design plays a part, and one, it must be remembered, of great import. The pleasure afforded by an "aesthetic plan" begins and ends with its appearance on paper. To perpetuate it, it would be necessary to invoke the services of a Santos-Dumont, whose airship would require to be poised directly over the building to be viewed,

and at a sufficient height to focus the whole and to obtain the effect of mass as opposed to detail. Indeed, to carry the argument to its logical conclusion, in order to obtain an effect similar to that afforded by the draughtsman's typical plan, it would be necessary to slice away the roofing, to blacken all sectional walling and limewhite all floors and finished surfaces. It is a matter of wonder to the author that this want of value of planaesthesia in regard to buildings is ever questioned. When, however, landscape gardening or pavement decoration is under consideration, then planning is to a great extent both means and end, and, as a result, the æsthetics of line and form require every attention.

Mr. MARKS pursues his analysis so far, it is difficult in a limited space to enable a reader to realise the amplitude of the treatise. Like WOTTON, he considers "Commoditie," or commodiousness, should have precedence of "Delight." His book will serve both as a guide and for occasional reference. Its suggestiveness will help others besides students to recognise its utility.

MURAL PAINTING.*

IN the first volume of Mr. WESTLAKE'S comprehensive history of mural decoration he treated of the subject as it was practised by Greeks and Romans, and by the earliest Christians. It could not be said that there was much difference between the earlier and the later productions. The artists who worked for the Christians worshipping in the catacombs were not likely to be Christians, or only in exceptional cases. The latter, although they might be sincere in their new belief, could not throw off their old mannerisms as readily as they changed their theory about a future world. The result is that a Pagan style is to be found in most of the paintings which the Christians placed over their altars or near the tombs of confessors and martyrs. Nude amorini in vineyards, figures that were copies of statues of heathen divinities, and much else that recalled the old mythology were depicted. It might have been intended as a ruse to deceive the Roman authorities. But as long as such work was in favour there could not be a distinctive Christian style.

It cannot be said that in the first part of Mr. WESTLAKE'S volume we see illustrations which may be considered as distinctive of a new style. As the author remarks:—"The notion which seems to possess many minds is that under Christianity a new sort of art rapidly sprang up, and that 'Christian art' immediately came into existence. On the contrary, the translation of forms and ideas into a new art was very slow, and was not accomplished until probably the fifth or sixth century in any reasonable way. The various divisions of Pagan cults each had their own symbolism; these symbolisms were naturally used for a very long period by the new Christian nations to carry the new doctrines exactly as they carried the old ones. Little by little a selection from all the old forms was made, and such selected symbols, like selected phrases, were used to express common Christian ideas."

The new doctrines were, however, too powerful to be pictorially expressed by ancient forms. Beauty was the highest aim of the Pagan artist, but in the new creed that quality was of no account. The prophet's words, "There is no beauty in Him," were applied to the Founder, and soon a disregard of all that an ancient painter or sculptor would admire became characteristic. Not only so, but in the course of time efforts were made to adopt the hieratic system in Egypt, by painting the faces which were to be seen in churches according to fixed principles. A new influence arose, viz. the Byzantine. According to MACAULAY, the one benefit of the Byzantine Empire

was the preservation in the midst of barbarism of masterpieces of Attic genius. But it cannot be asserted that their Christian paintings or mosaics were reminiscent of the days of APOLLO or PHIDIAS. No doubt ornament they showed some ingenuity, but their figures have a stiffness which does not suggest beings who were alive. When seen as masses of varied though subdued colour in dark buildings the pictures have a decorative effect, but if impartially studied they demonstrate that art was fettered. Mr. WESTLAKE by numerous illustrations reveals the progress of art; the wall-paintings are compared with paintings illuminated manuscripts. Examples are given from France and Germany as well as from Italy and Greece.

Many readers will take more interest in the chapter relating to mural painting in England to the end of the twelfth century. The fragments found at Silchester prove that the Romans were not forgetful of painting while they were in England. Whether the natives were inspired by seeing what could be done by Roman art Mr. WESTLAKE declines to discuss. He prefers to judge of early English art from manuscripts and stray pieces of carving and sculpture. The illuminators are likely to have furnished designs for paintings which were produced on a larger scale. He believes it is very probable that there was a chief designer in each scriptorium, who sketched in the compositions of the manuscript and gave rough compositions to the painter and carver. The sketches, when found in certain MSS. combined with finished illumination, generally show great artistic skill. This is particularly evident in a MS. of the fourteenth century in the British Museum (2 B. v) "wherein the finished illumination lacks the life of sketch." By whatever process they were produced there is no doubt that at an early age English churches were comparable to those on the Continent. According to Mr. WESTLAKE:—

The known learning of the world was as central here as elsewhere, and the international communication of literature and art greater then perhaps than now. The paintings at Canterbury, at Clayton, at Copford, at Durham and a number of other places remind us of those at Constantinople, at Rome, in Southern Italy, or Palermo; only was the monastic intercourse perpetual, but Norman domination was potent in the eleventh century nearly all these places. We shall find the same general details of drapery, of ornament, of furniture, and in some cases of physiognomy preserved, although as the national art develops this latter changes first. One will not, therefore, be surprised to find the almost exact resemblance of details here and as far as Southern Italy, Sicily, or Greece. But it is not necessary longer to dwell generally on these things, as they must be recapitulated in the description of local art. There remains not the slightest doubt, from authentic accounts still existing, that the churches of England were as richly painted as those in any other country of Europe. The terrible havoc worked by Danes destroyed all or nearly all of the work in the buildings, and even the buildings themselves. There is, however, some passages from coeval historians, giving the strongest evidence of my assertion. An oft-quoted passage in Bede's "Lives of the Abbots" tells us that St. Benedict brought over designs from Rome, which he painted on the walls of his monasteries. This passage also tends to give evidence of the practice of multiple designs on a small scale in the scriptoria, which small designs were sent or carried away for enlargement on the wall. Of all the paintings of the pre-Danish period, however, hardly a fragment remains. The only ones which could hazard to place at an earlier date are two heads in the Clayton Church, but even these are open to question.

Mr. WESTLAKE presents several sketches of fragments which have survived of English work, and it is evident that they have a family resemblance to earlier examples which were produced in Italy in manuscripts and wall-paintings. Without illustrations it would be impossible for us to give a notion of their style. Mural painting, according to the author, "gave beauty and splendour to temples, palaces, and houses, reduced the melancholy of the tomb and consoled

* *An Elementary History of Design in Mural Painting, principally during the Christian Era.* With an introduction on the art of the pre-Christian Period. By N. H. J. Westlake, F.S.A. Vol. II. (London and Oxford: James Parker & Co.)

journer. It rendered comely objects of use, and defined the nature of the user."

An interesting chapter relates to the ornament of the period described. It shows that the rosette, the almette, the fret, the suastica, the spiral, the scroll, the canthus and various other forms were in use. In every instance Mr. WESTLAKE gives his authority for the authenticity of whatever he introduces, and the 229 illustrations may therefore be accepted as trustworthy. The labour and research which the production of such a book required is difficult to estimate, but, like the other works of the author, it is certain of acceptance as a standard authority on a most important and interesting subject.

THE RHIND LECTURES.

IN his fourth lecture on archæology Mr. George MacDonald began by indicating three possible reasons for the growth of an intimate association between coins and religion. The imitative influence probably counted for something. Again, in historical Greece, just as in Mediæval times, the bonds between art and religion were exceedingly close. So far as sculpture was concerned (and it was to sculpture that die-cutting and gem-engraving were most early allied), the activity of the earlier artists was mainly directed into religious channels. Lastly, the coincidence that at Athens the mint was in the shrine of a hero, while at Rome it was in the temple of a goddess, is too remarkable to be set aside as meaningless. It is quite likely that the mint, like the standards of weight and measure, may have been placed under Divine protection to prevent arrangements being tampered with in moments of political exigency. Such a precaution, however, favours rather of a comparatively advanced than of a primitive period. Economic principles are not arrived at by intuitive methods, and it may be doubted whether the full significance of the invention of coins was appreciated by those who first struck them. An examination of a number of separate series showed that the transition to purely religious types was practically completed about 350 B.C. The intensity of the religious colouring on second-century types was thrown into strong relief by contrast with the types of Jewish coins, the earliest of which date from the time of Simon Maccabæus. From then until the days of the Herods, the dictates of Pharisaic orthodoxy were most strictly complied with, and no devices were used by the Jews which it would have been possible to interpret as implying a breach of the Second Commandment. Proceeding next to speak of portraiture, the lecturer pointed out that its connection with coins was a direct result of the operation of the religious influence. The first historical personage whose likeness appeared as a type was Alexander the Great. And even he did not put his own trait upon coins. This was done by his successors after deification. The historical facts as to the worship of living sovereigns correspond absolutely to the phenomena of the coins. Reference was then made to the gradual extinction of autonomous local coinages, first by the action of the Hellenistic kings, and subsequently through the irresistible advance of Rome. The so-called "Greek Imperial" series represents a revival which sprang out of the reorganisation carried through by Augustus. Under the Empire permission to issue a local bronze currency was a distinct privilege. Many of the issues were commemorative in their character, types and inscriptions giving that they were minted on a definite occasion—the founding of a new temple, the inauguration of an *entente* between two cities, the holding of a festival, the celebration of games. These coins usually have an Imperial type on the obverse. The reverse types are very varied, and are often of the highest interest. Architectural representations are frequent—temples, bridges, gateways, sometimes a sketch of a whole city. Personifications of river-gods and mountains were also common. In many cases were actual copies of statues. Literary evidence enables a considerable number of these to be identified with certainty. Sometimes the pose of the figure or figures is the only clue. Occasionally there are unmistakable indications that the original has been a painting. Here and there it is a legend that is illustrated. But over and over again finds oneself in the presence of a familiar story, such as Hector and Leander at Abydos and at Sestos, Hector and his fellow-fighters of the Trojan war at Ilium, where the

artist has evidently worked with Homer's lines in his mind, and Noah's Deluge at Apameia, in Phrygia. Local celebrities form another interesting class, Homer being very popular. Amongst other literary men similarly honoured are Stesichorus, Herodotus, Anaxagoras, Heraclitus and Aratus. There are also types which allude to an emperor's personal connection with a city, such as the series commemorating Caracalla's visit to Pergamum.

The whole of the fifth lecture was devoted to a review of the coinage of Rome. Copper was long the standard metal among the Romans, and the oldest coins were so large that they had to be cast, not struck. Silver was first minted by the State in 268 B.C., and gold not until the year after Julius Cæsar's death.

The military *imperium*, however, carried with it the right of striking money outside the city when the exigencies of a campaign might demand it. Thus Sulla minted gold and silver on a very extensive scale during his wars in Greece. His example was followed by Julius Cæsar, whose invasion of Italy produced a most curious situation. The constitutional authorities, as represented by the Senate, fled across the Adriatic with Pompeius, and such State currency as was issued was minted in the East. In the meantime Cæsar, having established himself in the capital, proceeded to strike gold and silver in virtue of his powers as *imperator*, powers which he had no title to retain when once he had entered the gates. On his recognition by the Senate he put the silver issues on a constitutional basis, but still minted gold. The political confusion that ensued upon his death was faithfully reflected in the currency. The right of mintage was exercised by quite a number of the leading combatants in the Civil War. When Augustus organised the principate, he dealt with the coinage in very characteristic fashion. Retaining in his own hands the striking of gold and silver, he conferred upon the Senate a monopoly of the copper and bronze issues, which were now resumed after an interval of some sixty years. This system lasted for three centuries, and only broke down under pressure of the persistent depreciation of the Imperial silver.

Proceeding to speak of the types, the lecturer pointed out that these could not fail to be, in the first instance, religious, seeing that the practice of issuing coins was borrowed from the Greeks at the very time when the religious influence held undisputed sway. The types of the Republican copper were uniform throughout its history, and the intense practicality of the Romans was illustrated not only by the prominence given to the marks of value, but also by the fact that a special deity was reserved for each denomination. The head of Janus was probably placed upon the *as* for the same reason that led to his name being bestowed on the first month of the year. We know that he was the god of all beginnings. The types of the silver denarius provide a story of very remarkable interest. At first they were uniform. About 154 B.C. the first symptoms of change betrayed themselves. Some twenty years later the moneyers began to make occasional use of types that alluded directly to their family history. Finally, the religious impulse yielded entirely to a revival of the commemorative one, so that during the last years of the Republican era the types became almost purely personal in their reference. Even contemporary events were not infrequently portrayed. Sulla's son, for example, employed a representation of the surrender of Jugurtha, a device, by the way, which his father had used for his signet ring. Mommsen has drawn attention to the manner in which the growth of the personal element in the types mirrors the course of political development at Rome. In this connection it is significant that the first living man whose portrait appeared on the State coinage was Julius Cæsar. This phenomenon is to be connected rather with his personal authority than with his deification. After his assassination, even the Liberators, always excepting Cassius, had coins minted bearing their own heads. This course was followed by Augustus, while the legend giving the name of the ruler was transferred to the obverse as a description title, thus completing the prototype of the coinages of modern monarchical countries.

On some of the reverse types of the transition period the commemorative tendency was so strongly marked that the coins were much like medals. A conspicuous instance was the denarius struck by Brutus with a reverse alluding to the murder of Cæsar. Under Augustus and his successors the same principle was actively at work, although now personal allusions had, of course, to centre round the Emperor and his family. During the Imperial age architectural types were more common than they had been

before, while personifications of qualities like Justice, Clemency and so on, were extraordinarily numerous. The actual choice of types was apparently still left to the individual moneyers. This policy inevitably led to flattery, which was more apparent in Rome itself than in the provinces. The lecture closed with a short discussion of the types of subsidiary mints, such as Alexandria and of Roman colonies.

The sixth and last lecture showed how at the close of the third century A.D. the triumph of the Roman coinage over the Greek was complete. As far as the arm of Rome could reach there was room for Roman money only. Although much of that money was actually struck in the provinces the mints that issued it were Imperial mints. The coins with the marks of London and Colchester, for instance, are as truly Roman as those that bear the mark of Rome itself. When the barriers of the Empire were finally broken down by the new nationalities that had so long been thundering at its gates, the Visigoths, Vandals and other "barbarian" peoples adopted many of the institutions of Roman government, including the monetary system. Their coins were for the most part mere imitations of Imperial pieces, retaining the emperor's head and the emperor's name. Even Odoacer, after his deposition of Augustulus, minted as the nominal vassal of the Eastern emperor. In the meantime there had been introduced among Roman types an element that was destined to have a profound influence. In the course of Constantine's reign the symbols of the Christian religion began to appear as heraldic devices—on the emperor's helmet or shield, on the labarum or Imperial standard, and so on. By-and-by they were employed as independent types. In spite of a temporary eclipse under Julian the Apostate, in whose reign the emblems of the Egyptian gods came into prominence, they grew steadily in popularity as a result of the increasing importance of Christianity as a social and political force. Regarding the types of the Western Empire there is little more of interest to be said.

In Byzantium it was otherwise. There, about the year 450 A.D., the figure of Christ was used for the first time on a coin. He took the place of the Pagan goddess Juno Pronuba in a group representing the marriage of the Empress Pulcheria to Marcian. The coin in question is known to us from a unique specimen now in the Hunterian Museum at Glasgow. This instance was an isolated one, explicable by the circumstances of the marriage, which was a spiritual one only. Rather more than two centuries later, however, the bust of Christ holding the gospels began to be used as an ordinary reverse type. This coincided with the development of image worship in the Christian Church, and it is significant that the same period saw the birth of the Mohammedan coinage, which eschewed all types as necessarily idolatrous. To this day orthodox Mohammedan coins have nothing but inscriptions. The advent of the "Iconoclasts" was marked by the disappearance of representations of Christ from the Imperial coins. After the Council of Constantinople had pronounced anathema on the image-breakers such representations were reintroduced, and were presently followed by pictures of the Virgin. Groups in which one or other of the saints occupied a leading place were frequent from the end of the eleventh century onwards. It was then, too, that the coin motto was fully developed, partly, no doubt, through rivalry with the coinage of Islam. During the last three or four hundred years of the Byzantine Empire the parallel between coins and seals was extraordinarily close. Returning to the West, the lecturer proceeded to show that, after the fall of the Western Empire, the imitative influence was supreme for two or three centuries. The Merovingian and other coinages were little better than barbarous imitations of the Roman. A new era was inaugurated by Charlemagne, who abandoned the gold standard which Europe had inherited from Rome, and struck a silver denarius. Metal, fabric and types were largely copied throughout the West almost immediately, while the striking of gold came to an end, the gold currency of Europe being provided by the Byzantine pieces, or "bezants," as they were called.

Very remarkable gold coins were minted by Frederick the Second, "The Wonder of the World," before 1250. But the real signal for the revival of gold money and for a general numismatic Renaissance was the issue at Florence in 1252 of the first gold florin. It was shown that, as in painting so in die-engraving, the artistic inspiration of the new age came from Constantinople. The two sides of the florin were then taken as illustrative of two of the leading motives that determined the choice of Mediæval coin-types,

the reappearance of heraldic devices, especially of "canting badges," being a striking feature. Somewhat later, and probably through the influence of the medal as treated by Pisano and others, came the revival of portraiture. The silver penny of David I., the gold noble of David II., and the bonnet piece of James V. were discussed as characteristic examples.

BUILDINGS FOR TECHNICAL CLASSES.

AN official memorandum has been prepared by the Board of Education respecting the planning of buildings for technical classes. It is as follows:—The conditions relating the planning and construction of buildings for accommodation of technical classes are much more varied than those affecting any other type of institution for educational purposes, so much so that any code of rules designed to be universally applicable to such buildings would either subject in nearly every case to exceptions required by the particular circumstances, or so meagre as to be of little practical guidance to managers. Hints may in certain cases be obtainable from the rules which the Board issues for other types of educational institutions, but inasmuch as each of these sets of rules has been framed with special regard to the requirements of schools or institutions of distinct and well-marked character, it would not be right to rely upon them in planning buildings for technical classes, whether in matters of principle or of detail.

A building of the nature of a technical institute should be designed with careful consideration of the special circumstances of the locality; for, while the number of students to be accommodated is a dominating factor in the problem presented to the managers, yet the design and the details of the building are greatly affected by differences in the organisation of the institution and in the nature of the instruction contemplated. In the largest centres of population it may be necessary to erect buildings which will afford special accommodation for advanced day classes connected with one or more important industries. The main purpose of the greater number of technical schools is, however, the provision of educational facilities in evening classes for students who are engaged during the day in technical or commercial pursuits, and this gives each school an individuality defined by features that might be roughly indicated under such heads as these:—

(a) The extent to which co-ordination with other evening schools makes it unnecessary that the technical institute should provide accommodation for students in the earlier stages of their technical education; (b) the sections into which the subjects of instruction naturally fall; (c) the relation of the numbers of students in one section to those in another; (d) the number of classes in the several sections and the frequency of class meetings; (e) any special provisions necessary in connection with particular local industries.

The circumstances and possibilities of the school in these matters affect not only the aggregate accommodation to be provided, and its distribution as to sections of work, but also the extent to which classrooms, lecture-rooms, laboratories, or other rooms for practical instruction in science or art or their applications can be restricted to their use to single subjects, and therefore the extent to which specialisation of the design and fittings of rooms will be justifiable.

It may be proper, in planning buildings for the purpose of technical classes, which, so far as can be foreseen, will probably be used for that purpose in the evening only, to consider whether there is any possibility that the building may be required to serve some other educational purpose in the daytime; but unless, as the result of such consideration, the latter purpose becomes avowedly paramount (in which case one or other of the sets of rules issued by the Board may be applicable), care should be taken not to allow the planning to be affected in such a way as to make the buildings less suitable for the technical classes, for which it is the managers' primary intention to make provision.

The experience of those who have had recent occasion to erect new buildings for technical institutes, or additions to existing buildings, shows that satisfactory results may be secured by arranging that the plans shall be prepared in accordance with an approximate statement of room dimensions accompanied by sufficient particulars as to the character of the several rooms. The compilation of such preliminary descriptive schedule implies a careful survey of the educational work to be carried on in the proposed building. It may with advantage follow upon an examination

recently erected buildings somewhat similar in size and action, for the experience of the use of one building frequently affords valuable suggestions or warning to those who about to plan another. Should a local education authority, or other body of managers, when contemplating the provision of further accommodation for technical classes, desire to consult the Board before the plans are drawn, the Board will be pleased to arrange that an officer whose educational experience has included the work of such an institution should confer, either at the office of the Board locally, with those to whom the duty of preparing the scheme of the building has been remitted.

Plans submitted to the Board for approval are subjected to technical examination in detail, those for each building being considered in relation to the educational needs of the area to be served. Should the plans appear to be defective or capable of improvement in any matter of construction or arrangement, suggestions are at once communicated to the managers so that any necessary action may be taken before tenders are invited.

ARCHITECTURE IN SCOTLAND.

THE architectural drawings in the Royal Scottish Academy, says the *Glasgow Herald*, are even fewer in number this year than formerly. Rejections may account for this to some extent, for the average of quality is high, if there be no works of first magnitude or importance. Executed buildings preponderate rather than projects, so photographic illustrations are plentiful. Still, in three cases at least of finished works representation by drawings is preferred. One misses the competitive designs of former displays, interesting in their way as showing how public architecture got; for not always does the official selection commend itself to outsiders. Whether the scarcity of drawings is to be laid to the account of the fewness of building projects or not, one at least, much canvassed, might have been exhibited, viz. an illustration of what is proposed for the new Hall.

To begin with an Associate's work, a notable addition to Edinburgh street architecture and of sufficient novelty to invite comment is the Professional and Civil Service Library Association, by Mr. John Jas. Burnet. This is a treatment of the Classic that accords with its surroundings, and yet is distinctive in its trace of French influence and many touches characteristic of and familiar to the architect. No shopkeeper can take exception to its large window surface for purposes of commerce, while its architectural effect is got by projecting eaves panelled on the underside. There are marble columns at the entrance, sculptured drums, and horizontal bands of coloured marble set in the wall. This is in addition to the usual architectural treatment that surrounds the shop windows. Mr. Cullen's Bank District Offices, Hamilton, of dignified Classic, has a good deal of originality in its details. It may be fitly compared with the Midlothian County Buildings, by Mr. Henry, shown by photograph of similar style, if more restrained, as befits its site and surroundings. The front to St. Andrew's is particularly satisfying, and the interiors are equally good; a plan is given. In the same style is the Archers' Hall, Entrance and Stair, and the Scottish Agricultural Club Entrance Hall, by Sir R. Rowand Anderson, photographs of works that affect one more by appropriateness than by any novelty. Ornament is absent, but it is not missed. The vaulted colonnade of the latter shows design in the planning as well as in wall space. Glasgow buildings are represented by the Edinburgh Life Assurance Office, now erecting in St. Vincent Street, by Mr. John A. Campbell, shown in a slight sketch; Messrs. Annan's new premises, Sauchiehall Street, by Messrs. Honeyman, Keppie & Macintosh, illustrated by a red geometric drawing.

Domestic work one or two Edinburgh architects have submitted. In Mr. Lorimer's case this is well maintained. Kerro, Forfarshire, a work surely after his own heart, the restoration and addition to an old Scottish mansion, the even extreme quaintness is allowable. A room set as a chapel (unusual nowadays, but common to the old) has its doorway very nicely treated with sculpture and pious inscription. Another of Mr. Lorimer's exhibits does not please so well—High Barn, Surrey. Whether this is really an old barn transmogrified or a new building in the garb of one the photograph does not show. Especially, beyond a tall narrow gable with Dutch-like curls, and aggressively bare; "the barn" is the drawing-room

affectedly simple. Queenshill, Kirkcudbrightshire, by Messrs. Leadbetter & Fairley, is better. It is in Scottish manner, rough-cast and stone dressings, with features recalling Falkland Palace without the towers. Carraig Thura, on Loch Awe, by Mr. G. P. K. Young, is in a similar manner, but with the masonry all exposed; the frontages are too much cut up. Ardlaggan, by Messrs. J. Jerdan & Son, is in Classic of a domestic kind, and it is pleasant to meet with the gable emphasised by the pediment cornice, the current vagary being to let the slates flush the wall. A frame of photographs of recent works by Mr. Henry F. Kerr is quiet and unobtrusive. House at Innerleithing, Messrs. Dunn & Findlay, is Scottish domestic in style, chiefly covered with rough-cast. A terrace in front with stone balustrade helps the general effect wonderfully. Photos of two country houses by Mr. T. D. Rhind. One has very bare posts at verandahs, the other has the interesting feature of modelled ornament in plaster on one of the gables.

Photographs of three houses by Mr. A. H. Crawford are all of them refined and good. Carlung, a reconstructed mansion in Ayrshire, by Messrs. Leadbetter & Fairley, is a design after the English manorial type. In this case the brick filling may be replaced by rough-cast. Gartmore House, by Mr. David Barclay, also a reconstruction, is in the Italian villa manner, but it is coarsely done; a photo and no plan. Red Tower, Helensburgh, by Mr. Leiper, R.S.A., a large house for Mr. James Allan, has many of the characteristics of the architect's work. Appropriately enough, the round tower that he is partial to is here, the great oriel that carries up to a polygonal-slatted roof, the bit of timberwork externally; while within there is much elaborately panelled wall dados and richly moulded plaster ceilings. St. James's U.F. Church, Kilmacoll, by the same, is shown in seven photographs. The novelty is the spire finish of French character; the phase of Gothic employed is English decorated, three-aisled in plan, with clerestories; all the stonework is exposed internally. The other churches illustrated are Pitcairn, by Mr. H. J. Blanc, R.S.A., which has a short tower with a spirelet covered with lead, in Perpendicular style; a pen and ink drawing; also in pen and ink is a U.F. Church at Bo'ness, by Scott & Campbell, with a slated spire and a corner turret, and Dundyvan Church, Coatbridge, by Mr. Alex. Cullen, with a crown spire and a happily placed hall that groups well with the church. These comprise the ecclesiastical work in buildings, but we must include rich interior woodwork at Coats Memorial and St. James's Church, Paisley, by Mr. Blanc.

Only two Libraries appear, at Whitehaven and Prestonpans, by Messrs. Greig Fairbairn & Macniven, both excellent, well expressing their purpose, and nicely shown by wash drawings. A School at Helensburgh, by Mr. A. N. Paterson, has less of the institutional look about it than too often attaches to Board buildings, being low and with outbuildings that help the grouping, with curved slated roofs of east country type: a fine architectural tinted drawing by the architect. Other coloured drawings, but not so good, are: Lady Colebrooke's Workshop and Field Court, Gray's Inn, too pictorially treated. The largest building shown is our Technical College in George Street, illustrated by a slightly tinted wash drawing. There is no plan, so one must judge only the façade. It is most disappointing architecture. Doubtless every window is required, but with balconies it would be easy to relieve the flat front without injury to light. It is very unfortunate that so fine an opportunity has been missed. A design for Wesleyan Halls, by Mr. James G. Dunn, has a nice treatment of Georgian brick and stone, shown in a good wash and pencil drawing. A memorial library at Glenalmond is by Mr. A. C. Heiton, and of interest, but the overhanging oriel over the doorway is not too happy. The interior of tea-rooms in Macvitties, Guest & Co.'s new premises in Princes Street, is an addition of note to the number of elaborately provided places of the kind. The restraint shown is commendable, for here if anywhere advertisement is permissible.

The Norfolk Education Committee have rejected the following motion:—"That in cases of alterations and additions to school buildings or houses not exceeding 500*l.*, it be an instruction to the architect employed not to supply bills of quantities, but that the competing builders prepare their tenders from an inspection of the plans and specifications, which should be open to inspection for a reasonable time before the date of receiving the tenders."

NOTES AND COMMENTS.

IN the Journal of the Society of Arts for the 31st ult., the Council publish a statement concerning the proposed amalgamation of the London Institution and the Society. A committee of both bodies drew up a report on the subject. It will be considered at the annual meeting of the Institution on April 28, and at the annual meeting of the Society on June 28. Counsel have advised that the least costly method of carrying out the amalgamation would be by obtaining an Act of Parliament. The Council of the Society of Arts consider that if properly carried out the union of the two institutions would "produce an institution of very great influence, and capable of carrying out public objects of the very greatest value." It is also said "that the union, if effected, would be an amalgamation of two powerful institutions, and not an absorption of one by the other. The objects of the two institutions are of so similar a nature, and their membership is of so closely allied a character, that there is little fear of any difficulty on this score, or any reason to apprehend that the objects which specially appeal to the members of either institution would be neglected in consequence of the overpowering influence of the other." The Society of Arts is the most disinterested of all the British societies, and the dissident members of the London Institution should remember that fact, and that the proposal for union has but one object, which is the welfare of the country.

THE late Sir NOEL PATON, the painter, sometimes represented knightly scenes in his pictures. He possessed a valuable collection of armour. It was lent to the Royal Scottish Museum for two years. So much interest was excited by it that Dr. DOBBIE obtained the approval of the Scottish Education Department to purchase the collection for 10,000*l*. The Treasury have agreed to advance a part of the purchase money if the balance can be raised by public subscriptions. Dr. DOBBIE's appeal has brought 1,000 guineas from the Corporation of Edinburgh, and contributions have been received from nearly all parts of Scotland. The Royal Scottish Academy is aiding, and there is no doubt this most interesting collection will be secured for the museum.

THE service which Professor LANTERI has rendered in teaching the sculptor's art at South Kensington during a quarter of a century was well deserving of the testimonial offered to him by his students. It consisted of a series of reproductions of works by HOLBEIN and ALFRED STEVENS, two artists who were not without some affinity in their style. A silver bowl was also presented to Madame LANTERI. Among the letters read was one from M. RODIN, who said:—"The teaching of Professor LANTERI, which I cannot praise as it deserves, is destined to bear fruit in the future by which England is bound to profit greatly. By his new method, by his strength and his precision, your professor has given to the teaching of sculpture a character far more important, richer in result and more fruitful than that which is possessed by ordinary methods of instruction." Signor LANTERI has so well performed his duties, it is to be hoped he will long hold his appointment. The modelling school of South Kensington has suffered in the past from the numerous changes of the teachers. Before one system was matured another was substituted, and the "character" which M. RODIN alludes to became an impossibility.

THE basilica of St. Michael, in Hildesheim, is one of the most interesting examples of German Romanesque. It is one of those selected by FERGUSON as an example of the style. It was founded by Bishop BERNWARD, who is renowned as an architect, painter and metal-worker, and was consecrated in 1033. It consists of a nave, two aisles and double transepts. The ceiling is flat, and on it are paintings of prophets and saints

which are supposed to date from the end of the twelfth century. FERGUSON remarks on "the elegance, both in proportion and detail, of the pier arches which separate the nave from the aisles; the proportion of the pillars is excellent, their capitals rich and beautiful, and every third pillar being replaced by a pier gives variety and apparent stability which is extremely pleasing." This noble church is now said to be in a dangerous condition. In order to obtain funds to insure its safety a society has been formed, and probably the money will be collected without delay. A building which has such a history should, however, be protected by the State.

THE County Councils are finding the designing of schools to be a perplexing problem. Most of the Lancashire districts disapprove of the scheme of appointing one architect for all schools, on the ground that the work to be done is beyond the capacity of a single man. In Essex the proposal is to appoint a consulting architect, with a salary of 400*l*., to supervise the plans of other architects, with 2½ per cent. in addition for any schools he may design. The subject is at present under consideration. In Durham what seems to be a similar system is adopted. The architect of the county education committee has been asked to prepare plans for schools at Neville's Cross and Langley Park. In addition, the following architects were selected for other schools:—Eaglescliffe, Mr. J. SANDERSON; Stockton; Crookhill, Mr. W. H. BENDLE; Newcastle; Cockton Hill, Mr. G. S. HOSKINS; Darlington; Southwick, Messrs. BROWN & SPAIN; Sunderland; Leeholme, Messrs. CLARK & MOSCROP; Darlington; Emmari Colliery, Messrs. BROWNE & BROWNE, Newcastle. No objection was raised to the arrangement because the process of selection was unknown, but after a discussion it was allowed to stand.

It is satisfactory to note that in the instructions issued to inspectors under the Irish Land Act which were issued this week, attention is given to architectural remains. Clause 23 states:—"Where any ancient monuments, including any ancient or Mediaeval structure, erection, or monument, or any remains thereof, which is a matter of public interest, or reason of historic, traditional, or artistic interest attaching thereto, exists on a holding or parcel of land in the estate, the inspector or surveyor should call special attention thereto, with a view to its preservation under Section 14 of the Act, if the same be considered desirable. This report should specify the nature and condition of the monument, and how it is at present situated and safeguarded.

It is not possible at present to realise the extent of the earthquake which appears to be still causing devastation in India. The accounts received must be exaggerated. But in the area which has suffered there are many great buildings, and their collapse would make Indian architecture less important than it is at present. It cannot be said that in the past sufficient attention was given by Englishmen to the remains of the varieties of Indian construction. Happily there is now a different spirit, and the destruction of the Taj Mahal, which is within the district where supernatural forces were active, would be felt as a national loss. Lahore, which has suffered, contains a multitude of buildings which have historic as well as artistic interest. But at present it cannot be determined how many have fallen.

ILLUSTRATIONS.

MOUNT STUART, ISLE OF BUTE.—THE GRAND STAIRCASE.

YORK CITY AND COUNTY BANK, SHEFFIELD.

ELDER LIBRARY, GOVAN, N.B.

BALFOUR PLACE, FROM SOUTH-WEST.

ROYAL INSTITUTE OF BRITISH ARCHITECTS.

MEETING of the Institute of Architects was held on Monday evening last. Mr. John Belcher, A.R.A., president, in the chair.

Mr. Alex. Graham (hon. secretary) announced the death of Mr. Frederick S. Waller, Fellow, elected 1856, who was placed on the list of Retired Fellows in 1900, and of the late Mr. Samuel J. Nicholl, Associate, elected 1847. Mr. J. W. SIMPSON read a paper on

The Planning of Cities and Public Spaces.

Referring to the literature on the subject, Mr. Simpson expressed his indebtedness to the works of Herr Stübben, of Cologne, and Herr Camillo Sitte, of Vienna, and remarked that the artistic side of city planning had been almost entirely neglected in England; our authorities, he supposed, do not even realise its existence. The laying out of new streets and roads is nowadays looked upon as purely technical engineering. It was not thus that the cities of the past were created which are still the wonder and delight of the modern world. The Greeks in the Acropolis, the Romans in the Forum, have given us a model for all time of the way to concentrate the forces at our disposal for the beautifying of a city. Contrast the effect of such places, enclosed by splendid edifices and adorned with countless masterpieces of plastic and architectural art, with the forlorn bronze figure stranded on its pedestal amid a tearing stream of traffic which represents the modern idea of a public monument. The "place" of the ægean and Renaissance times, the direct descendant of the antique Forum, has been entirely ignored in our modern city plans. Granted that modern conditions render the "place" no longer necessary as a common centre of change and commerce, yet we may do well to examine the fathers' work and save of the artistic heritage what can be adapted to our circumstances. Exhibiting on the screen plans of various ancient "places" in Italian, Greek, and Flemish cities, the author brought out that, in spite of their apparently aimless irregularity, they were in reality constructed upon definite principles. With a city must husband our resources if we are to obtain an artistic whole. If we scatter indiscriminately the material which makes for beauty (and for our purpose this material is represented by the public buildings and monuments) it is swallowed up in the general mass and fails of its effect. In the ancient "places" the statues, fountains, and other monuments were placed, not in the centre of the space, but at the sides. Fountains naturally should be placed beside the beaten trackway. As Donatello's fountain of Gattamelata and the little column stand at the side of the entrance of the church of St. Anthony of Padua, so obelisks and statues of the Pharaohs rose beside the entrances of the temples. The ancient churches in Italy were often engaged on one or more sides with other buildings, and the author gave several illustrations to show how he intended to produce those groups of open places which give such charm to the buildings. The enclosing of the old "place" was an important feature and a principal element of its charm. No mere open space between streets will give it—the appearance of an unbroken frame of buildings is essential. The author's illustrations made out two leading principles. First, the monuments being placed at the sides, the centre of the square is left free, and the place is enclosed by a continuous frame of buildings. The "place" must be proportionate in size and shape to the buildings to which it is to give value. Generally speaking, the space in front of a church or other vertical composition will be found to be deep, while that before a town or other building whose characteristic is length is usually shallow. The irregular plan of ancient "places," though not in accordance with our modern ideas of "symmetry," do not distress us in execution—they appear natural. The ancients did not trouble about theoretical symmetry, but realised in practice what actually caught the eye. The author directed special attention to the Signoria at Florence—from an architectural point of view the most remarkable square in the world. Its form and size, the disposition of its monuments and buildings, the way in which the streets deliver into it, are all admirably studied. Effort is apparent, and the superb composition is achieved without disturbing thoughts as to the causes of its beauty. Again, the plans of the Piazza di San Marco and the Piazzazzetta at Venice exemplify with the most refined art the principles deduced as to the placing of monuments, the form of the central space, the enclosed frame, the absence

of geometrical regularity, and the value given to squares by their combination with others of varying form and size.

Passing on to street planning, the author referred to the theoretical systems, rectangular, radiating or triangular, as being one and all devoid of artistic interest; nor did such a consideration enter the minds of the engineers who designed them. They had failed even to solve satisfactorily the practical problem of constructing the shortest route between any two points so as to save time in transit. In ancient towns nearly all side streets entered main thoroughfares at right angles. In the modern triangulated and radiated schemes acute angles were inevitable. Again, the ancients avoided as far as they could the delivery of several arteries of traffic at the same point. This principle was now quite neglected. Considering that the chief object of modern street planning is to save time in getting from one point to another, and not merely to construct the geometrically shortest routes between them, the author turned to the streets of Bruges and the fourteenth century in search of guiding principles, illustrating his points by the aid of diagrams. In the whole of Bruges there is hardly a street which formed an acute angle with another, nor a crossing of more than one street with one other. Where a street approached another obliquely or threatened a complicated intersection, its line would be curved so as to avoid acute angles and confusion. Again, the principle of framing the view by enclosing it and preventing distracting perspective is carried out with as delicate an art in the plans of ancient streets as in those of open "places." The more limited the impression the more complete is its effect was the sound axiom of art which, consciously or by tradition, guided the old street builders. There is no reason, either practical or artistic, why our streets should have monotonous parallel sides. The author took as an example the characteristic little "Rue de St. Armand" at Bruges. Not only is such a varying line picturesque and advantageous to the buildings, but it affords exactly those spaces for the cab-stands, telephone and fire-escape kiosks and other constantly increasing requirements which are difficult to provide for and cause obstructions in uniformly regular streets. Violent bends are not necessary; a slight curvature or displacement of the axis line will produce the happiest effects. The concave line of frontage is the most valuable in improving the appearance of a street, and it should be broken as little as need be. In conclusion the author asked, Is it hopeless to suppose that in time our authorities may perceive that mere pulling down, aligning and widening of streets will never meet our traffic requirements, and that what is needed is artistic and considered planning? To the Institute students especially he commended this problem. Let them not be content to continue by mere tradition the measurement and study of the individual building and its details, important though these be. There lies a rich reward for those who will consider the combination, construction and grouping by which effect is gained; and the R.I.B.A. prize committee might perhaps judiciously stimulate synthetic as well as analytic investigations.

Planning of the Streets and Public Spaces of London.

Professor BERESFORD PITE, contributing a second paper, said:—It must be manifest that counsels of perfection which originated and governed the planning of an architect's Utopia or of a garden city changed in value when the case was altered to the grim actuality of a modern city. Upon the superior commercial value of well-designed wide streets and grand public spaces, compared with ill-arranged and ineffective ones, there could be no doubt. The recent development of municipal organisations should create local interest in the larger aspects of street architecture and stimulate emulation between the boroughs. London was dotted over with picturesque elements which might be crystallised into characteristic and pleasing groups and arrangements. The author recalled typical centres of concentration of traffic and buildings which had each a character only definable by its local London name—e.g. Tower Hill, with its history, its artistic charm and dignity, its large freedom of space and openness to the river; Smithfield, with its splendidly characteristic markets, its ancient priory and great hospital, and the mysteriousness of its subterranean roadway; King's Cross, with its railway termini and restlessness and the ragged landscape of the Euston Road; Whitechapel, with its old haymarket width, the shambles and picturesquely situated church; St. George's Circus, finely planned

and occupying the natural centre of London, with the noble Bethlehem Hospital beautifully placed near by; the Elephant and Castle, Camberwell Green, Kennington Gate and the site of the new Lambeth town hall at Brixton were further examples to show that each district of London had opportunities for the conservation of the interest of public places and thoroughfares which were not far to seek for the exercise of local patriotism. The author pressed home to his audience the value of the latent and inherent qualities of London's local landscapes. Owing to the general lack of artificiality or of a formal arrangement of the many features of interest in London street architecture a character had been created which had artistic value, and, generally speaking, London was in no need of the services of a Baron Haussmann to straighten her out. A recognition of the peculiar elements of the city's landscapes would lead to that wise appreciation of liberty and of practicability which would not only save us from the personal annoyance of cherishing unattainable ideals, but would enable us to advise local authorities as to the conservation of those elements of interest and picturesqueness which were valuable. But the interest of London's planning and the laying-out of her public spaces was not only that of the smaller centres. Quoting Turner's remark that London without St. Paul's would not be London, the author referred not a little of the Englishman's sense of the dignity and sufficiency of his citizenship to the situation of the cathedral upon the outer sweep of the great river bend which revealed it to all who entered by the great waterway. In a very real sense the laying-out and planning of the city depended upon the sweep of the curves with which the river passed through London from the Palace of Greenwich to that of Fulham, and thus controlled the direction of the main thoroughfares on both banks from east to west. Englishmen were scarcely yet alive to the imperial grandeur of the Thames embankments, more worthy of admiration than any scheme of avenues or streets that the world at present held. Public buildings and national monuments could be more splendidly placed upon the banks of a broad river than on any other class of site, and London, without the enormous expense of forming new roadways and clearing thickly occupied areas for the purpose, was in possession upon the Thames of a series of situations for grand buildings which should awaken the public conscience to the existence of the delights architecture had the power to reveal. Speaking of the bridges of London, the two distinct aspects of a bridge design were, first, that of its width, proportion and gradient as a thoroughfare viewed from above; secondly, that of its elevation viewed from below. When the necessary new bridge at the Temple appeared, may it be as fine as Westminster from above and as beautiful as Waterloo from beneath. It would occupy a majestic site in the grand curve of the Embankment, so that its perspective would grow and radiate as it was approached, and with Somerset House between it and Waterloo Bridge, and the great Embankment below, a subject would be created not unworthy of some new English Piranesi. It was to be hoped that the fashion for bringing steam railways into cities would soon be over, and that invisible tubes would supply all the needs of rapid urban locomotion, while proper masonry bridges would replace the temporary and rusted-out toys of a past century for the accommodation of the now triumphant autocar across the Thames. It was too late to lament the presence of the Thames railway bridges, but how fine a series of the termini of the three great southern lines, such as those which lay on the north of Euston and Marylebone Roads, would have been on the opposite bank, each approached by a fine passenger bridge from the City shore. What a saving of time in locomotion, the railway managers being saved the problems of bridge crossing. What a saving to the companies in the cost of City sites for the termini would not this reform have effected, and above all, what an addition of architectural interest and beauty to the river in place of the marring the railways had effected. Referring to Regent Street, he argued that it was inevitable that the course of nearly a century should make inroads upon the completeness of any human scheme, and it was fruitless to deplore the necessary alterations which renewed the face of progressive cities periodically. Regent Street, however, had a special claim to be considered as a whole, for it was such. Its characteristic was harmonious completeness, with a sustained variety in its consistency which was doubtless the unexplained secret of its pleasantness. The

whole street had been laid out and built with a regal of dignified discipline, and it remained the property Crown. It was, therefore, greatly to be regretted that latterly rebuilding had been permitted to take place as if the street had no harmony to be broken or character of its own. Architects could not forget the perfect works of Professor Cockerell, one of the most and innocently projected over the footway, and the full towers at the curved approach to Regent Street. Nor could they but regard the reasons urged for removal as being entirely insufficient, or find for their grief in the contrast to all its architectural virtues which now vauntingly occupied its site the eastern side of the street the harmony had rudely disturbed as to architecture and scale by modern intrusions which it was only necessary to characterise as extraordinary instances of the blindness of reasonable authority to artistic facts. In view of the enormous labour and extent of the inception and accomplishment of the design of Regent Street, and of its value to London as a whole, it was not in sober truth too much to ask reasons avail for not undertaking the modification or reconstruction of the recent monstrosities. Indeed, a complete design for preserving the proportions and character of the whole of this fine thoroughfare needs to be taken in hand, in order that the inevitable effects of the shortening tenures under the original leases in rebuilding may be met without reducing the street to such a wreath as its former self as has been achieved at Piccadilly Circus. The lower portion of Regent Street and Waterloo Place itself were in some danger of falling a prey to piecemeal rebuildings without unity of treatment as to proportions. Londoners had expended some Philistine wit upon the Crimea Memorial, but no one could deny the fineness of its monumental scale and the harmonious but quiet detail of Waterloo Place itself. Was this also to be sacrificed in the removal of St. Philip's Church, Regent Street? Had been deprived of another refined and interesting front view and the proportions of the adjoining blocks. What would follow on its site? Piccadilly Circus was referred to as a painful example of how in decadent times primeval disregard of order reassessed itself. The revelation of the latter art of the nineteenth century was surprised by the Pavilion and the vista of Shaftesbury Avenue, enshrining as a jewel in a swine's snout Gilbert's fountain, and by the comedy granite dome of the Strand Board of Works' convenience, presented altogether a contrast to the Quadrant, the County Fire Office and the remains of the design of the Circus that cried aloud for remedy. This absurd accumulation of mistakes should be courageously handled and removed. The fear of the cost and the false economy in laying out Shaftesbury Avenue and the resulting sites had spoilt Piccadilly Circus, dismembered Regent Street, but there were capabilities in the ruins for renewing something of the complete scheme which had been lost and of providing a public space there of which we need no longer be grieved and ashamed. Whitehall and Parliament Square were decidedly growing in architectural interest and picturesqueness. The placing of great formal buildings upon a thoroughfare having a slight general curve and a variation in width was producing in the former its charming effects; while the interest of the Abbey flanked by the Houses of Parliament and St. Margaret's Church was a valuable foil to its neighbours, increased by contrast with the very different buildings at the northern side, and it was still a frontage waiting for some able designer to treat worthily before the western side behind the Canning Street. The placing of the finer classical buildings that London possessed upon informal and somewhat random surroundings was worthy of remark. St. Paul's would not be removed by removal from the wonderful piling up of buildings and spires which grouped with it on its approach from Fleet Street through Ludgate Circus, and the Royal Exchange without its pell-mell of omnibuses, and the accidental appearance of the Mansion House or shy retirement of the Bank into the background, would not be in London at all. The success and character of London street planning would appear to depend upon the provision of a building upon a site and in surroundings that were architecturally ideal, the natural tendency to picturesqueness in a crowded city making amends by artistic accident for the lack of rule and restriction required in its surroundings. At South Kensington a whole modern

of great and costly buildings had recently sprung on roads of magnificent width, without any such effect as could without much difficulty have been obtained with the gardens on the north, Cromwell on the south, and Queen's and Prince's Gates west and east. The buildings include the costly and wonderful Albert Memorial, the Albert Hall, Imperial Institute, Natural History and Victoria and Albert Museums—which are of the first magnitude—and the two Colleges of Science, the City and Guilds Institute, the College of Music and the others were of impressive size. The estate, however, had been futilely subdivided by two cross roads, practically accommodating only two buildings apiece, and the rest were on the outskirts facing the surrounding stucco mansions. No earthly view of this fine accumulation of first-modern buildings was practicable. Turning eastwards on the Strand one found a great problem courageously posed and originated, but waiting for its fate at the hands of the builders. Could a street of such a width as 100 feet be the sites and conditions were in character and in keeping with its breadth on one side of the street only? The difficulties would vanish if the providence of proportions in Regent Street were adopted here, and the scale would have value, not only to the two lovely churches and to the Somerset House, but a healthy freedom for light and air in the central block of London atmosphere. The author concluded that the consideration of the subject before them led naturally to look to the exercise of authority as necessary in all streets and public spaces laid out on rational and symmetrical principles, for the preservation of the character of the whole, and for the prevention of assertive individualism to the detriment of general unity. Such authority could be most readily afforded by the County Council, probably acting through an architectural committee of advice, whose judgment could be allowed to ride upon the cases where the public interest demanded regularity of treatment or otherwise. The widening of thoroughfares that had become main routes was expensive and difficult, but the Institute, he hoped, would throw its influence in the path of measures which must issue in an increase of public amenity and health, and would not be deterred by the difficult questions of rights of property connected with frontage lines to narrow or limit its sympathy with the wishes of the London County Council to widen, open and improve for all architectural purposes the streets that should be transformed into dignified thoroughfares. The proposals in the Draft Amendment Bill, now withdrawn, to increase the width of new streets and, when expedient in the public interest, to widen streets up to 150 feet, were surely considered with a regard for architectural effect that was of the highest value, and which must command the support of every lover of London.

Mr. G. M. FREEMAN, K.C., in proposing a vote of thanks to the authors of the two papers, said he entirely agreed with Professor Pite's suggestion that London had an advantage which perhaps no city in the world in a comparative sense possessed, and that was the great waterway of the Thames flowing through it. The papers had divided themselves into two great questions, the first dealing with the regulation of the individual buildings, and the second on suggesting how the streets should be regulated. It was evident that regulations in these matters were necessary, especially under the present condition of things they could have a street of excellent proportion spoiled by the erection of buildings quite incongruous to it. It would be possible to remedy this by having all the property made State property and by the framing of such building regulations as would compel people to keep their buildings to certain heights. There would still be difficulties, however, to a good general scheme, because the design of the buildings could not be controlled. Then there was another matter, the disinterestedness of the public and Parliament in aesthetics. The bridges built by railway companies afforded examples of the general lack of taste. There was only one practical way of treating the question, and that was for artists, sculptors and architects to be represented on those bodies that controlled the affairs. The spirit of commercialism and vulgarity was universal. All large continental cities suffered in the way that we did, and in such places as Milan, Florence, Venice, possessing the most perfect and beautiful examples of architecture and street arrangement, they had that in modern work the barrack-like style of domestic buildings predominated. The remedy rested with the profession. In the constitution of old Governments they found the artists and architects were municipal men who took an active part in the control of the affairs of State. But

nowadays it seemed that people with light and learning, who could render valuable assistance in such questions, did not seek public service. Until, therefore, the artistic professions came forward to give their counsel in that which concerned beauty and taste the epidemic of vulgarity would continue.

Mr. WALTER CRANE, who seconded the vote of thanks, agreed with the last speaker that the only way to get reform in municipal councils in an artistic sense was to get artists and architects represented on those bodies. The tendency of the times was against true architecture, so that he believed any success that might reward their efforts would be the result of accident. The beauty of London was really destroyed by its suburbs. The city in itself did not lack merit, but as in many continental places the outskirts and suburbs as approaches marred the effect of the capital.

Captain HEMPHILL, L.C.C., said it would be well if the Institute understood the view in which the County Council approached such subjects. The County Council were in a difficult position, because they had to consider the public, who were not struck with that feeling towards art which dominated the meeting. In all its proposals the County Council had endeavoured to get assistance and advice from those who were able to give it. They had been condemned about the widening of the Strand for not putting the frontage back. The difficulty was that the scheme submitted to the Council would have cost 300,000*l.*, and they felt they were not justified in spending such a large sum of money. The County Council did not pretend to be entirely artistic or scientific, and he thought they would welcome such assistance as a committee of architects could give in matters relating to building. The Council in the proposed new Building Act which had been withdrawn did not claim that they knew everything; on the contrary, they asked advice, and yet the Act had rendered a great service to London. In reference to the papers, he said he felt that desirable as the pictures of ancient places might be, it was somewhat doubtful if the old arrangements would meet with the conditions of modern requirements, and in London they were concerned with the present and improvements for the future.

Mr. H. V. LANCHESTER supported the vote of thanks to the authors of the papers.

The PRESIDENT, in summarising the discussion, referred to the changes that were being made in Regent Street. The alterations were to be regretted, but the matter, he said, was under consideration by the Crown officials, and it was very probable that there would not be a recurrence of the blunders that had lately been committed. Piccadilly Circus was also receiving attention, and he hoped a satisfactory scheme would be planned and eventually carried out.

SCOTTISH NATIONAL GALLERY.

AT the present time, when the question of the future of the National Gallery of Scotland is occupying attention in art and other circles, it is pleasing to be able to report, says the *Scotsman*, the gift of three important pictures to the gallery by two prominent Edinburgh citizens. It has always been matter of surprise that more pictures have not come to the gallery, especially by bequest. An idea seems to have prevailed that there was no more room for pictures on the walls; but, restricted as the space undoubtedly is, it is wonderful how the curator can always find a place for a really good work of art. This, however, is said without prejudice to the established fact that more accommodation is urgently needed for the National Gallery. In this case the gifts about to be mentioned are all the more acceptable inasmuch as they are made in the lifetime of the donors. The first to be noticed is a picture in oil by the late Erskine Nicol, R.S.A., A.R.A., which has been presented by Sir A. Oliver Riddell, Craiglockhart House, Slateford. It is entitled "An Irish Emigrant Landing at Liverpool." The measurements of the canvas are 4 feet 8 inches (upright) by 3 feet 5 inches, and the work is undoubtedly a very important example of the art of Mr. Nicol, and will be hailed with much satisfaction by those who wish to see a good collection of Scottish pictures built up in the Scottish National Gallery. In the Irishman who has just landed on a quay at Liverpool will be recognised Mr. Nicol's well-known model, Jim Blake, who figures in a good many of his Irish pictures. He is here a stalwart, picturesque figure, attired in tall hat of wonderful shape, ragged frock

coat, reddish vest and dull yellow trousers. He carries a bag over his right shoulder and holds a walking cane in his left hand. He is just having his first contact with English civilisation, for a bootblack has accosted him to ask if he wants to have his boots polished. At the question the Irishman has pulled himself up in a grandly independent manner. A roguish youngster, attracted by the quaint figure of the emigrant, is running up to see the fun. There are other points of interest in the picture. On the left, a little behind the emigrant, is an Irish girl, evidently in distress, who is having a bill explained to her by a swarthy sailor, and on the right, on the quay, is another group. The shipping stretches away in fine perspective, under a pleasing sky. The picture is altogether admirably painted in suave, luminous colours, and the details have been treated with the utmost care without in any way detracting from the interest of the central figure.

Two "kit-cat" portraits of much interest have been presented by Mr. Arthur Sanderson. They are by George Watson, the first president of the Royal Scottish Academy, and represent himself and his wife. There is a portrait of Watson in the portrait gallery and another in the library of the Royal Scottish Academy, but this work is allowed to be finer than either of the other two. The face of the first President of the Academy has a general resemblance to that of Sir Walter Scott, though the head is not so massive. The head of the portrait, with short cropped hair and glossy forehead, with white loose collar underneath the chin, stands out in fine relief against a dark background. There is more colour in the portrait of his wife, a buxom matron in black, with white goffered cap and ruffle, and wearing a deep red shawl, which is grasped at the left side by the right hand. There have also been bequeathed to the gallery three interesting drawings—two by Paul Sandby, R.A., one of the early English water-colourists, giving different views of Bothwell Castle, one dated 1770; and an architectural design by Thomas Sandby. These drawings have been gifted by the representatives of these two early artists.

Then there have been purchased by the fine art committee of the Board of Manufactures for the Gallery a small but exceedingly fine example of the art of the late Paul Chalmers, R.S.A., called "A Quiet Cup"—an old woman enjoying a cup of tea—as also a marble bust of Allan Ramsay, the painter, which was modelled from life in Rome by M. Foye. The pedigree of this bust has been well traced. When the painter died it came into the possession of his son, General Ramsay, and in turn passed to Lord Henderland and to Lord and Lady Murray. Subsequently it became the property of Mr. Lockhart Thomson, at whose sale the bust was purchased. A small wooded landscape by the Rev. John Thomson, of Duddingston, which was seen at the last Raeburn exhibition, and then very much admired, has also been acquired for the Gallery, the sum paid for the three works just mentioned being 107*l*. These new works have not yet been placed in the Gallery, but will be as soon as possible. There has also been offered on loan for exhibition by Mrs. Dott, Colinton, and accepted, a strong study of a Jewish head by Josef Israels, for his picture entitled "A Son of God's People."

WEST COUNTRY SCREENS AND ROOD-LOFTS.*

IN introducing the subject of West Country screens and rood-lofts, a few preliminary remarks upon screenwork in its more general aspect may not be out of place.

The chancel screen is a feature common to Christian churches of all lands and times, but whereas in some countries it is exceptional in its occurrence, in Britain it is very frequently met with, and would appear to have been well-nigh universal in former days, forming one of the most essential features of the English parish church.

In spite of the ravages of time, fire, iconoclastic zeal, and last—but not least in its destructiveness—nineteenth-century "improvements" and "restorations," it is estimated that there yet remain some 2,000 screens or parts of screens in our churches, and of these the West Country furnishes a large proportion, Devonshire alone contributing nearly 200 (some of course mere fragments) and Somerset about half that number. This abundance of screenwork seems to be traceable to the strength of Oriental influence in the early British Church, which laid the foundation of many pecu-

liarities of plan and arrangement that differentiate churches from their continental neighbours.

The earliest church builders appear to have been influenced by Hebrew tradition, and to have based plans upon that of the Jewish Temple, with its tridivisions separated by veils, and we find the use of veils and of screens as a substitute for veils, perpetual only in the Eastern churches of later times, but in the Celtic and Mediæval churches in these islands. Early writers testify to the fact that in the Celtic church a solid stone barrier was built between nave and chancel.

The churches of those days were not stone built, but were of wood or wattle, and it would appear like wickerwork was largely used in the construction of the lighter parts, as, for example, partitions and screens. The many remains of Celtic ornament or decorative work as applied to stone seem to suggest this, as they show representations of twisted or plaited work, interlaced and tendrils, &c., and in some cases these are elaborated into patterns very similar to those we find in the Country wood detail of a far later date.

The west and south-west of Britain were the strongholds of the Celtic race after the Saxon invasion, and in these districts the older Church and its traditions were not completely uprooted as in other parts—consequently we may expect to find that local types of church building of decorative detail would exhibit their characteristic features. In addition to this, the native stone of the West—in Cornwall and Devon—was chiefly of a rough and incapable nature, incapable of being wrought into fine forms by the mason or carver. Hence in these districts the stone art was not brought to so great a pitch of excellence as elsewhere, and it naturally follows that more attention was lavished upon the woodwork.

We may thus discern two reasons for the preponderance and excellence of the West Country woodwork of which the Mediæval screens and rood-lofts furnish the choicest examples, these having been from the first objects of especial regard and veneration, towards the beautifying of which every effort was made.

Parallel instances may be found in Brittany, where we exist a number of fine screens having features in common with the West British, the same conditions as to race and soil here holding good.

Saxon and Norman building traditions are chiefly concerned with the mason's art, and there appears little character of the decorative detail they employed to suggest a derivation from wickerwork or tendril forms; but in spite of the powerful influence of the style introduced by the Romanesque builders, the oldest British forms of ideas seem to have held their ground and gradually leavened the whole of our national Church architecture, giving a peculiar type of plan in which the high chancel screen is universal, screenwork of wood or stone being found in every part of England, but nowhere more abundantly than in the western districts.

There was a type of stone-built church common in Britain in early days, in which a solid barrier of masonry was built between nave and chancel. This was pierced by a single opening, not much wider than an ordinary doorway. In this we seem to discern the prototype of the heavy stone screens which are occasionally found in the country churches. Stone screens are, however, of unusual occurrence in the West of England, though they are found in certain localities as North Wilts and South Wilts. Some of these are of early date, and were originally designed as screens supporting a gallery over, thus forming the type of rood-loft as associated with the parish church.

One perfect specimen of this order remains at Compton Bassett, Wilts. The eastern member, forming the screen proper, consists of a wall with central doorway and traceried sidelights, below which altars formerly stood. To the westward is an open screen of three arches, highly enriched with sculpture and ornamental mouldings. A parallel instance is found at Le Folgöet, Brittany, which shows the altars, missing at Compton, but here in the ancient and customary position.

Of this arrangement of altars we have an instance at Patrício, in Monmouthshire, but here the screen itself is of wood, and is only a single screen. But the type of chancel most common in the West had no stone-built chancel screen such as that other early type I mentioned, but was a parallelogram of uniform width and height from end to end, without any internal break, so far as the masonry concerned. The roof, undivided by any chancel arch, ran clear from end to end, but the confines of the nave

* A paper read by Mr. F. Bligh Bond, F.R.I.B.A., at the meeting of the Applied Art Section of the Society of Arts.

cel were clearly marked off by the closely-traceried screen which crossed the church at this point. This arrangement is well seen at Llanegryn.

The abundance of wood screens in the West is very noticeable, and both in Wales and in Devonshire, districts containing them in large numbers, they are associated with the type of church above described.

Those which survive are chiefly of the fifteenth or sixteenth centuries, two causes having operated to reduce the amount of earlier work.

In the first place, natural decay; in the second place, the removal of the earlier screens for the more extensive and complex structures of later times. The latter fact was proved and commented on by the late G. E. Street.

The very general rebuilding of West Country churches, their enlargement by the addition of aisles in the sixteenth century, also accounts in a great measure for the disappearance of earlier work. This is notably the case in Devon and in Somerset, in which counties we may nevertheless find still a few excellent specimens of wood screening prior in date to the fifteenth century. That at Combe, in Devon, may be considered very early. It is simple and rough in execution. The parclose at Ottery Mary are of massive fourteenth-century type, also the screen at Mere, in Wilts (not the present rood-screen).

Later we find screens such as those now arranged as a screen in the church at Bridgwater, in which the work is of a massive type, exhibiting features akin to stonework in detail. Wood detail begins as an imitation of stone, in its earlier periods is extremely massive, comparatively coarse in execution, though sometimes wonderfully carved after the manner of freestone, but gradually we find it exhibiting more refinement of character and skill in execution, the design becoming more easy and natural, and proportions lighter and more closely adapted to the nature of the material and expressive of its qualities. We can distinguish this progress in viewing the detail of the parclose screens at Halberton, and the chantry screen now standing in the south transept at Dunster.

In the period of mature design which we are now reaching, it may be claimed that there is a very perfect intimate correspondence between the character and detail of the West Country woodwork and the nature of the material in which it is wrought, there being a virility and force in the design and a "verve" in the execution which are highly suggestive of the vigour of living forms, and have before great interest and value to the artist or art student. This quality is by no means so well developed in other parts or parts of England, where the detail is too often slavishly imitative of stonework, and exhibits a comparative meanness and poverty of design, features of a harsh character and possessing little interest, such as buttresses, ornaments, water tables and others of a like order, which are proper to stonework, being reproduced on a minute or unbalanced scale, with much repetition. These features are too often to give a hard and mechanical feeling to woodwork, a feeling which is increased when the mouldings employed are hollow or angular, but which can be greatly modified by judicious use of foliage forms and enrichments.

The West Country work is distinguished not only by the absence to a large extent of these mechanical and imitative details, but also by the universal employment of convex mouldings, beads or ogees, which are destructive of any tendency to harshness of effect, and bold convex profiles in scrolls and vignette enrichments.

But in the earlier woodwork some imitation of stone is to be expected, seeing that the arts of joinery and woodwork were in process of development in England during the thirteenth and fourteenth centuries, and only reached their climax in the early fifteenth century, after the period in which stonework had attained its best development.

We may now turn to the form of the earlier screens. Most of the wood screens of the fourteenth century would appear to have supported a loft or gallery to the westward, or usually over the screen. The screens themselves have frontal framed heads and the loft would have had a flat

There are several such early screens in Devon—as at Combe, Braunton, Budleigh, &c. That at Stoke-in-the-Head is said to date from Richard II.'s reign, and until its restoration it supported a narrow gallery. The little screen at Culbone probably upheld a similar gallery, and there are others of these square-headed early screens in Somerset, at Pawlett and Huish Episcopi, the latter said to have been removed from Enmore, whilst the northern part of the county is full of screens or remains of screens of a

peculiar and, I think, later type, of which Priddy, Wellow or West Pennard churches afford examples. These consist of a number of narrow vertical divisions having narrow lights, square-headed and containing tracery with crocketed canopy heads to the lights.

The galleries over the screens of this class were probably raised upon a coved soffit, as we see at Christian Malford, Ashchurch and elsewhere.

In Wales we meet with many screens of the Llanegryn type, carrying wide lofts with flat soffits placed centrally over them, and sometimes supported, as at Llanwnnog, by legs at front and back. Next comes a more elaborate type, which has arcading within a square head, as at Exbourne and Bow in Devon, and Keynsham, Ashton and Wrington in Somerset, and in these the loft in most cases stood centrally over the screen supported by coving back and front. Lastly come the magnificent groined screens for which Devon is so famous, and these mark the climax of the art. The development of the groining compares very favourably with any specimen to be found in other parts of England, or with foreign screens; and the character of the ornamental detail, especially the vignette enrichments in the cornice, leaves little to be desired in point of excellence of design and execution.

The screens in the West Country are usually of great width, frequently being continued across nave and aisles from north wall to south wall, whilst there is every evidence that the rood-lofts ran the whole length of the same. The screens generally exhibit a series of fenestrations with arched heads, subdivided by moulded standards supporting a close reticulated head of Perpendicular tracery, and between these spring groinings of hexagonal section, with moulded ribs and embossed or traceried fillings. Above these comes the beam which carried three or four tiers of vignette enrichment, divided by plain or twisted beads, and enriched by crestings at top and bottom, a choice and often highly ingenious design.

It is interesting to trace the types ruling in the different localities of the West Country, as these exhibit some totally distinct schools of design. Those of Devonshire were roughly classified by the author of this paper in the Devonshire Association Transactions for 1903.

There are several leading types of work purely English in character, of which those of Kenton, Kentisbere and Hartland may be singled out as representative specimens, whilst at Swymbridge and Bridford we find a highly enriched variety, literally encrusted with carving, and differing widely in detail from the usual type. Somerset gives us a series of great dignity and distinction of character in the tall transomed screens at High Ham, Queen Camel, Mere and others, whilst occasionally, as at Fitzhead, we find a screen entirely unique.

There are also a large number of screens, chiefly, I think, of late date, in which foreign detail is conspicuous, and in some of these there seems to be actual foreign workmanship. In the case of Kenton there is a screen of which the whole framework and most of the detail are English, while small portions betray a Flemish character.

Italian detail is found at Marwood, Atherington and elsewhere in the fillings of the groining, whilst at Aveton Giffard and Kingsbridge we have a French type.

There is a group of screens in Mid-Devon, at Colebrooke, Coleridge and Brushford, which have a character akin to the French Flamboyant, but with a curious Moorish or Oriental feeling about them. The tracery is subdivided, there being a main order of flowing or reticulated design, filled with a minute fretwork of similar form. A screen at St. Fiacre, in Brittany, exhibits detail closely analogous to these.

The English fifteenth-century type conforms to the Perpendicular, but in some late cases there is a tendency to a debased Decorated type of tracery, with detail coarse and ill executed. This appears in the parclose screens at South Milton and West Alvington, both, I think, very late work. The Cornish work partakes of this nature, the tracery of the St. Buryan screen showing it; also that at St. Ewe. Unfortunately, Cornish screenwork has mostly disappeared as the result of nineteenth-century vandalism.

The gallery fronts which surmounted the beam were of extremely rich design, and on them resources of the wood-carvers, painters and gilders' crafts were expended, producing an effect of great magnificence.

The usual arrangement seems to have consisted of a series of panels, sometimes pierced with tracery, sometimes embossed, but for the most part painted with figures of saints or Scripture subjects; those in Devon-

shire following as their prototype the jubé in Exeter Cathedral, which exhibits a series of Old and New Testament subjects. These panels would be surmounted by canopy heads of the finest tabernacle work and divided enriched standards, as we see in the old gallery at Atherington and restored rood-loft of Kenton or Staverton. At the top there would be a running ornament with a tall cresting over it.

These paintings would have afforded a valuable means of instruction for the unlettered rustics of former times, and have been termed "The Poor Man's Bible."

Much fine work remains in Wales where the rood-lofts have survived in many cases and exhibit some remarkable detail. Those at Llanegryn (east side), Llanwrog and Llangwm are typical specimens, having pierced traceried panels. Few remains of rood-lofts exist in Devonshire at the present date. Atherington, the best preserved, retains both balcony fronts, nothing having disappeared but the statuary or original paintings, which have been replaced by heraldry, scrolls and inscriptions of Elizabethan date.

Another at Marwood was taken down within living memory and several more are known to have been standing at no very distant date. The balcony over the eastern side is still standing, however, and is a quaint and curious piece of work, evidently of late date, the panels being filled with rudely-carved grotesques.

The rood-lofts which, prior to the Reformation period, had been employed for numerous purposes, mostly of a nature afterwards judged to be superstitious, appear, nevertheless, to have fulfilled a special function of more lasting importance in providing accommodation for choir and organist, with perhaps other musicians.

In this use they were frequently confirmed, it would appear, after the Reformation, being extensively used for the purpose, and no doubt many only disappeared because they were worn out. The order of Archbishop Parker that the rood-loft fronts should be taken down as far as the beam and finished with a convenient cresting was generally, but by no means universally, complied with, and this was especially the case in Devonshire, where a great many were retained as singing galleries or pews, as at Tiverton, Culmpton and Totnes, whilst others were simply removed to the west end of the church. It has been considered that the order for their removal was not aimed at the lofts as lofts, so much as at those superstitious accessories which were often a part of their structure, and thus necessitated in many cases the demolition of the entire fronts.

It seems odd that whilst the paintings or sculptures over the screen fell under such complete condemnation in Edward VI.'s and Elizabeth's time, the figure-paintings which adorned the lower panels of the screens were not ordered to be destroyed. Such mutilation as they have received appears to have been chiefly at the hands of the Puritans, and many series of such figures yet remain in Devonshire, as well as East Anglia, to gladden the heart of the antiquary. These paintings have been ably and exhaustively dealt with by Mr. C. E. Keyser, F.S.A. ("Archæologia," vol. lvi. 1898).

There was a strict injunction that the screens themselves were in all cases to be retained, and we find that not only were they not destroyed at the Reformation, but a great many were erected during the Reformation period, and subsequently these may be classed in order of date as the sixteenth, seventeenth and eighteenth-century types, illustrations of which are given in the screens at Lustleigh, Rodney Stoke, Washfield, Low Ham and Cruwys-Morchard. The screen at Lustleigh shows the Gothic traditions in its general form and detail, but with altered features according to Reformation ideas, figures of choristers and clergy being substituted for saints on the lower panels. That at Washfield illustrates the Jacobean type, in which a greater departure from old models is of course noticeable. In the screen at Rodney Stoke we see the effect of the revival of Catholic ideas under Archbishop Laud, there being here a post-Reformation loft above a screen of the same date. Other fine types of post-Reformation screenwork may be seen at Croscombe, Crowcombe and Bridgwater.

The attempt to reproduce some of the characters of fifteenth-century enrichment is noticeable in the cornices, but the immense difference is apparent, the seventeenth-century imitation being flat, coarse and superficial, and yet having a by no means ineffective character. It illustrates, however, the great decadence in the native arts since the days of the Tudors.

The example from Low Ham is even more interesting, as here is a church with internal fittings complete in

Caroline Gothic. The screen is well worthy of study. Cruwys-Morchard we see one of the instances—number—of a screen with parclose, stalls, &c., erected in the Hanoverian period. This was an age of apathy for Church matters when old landmarks were in process of being forgotten, and although such instances as this are a continuity of old tradition, yet, as far as the characteristics of West Country screenwork are concerned, work cannot claim to be a successor, as it is purely in design.

The West Country type of church having as a feature a chancel arch, its place was usually taken by a parclose extending from above the screen to the apex of the chancel. There are good ancient instances of this at Bettws-Negon and at Mitcheldean, whilst Littleham (Bideford) presents a modern one. This may be called a tympanum over the screen. On this it was customary to depict the Doom against it or in front of it, on the western side, would be the Holy Rood with figures of St. Mary and St. John.

At the Reformation these tympana were despoiled of their superstitious paintings and their surfaces were washed or plastered, and the Tables of the Law, with the Royal Arms, the Creed, and the Lord's Prayer attached to them in accordance with the decree of 1604. It is to be regretted that during the earlier "Restoration" period of the nineteenth century the greater part of these were removed, being considered an obstruction by the clergy of those days who had lost sight of the old traditions and failed to see the necessity of a barrier between nave and chancel. Much mischief also has been done by the hasty and unjudicious repair of screens, and to save the cost of restoration they have frequently been cleared of their ornamental detail. Sufficient nevertheless remains to form an accurate storehouse of the greatest value, and it needs but a careful and attentive study of the West Country screenwork to demonstrate its very high importance to those who are seeking to revive those beautiful handicrafts which were the pride and joy of our forefathers, but which have since fallen so lamentably into abeyance.

In these beautiful compositions we find a richness of variety which cannot fail to satisfy, combined with a remarkable honesty of design, and all the freedom from affectation which differentiates a native from a borrowed style. They remind us of those ineradicable principles in art which connect the form and proportions of a design with the nature of the material in which it is wrought, and regulate character in truth, fitness and harmony, offering in these respects, it may be feared, a rather painful contrast with much that unfortunately distinguishes modern composition—especially those of a school which aims at emancipating itself from ancient rules.

Mr. Bodley, R.A. (chairman), thought the paper was the most able and interesting account of the old screens in the West of England churches. It not only dealt with the history but also with the art of the subject. The running vine patterns were full of beauty. He had examined some of them, and might remark that he had some delight in carved fragments of them in his office which were given him by the late Lord Devon. They were almost always gilded on red, which gave a warm tint. There were two very different ideas of the interior of a church. The one was to have it all open to view, so that it might appear spacious and grand and present an uninterrupted vista. That was the Classical and is the modern idea. The Gothic plan is the opposite to this. Here the interior is screened and we have the conception of mystery—an indefinite space beyond. A dark screen may stand up against a bright golden east end. If nature was to be the guide in art, there can be no doubt that the screened effect is the one most in accord with it. The Chairman further said that he remembered walking on a road that wound its way half up a green hill that rose out of a vast level landscape. Between hill and this wide view of long stretching land there were trees standing, screenlike, with their high stems and the trace of their branches. They stood out dark against the background of the vast stretch of land that was bathed in sunlight. Presently, as he walked on, the trees came to an end and all the broad low-lying land was displayed to his eye. The view was fine, but the entrancing beauty, the mystery of a half-seen view was gone. The poetry was turned into prose and the richness of effect to comparative poverty. With the less seen view of the plain the effect was one of indefinite, well-nigh an infinite, appearance of space and distance. But when all was seen there was a loss—a loss even of size and distance. The half had been greater than the whole, as it often is in art. Here then was the screen

as contrasted with the unbroken vista idea. How more beautiful the screened scene was than the open one words could express. While he was familiar with a few screens that had been exhibited, he was a little sorry more of the Eastern counties' screens had not been shown, because he knew them best. The screen at South was a great work of art. It was rather interesting that at church there were two screens, the centre screen the screen at the side, which were entirely different. The centre one, which was a little earlier, was full of art, the other was rude. He was sorry to have to say he believed the painting on the centre screen was a fine work, and was almost worthy of Van Eyck or Vermeer; the painting on the side screen was English and very rude and elementary compared with the Flemish

WHISTLER'S "CARLYLE."

WHEN the galleries and museums of art committee of the Glasgow Corporation decided to purchase the portrait of Thomas Carlyle there was much opposition. A graphic account of the transaction by Robert Crawford, LL.D., lately appeared in the *Glasgow Evening News*, in which he said:—I happened at that time to be chairman of the galleries committee, and in that capacity was largely responsible for carrying through this business. In those days the Corporation was a very old and conservative picture buyer; we had bought pictures for some years, and had over £4,000 in hand, waiting on something good to turn up. The proposal to purchase Whistler's "Carlyle" really originated in the Art Club, largely owing to the influence of Mr. E. A. Walton, and by Mr. James (now Sir James) Guthrie, a memorial signed by over ninety artists and others, including Sir John and Orchardson, after which a deputation waited on the galleries committee and urged them to buy the portrait. The picture had been shown in Paris, Berlin, Munich, Vienna and Edinburgh. Some discussion arose in Edinburgh, when it was shown there, as to the commercial wisdom of purchasing it at the price of 400 guineas, which the value put upon it then. Whistler, when he heard of this discussion, promptly telegraphed that the price was 400 guineas, and it was at this price the Corporation of Glasgow were now urged to purchase the picture. The committee on galleries viewed the proposition favourably, and thought that a "deal" might be made for perhaps eight hundred instead of a thousand.

Next day I left for London, taking with me a municipal colleague somewhat Philistine in matters of art, hard of hearing and straight in speech, whose mission was to "squeeze" the price, while I took the office of sympathetic mediator determined anyhow to have the picture. We went by appointment and in considerable mental excitement to Cheyne Row, Chelsea, to interview the author of "Gentle Art of Making Enemies." The house, I remember, was almost devoid of furniture—a large drawing-room on the ground floor had a few screens and panels hanging about in its vast spaces. These seemed to be symphonies or nocturnes in blue, grey and silver—ghostly vague impressions of what seemed to be the Thames and bridges; but, as my Philistine colleague assured me, they could have been turned upside down without one missing which end was top and which was bottom. There were a few rush-bottomed chairs and a table, four bricks in the empty fireplace, and some bits of wood burned in the little square thus formed. My Philistine rubbed his hands with satisfaction at these symptoms of a "simpler life," feeling assured that his "squeezing" process was the more likely to be successful.

Mr. Whistler received us with great ceremonial, cordiality and impressiveness. He wore, *inter alia*, a brown velvet jacket and loose neck-tie, with hanging ends, and a pair of the Boul' Mich. His hair was oiled and combed and worn well down towards the shoulder. He stood as if on his tiptoes—his head daintily turned sideways, while his bright sparkling eyes and his general air of grace and grace somehow suggested to us the aspect of a rare or a love bird.

Cigarettes and tea—laced, I think, by a dash of lemon and a dash of rum ("Vienna tea")—were produced, and Whistler's talk—brilliant, eccentric, epigrammatic—very delightful and entertaining; but he shied off at the most remote suggestion of business. "The picture; yes, of course, the picture is yours. The great Corporation of Glasgow—most listened and humane—most liberal in its ideas—cer-

tainly into no better hands, can I desire to see my 'Carlyle' placed. With great pleasure I see that many artists with whom I have not the pleasure to see eye to eye have honoured me by asking you to take my picture for your city—I honour them for this."

"But," I said, "Mr. Whistler, we have not yet decided whether the picture can be ours. My friend the Philistine here and others in Glasgow think that the price now fixed is perhaps too high, and we think of suggesting—say, 800 guineas."

"My dear ruddy-faced Scot," replied Whistler, "what is this we are doing? You and I will never condescend to haggle about money. If it was in my power to bestow this picture on the people of Glasgow as a gift I would gladly do so, as a proof of my appreciation of their good judgment in desiring to possess it. They do so choose, do they not? Alas! I cannot make it a gift and I wish you to have it. What need, then, to discuss the question of money? But you have not yet seen the picture. It is not here; tomorrow will you give me the felicity to see you again and I will show you the 'Carlyle'?"

As we were preparing to leave, my Philistine friend ventured out of the financial into the artistic arena, but was sorry for it a moment after. "Is it true," said my colleague, "that, as I have heard, modern pictures don't stand so well as the old masters? The colours, they say, fade sooner?"

To which Whistler, in a perfect blizzard of intonation and gesticulation, replied, "No, it is not true—modern pictures do not fade, and therein lies their complete damnation."

Next day—a fine sunny afternoon—a bright welcome more tea and cigarettes, smiles and delightful little rushes of epigrammatic talk as before. Still intent on business, I, said in my most sympathetic and ingratiating voice:—"Now, Mr. Whistler, have you, since we saw you yesterday, thought any more about the price of the 'Carlyle'?"

"My dear friends, most estimable of Scotchmen," replied Whistler, "I have indeed been thinking, but only on the anticipation of again seeing you this afternoon, after our delightful chat of yesterday—and now that you are here let us talk, smoke, drink tea and be happy."

Upstairs the picture was displayed on an easel—the Philistine and I putting on the airs of practical experts, walking back and forward, and scrutinising the beautiful picture from various points of view.

The Philistine then, clearing his throat, said in a firm voice, "Mr. Whistler, do you call this life size?"

"No, I don't," snapped Whistler, with a gesture which said plainly, "if I could I would throw you out of the window." "There is no such thing as 'life size.' If I put you up against that canvas and measure you, you would be a monster."

The Philistine was now considerably crushed; Whistler was irritable; I began to quake in fear of an eruption, and was trying to throw the oil of sympathy over the troubled waters, when my somewhat crest-fallen Philistine comrade made one more rash conversational venture. "The tones of this portrait are rather dull, are they not? Not very brilliant, are they?" he said.

"Not brilliant! No; why should they be? Are you brilliant? No. Am I brilliant? Not at all. We are not 'highly coloured,' are we? We are very, very ordinary-looking people. The picture says that and no more." There seemed nothing more to say after that, and so the Philistine and I departed, after promising to send a cheque for the picture, highly charmed with the gay persiflage of the greatest of modern Impressionists.

The London Geological Field Class, conducted by Professor Seeley, F.R.S., begins its twentieth year's season on Saturday, April 29, with a visit to the North Downs at Betchworth. The field class, which is carried on continuously on the Saturday afternoons in May, June and July, affords practical teaching in geology by studying direct from nature the structure and modes of occurrence of the rocks in the basin of the Thames and adjacent country. Further particulars may be obtained from the secretary, Mr. J. W. Jarvis, F.G.S., St. Mark's College, Chelsea, S.W.

A Church is about to be built in New York of a novel class. The church is the Broadway Tabernacle, and a site has been secured at the corner of Broadway and Fifty-seventh Street, where, on a lot 100 feet by 100 feet, a ten-storey steel construction will be erected. While the general design will be of an ecclesiastical character the new building will have numerous classrooms, a library, baths, gymnasium and kitchen.



Re Essex, Nicol & Goodman Partnership Dissolution.

SIR,—We beg to inform you that the partnership heretofore subsisting between us has this day been dissolved by mutual consent. In future Mr. Oliver Essex, F.R.I.B.A., and Mr. John Goodman, will practise as Messrs. Essex & Goodman at the address below, and Mr. J. Coulson Nicol, A.R.I.B.A., will practise with his son, Mr. G. Salway Nicol, A.R.I.B.A., as Messrs. Nicol & Nicol, at King's Court, 117 Colmore Row, Birmingham. Both firms will have a London office at 25 Bedford Row, W.C. All moneys due to or from us will be received or paid by us at Colmore House, 21 Waterloo Street, Birmingham, or at King's Court, 117 Colmore Row, Birmingham.—Yours faithfully,
 ESSEX, NICOL & GOODMAN.
 Colmore House, 21 Waterloo Street,
 Birmingham: March 31, 1905.

SIR,—I have pleasure in intimating that I have taken my son, Mr. George Salway Nicol, A.R.I.B.A., into partnership, and will continue to practise with him at address below. During the eighteen years I have been associated with Mr. Oliver Essex, F.R.I.B.A., the firm has been engaged on several important works in Birmingham and district, viz. the Municipal Meat Market, Municipal Technical School, Barron's Stores, Lunt's Premises, Grainger & Smith's Factory, Preston Arcade, Newbury's Buildings, Christ Church Buildings, Newton Chambers, Cornwall Buildings, &c. Amongst current contracts the new offices of the Hearts of Oak Benefit Society, Euston Road, London, with other contracts, will be continued under my personal direction.—I am, yours faithfully,
 JNO. C. NICOL.

King's Court, 117 Colmore Row, Birmingham:
 April 5, 1905.

GENERAL.

A Collection of Paintings belonging to the late Mr. James Staats Forbes was sold last week at Munich for 13,000*l*. The highest price obtained was 1,525*l* for a picture by Lenbach.

Mr. W. Noble Twelvetrees read a paper on "The Design of Concrete-Steel Beams" before the Civil and Mechanical Engineers' Society on the 6th inst.

The Prefect of the Seine has made a proposal to the Municipal Council with a view to purchasing all the works which were in the studio of the sculptor, M. Dalou, at the time of his death. If the Municipality decides to purchase the works, a special room in the Petit Palais will be devoted to them.

Mr. Alfred East, A.R.A., has been appointed by the Municipality of Venice a member of the jury which will select the works for the International Art Exhibition to be opened on the 21st inst.

Mr. J. S. Sargent has been elected foreign associate of the French Academy of Fine Art, in place of the late Herr Menzel.

Professor Todilini has just completed the model for the monument to be erected in memory of the late Pope Leo XIII. The memorial consists of a sarcophagus, resting upon a granite base, on which stands a statue, 10 feet in height, of Pope Leo in his pontifical dress and with a tiara in his hand. On one side of the sarcophagus is the figure of a working man, and on the other a statue emblematic of the Church, holding in its hand an olive twig. The monument, which has been subscribed by the surviving cardinals created by Leo XIII., will be of a total height of 30 feet.

The Liverpool Cathedral Executive Committee, at their meeting on Monday, received a series of photographs from the contractors indicating the large amount of work requisite in preparing the pier foundations.

Mr. S. H. Hill Willis has been permanently elected surveyor to the Orsett (Essex) District Council.

A Paper on "The Manufacture and Testing of Portland Cement" will be given by Mr. A. K. Bamber (Managing Director of the Associated Portland Cement Manufacturers, 1900, Ltd.) at the meeting of the Society of Architects on next Thursday. The paper will be illustrated by biograph pictures, showing machinery, &c., in operation.

Mr. W. Whitaker, B.A., will read a paper before the of London College Science Society, entitled "Wh Hospital: Its Architectural Importance," on Friday the 14th inst.

The New English Art Club will open an exhibition Royal Institution, Liverpool, on the 17th inst. On the demolition of the Dudley Gallery there will be no exhibition in London.

The Council of the Institution of Civil Engineers resolved to recognise the ordinary degree of Bachelor of Engineering of the University of Liverpool obtaining the examinations of that University as equivalent to those of the Institution, as candidates from the associate membership examination of the Institution.

At Last Week's Meeting of the Edinburgh Architectural Association the president, Mr. J. T. Baillie, made reference to the loss which the Association, the city, the country, and even the colonies, had sustained in the death of Mr. George Henderson. He said that the work which Mr. Henderson did, at home and abroad, far and near, diversified and varied as it was in character and style, was always marked by scholarly as well as practical knowledge and by well-trained taste; and the results were things of beauty and usefulness, monuments of his own skill, and examples and models for the instruction of others.

The Late Professor Adolf von Menzel, the painter, besides innumerable sketch-books, 5,000 loose drawings valued by experts at 50,000*l*. His heirs have offered them to the German National Gallery.

Mr. Stanley Dunkerley, M.Sc., has been appointed the professorship of engineering at Manchester University. Mr. Dunkerley was a student of Owens College, obtained the B.Sc. degree of the Victoria University first-class honours in mathematics, and in the following year in engineering.

The General Purposes Committee of the Brighton Corporation have received a report that, by virtue of his appointment as deputy borough surveyor, Mr. Alfred Weller will carry out the duties of borough surveyor until September next, at his present salary. The committee recommend that Mr. Weller be appointed borough surveyor of Brighton and surveyor to the Sanitary Authority for the borough from September 29 next, at a salary of 500*l*. per annum payable quarterly.

The Edinburgh Dean of Guild Court have granted warrants for the construction of new engineering and physical laboratories at the Old Fever Hospital buildings, Infirmary Street, recently acquired by Edinburgh University Court. Alterations will be made on the High School Yards and there will be a lecture theatre, drawing office, &c. An engineering workshop will be erected in connection with the classes to be held there. The internal gables will be removed and 9-inch brick partitions substituted. The boundary wall is in some places to be rebuilt. The front of the building will not, it is understood, undergo alterations.

The Jury who are to examine the competitive designs for the Rothschild dwellings will consist of MM. Emile Cheysson, Gaston Griotet, Georges Picot, Robert Rothschild and Jules Siegfried; M. Schneider, secretary, and MM. H. P. Nénot, Louis Bonnier, Paul Wallon and Georges Roussi, architects. Two other architects will be selected by the competitors.

M. De Selves, the prefect of the Seine, proposes that the models and other works bequeathed to the Orphanage of Art by the late Jules Dalou shall be purchased by the Municipality of Paris.

The Death is announced of M. H. F. Iselin, the sculptor, at the age of eighty years. After studying with Rudolph M. Iselin obtained a gold medal in 1852 for his "Jeu de Romain," which was purchased by the State. For 50 years past M. Iselin had lived in retirement at Clairefontaine (Haute-Saône), his native village.

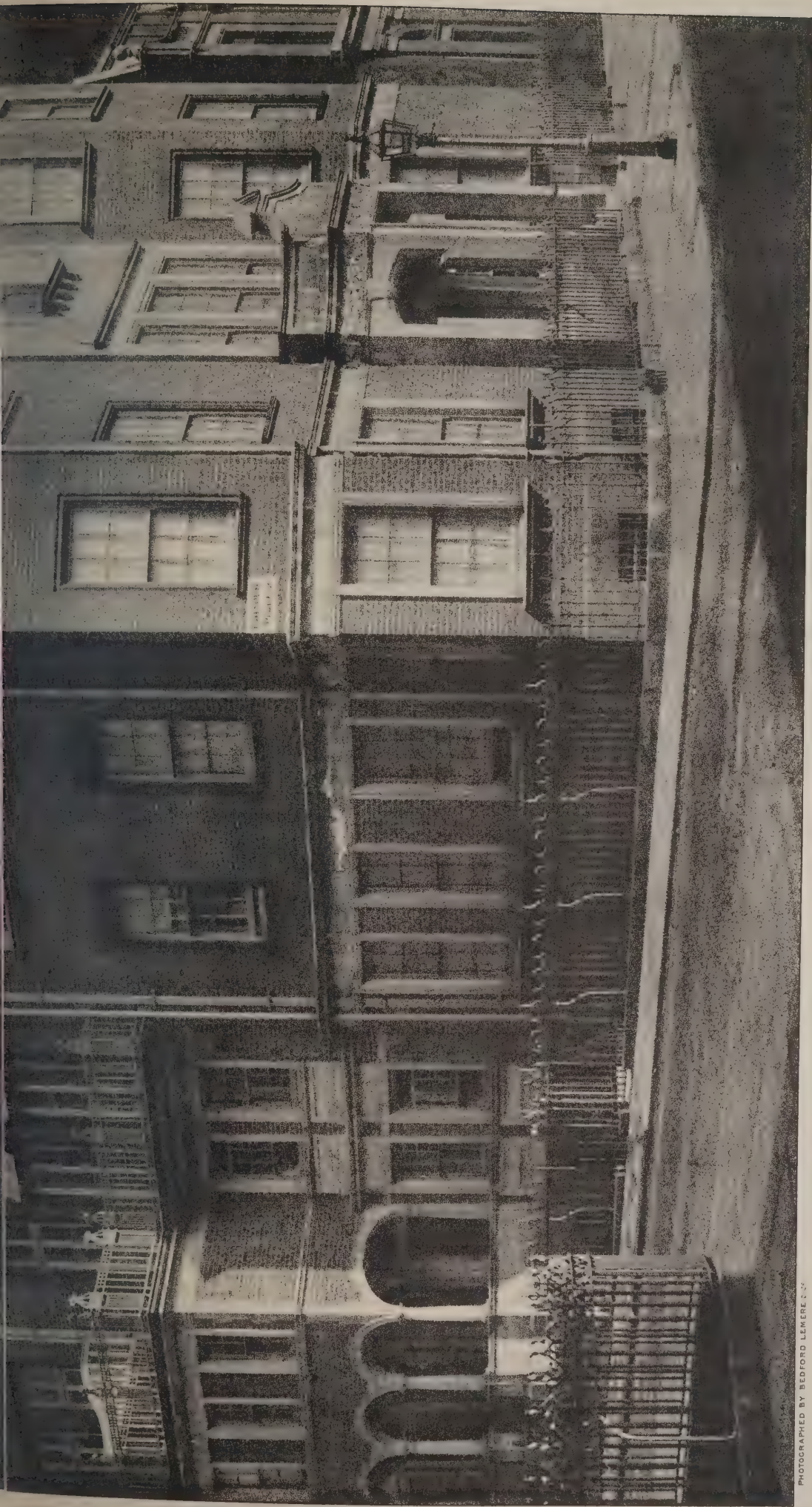
A Memorial Tablet has been placed by the London County Council on 48 Welbeck Street, the house in which Thomas Young, physician and Egyptologist, lived from 1800 to 1825. Young is known best for his exposition of the inscription on the Rosetta stone, which proved the key to the Egyptian hieroglyphics.

Professor Delitzsch has undertaken another series of explorations in Assyria and Babylon.

The Representatives of the French Academy of Fine Arts at the Archaeological Congress at Athens are MM. Bonna Marqueste and Bernier.

The Architect. April 7th 1905.





PHOTOGRAPHED BY BEDFORD LEMERE, C.

INK-PHOTO. SPRAGUE & CO. 4 & 5 EAST HARDING STREET, FETTER LANE, E.C.

BALFOUR PLACE, FROM SOUTH-WEST.

R. S. BALFOUR, Architect.



PHOTOGRAPHED BY BEDFORD LEMERE & CO 147, STRAND, W.C.

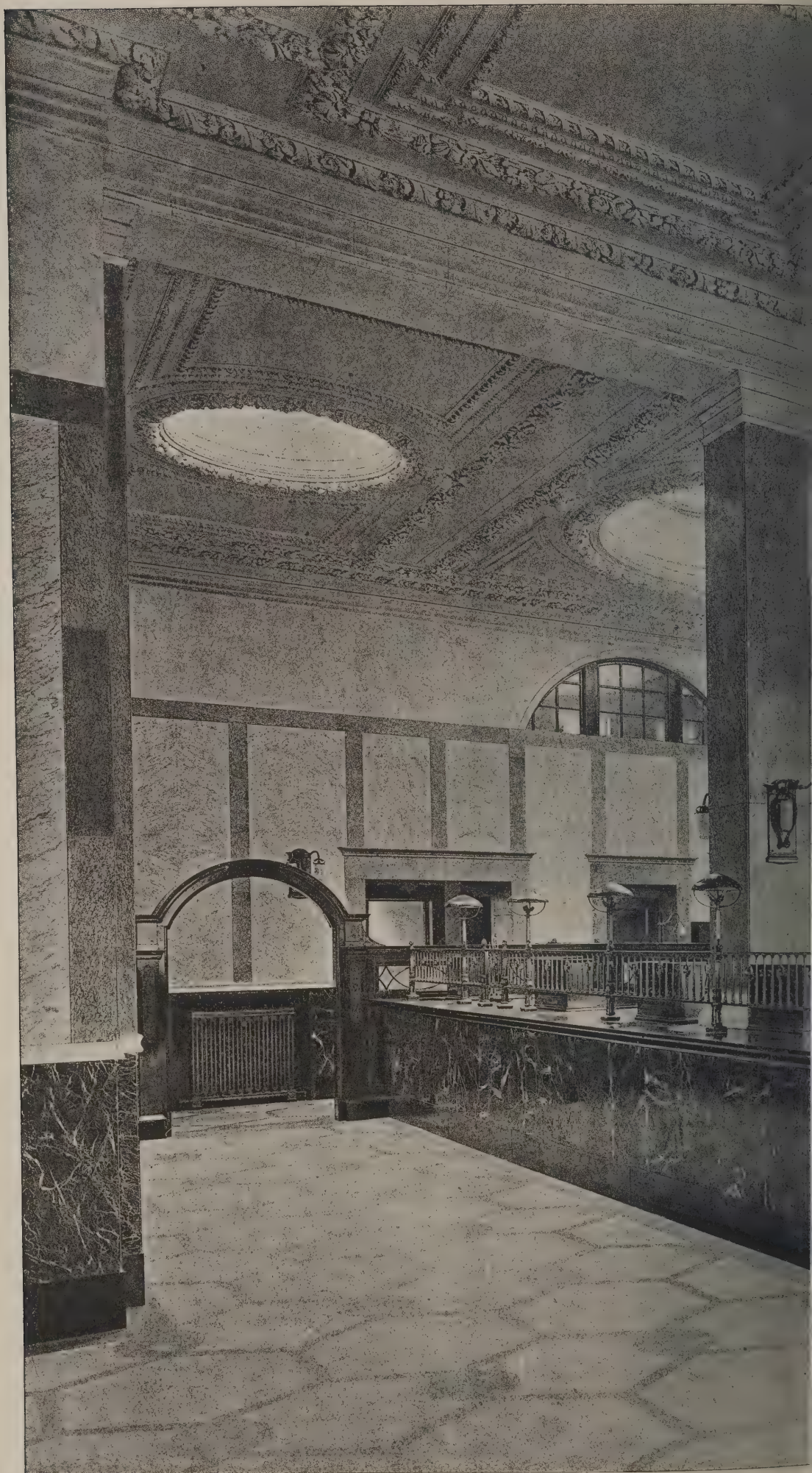
7th 1905.



"INK PHOTO" SPRAGUE & CO. L^Y 4 & 5, EAST HARDING STREET, FETTER LANE, E.C.

VN, N.B.

Architect.



PHOTOGRAPHED BY BEDFORD LEMERE & CO. 147, STRAND, W.C.

7th 1905.



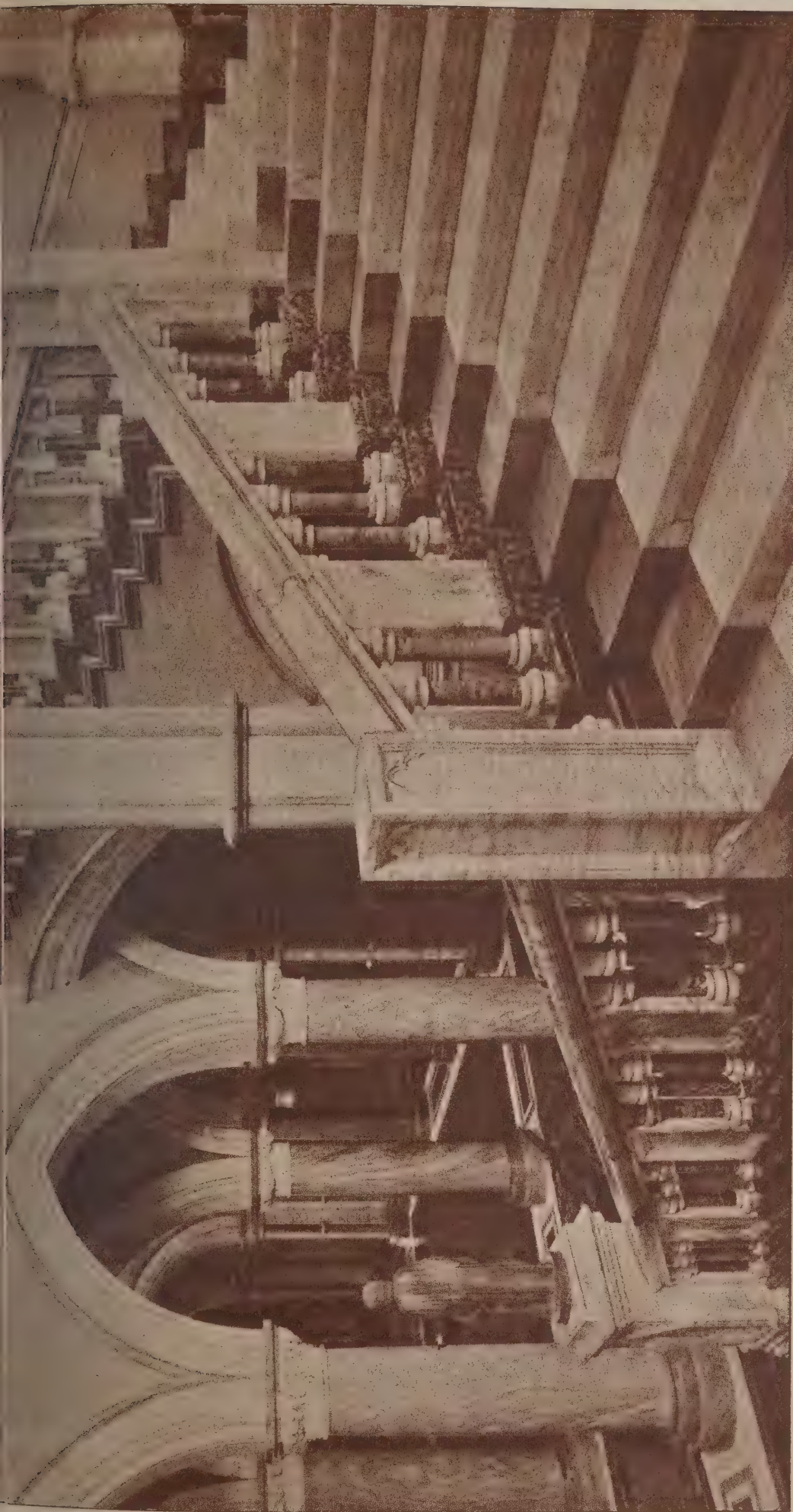
INK-PHOTO SPRAGUE & CO. LTD. 4 & 5, EAST HARDING STREET, FETTER LANE, E.C.

Y BANK, SHEFFIELD.
Architect.



The Architect, April 7th 1905.





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"MOUNT STUART," ISLE OF BUTE, N.B.: THE GRAND STAIRCASE.

SIR R. ROWLAND ANDERSON, LL.D., Architect.



The Architect.

THE WEEK.

members of the National Art Collections Fund their first annual meeting on Friday last. The objects of this Society are similar to those of the Friends of the Louvre in France. But in one case there are enthusiastic millionaires, while in the other the funds contributed by the 551 members are limited in amount. However, although the Society has only been a short time in existence, several interesting objects have been added, viz. an old English repeating-watch, by WALTER RAY; a picture by WATTEAU, entitled *Fête Champêtre*; a volume of rare engravings and paintings, a copy of *The Martyrdom of SS. Peter and Paul*, by MICHELANGELO MAZZOLA; a plate of Rhodian faience, a Greek vase relief of the fourth century before CHRIST, and a small picture of the *Madonna and Child*, by BASTIANI. Without a large increase in the membership it cannot be expected that the fund will be able to make costly donations to museums or galleries. Co-operation can do much, and for the National Art Collections Fund there is a vacancy.

ANOTHER case which proves the necessity for a written agreement in architectural transactions has been heard at the Glamorgan Assizes. Mr. HERBERT TURNER, architect and surveyor, of Cardiff, claimed 10% damages from the owners of the Cardiff Heath estate for breach of contract and fees for plans used in the development of the property. He was instructed to prepare plans, which were approved by the solicitor to the estate, who had died in 1902. It was decided that he should have charge of the letting of the different plots, and he made arrangements with builders for building houses. In fact, he was to act as surveyor until the sale of the fifty-four acres had been built upon. On the solicitor's death the management was taken out of his hands. He consequently claimed for the amounts he would have received had he continued to hold office, at the same rate as was paid to other surveyors on the estate. Mr. TURNER was unable to produce any written agreement. Mr. ENGLISH HARRISON, who acted as commissioner, accordingly decided against the plaintiff.

THE subject of trade effluents is likely to receive unusual attention in the committee-rooms of the House of Commons during the present session. There is no doubt that trade refuse is one of the difficulties with which sanitary authorities are not always able to cope. It might be supposed that it should be regarded as a nuisance for which provision has to be made by local authorities. But if there was no check, it would be possible for a manufacturer to set up large works in a small town and compel the inhabitants to enlarge their sewers for his convenience. The Rivers Pollution Prevention Act says that local authorities are under certain conditions to give facilities for the discharge of liquids from factories or manufacturing premises into their sewers. But the sanitary authority need not give such facilities where the sewers are only sufficient for the requirements of the district. The report of the Royal Commission on Sewage Disposal recommends that it should be the duty of the local authorities to provide such sewers as may be necessary to carry trade effluents as well as domestic sewage, and that the manufacturer should be in the right, subject to the observance of certain safeguards, to discharge trade effluents into the sewers of the local authority. Instead of providing by direct agreement what those safeguards should be, the local authority should frame regulations (subject to confirmation by a central authority) which could provide definite standards for the different manufacturers as regards preliminary treatment of the effluents, and

power to vary the standards or to dispense with them altogether in special cases should be given. The committee who are investigating the Heckmondwike Improvement Bill consider that trade refuse should be restricted to the discharge of liquid refuse. But trade refuse includes solid matter, and the difficulty is, therefore, not surmounted if the regulations refer only to liquids.

THE reports of Dr. THRESH, the medical officer of health for Essex, generally contain information which will be useful to those who have to consider domestic water-supply. In the report which was presented on the 4th inst. he opposes the prejudice against wells. "I am becoming more and more convinced, as the result of my personal observations and my study of the distribution of typhoid fever," says Dr. THRESH, "that this disease is never caused by well water when the well is so constructed that no impurity can get into it without having filtered through 8 or 10 feet of soil." He also adds:—"No person need hesitate about taking up his residence in the country merely because he will have to use well water for drinking and domestic purposes. With a properly constructed well he may feel decidedly safer, so far as water-borne disease is concerned, than in drinking the Thames and Lea water in London, or the moorland water supplied to Manchester, Liverpool and other cities." The wells, however, do not yield a large supply except in the south-west of Essex, and they are better adapted for single houses or groups of houses than for towns.

In their report for 1905 the Council of the Devon and Exeter Architectural Society regret the absence of enthusiasm among the associates, as evidenced not only by the rare attendance at meetings, but by the lack of competition for the prizes offered by the Society. For the measured drawings only one set was submitted, and no sketches were sent in for the hon. secretary's prize. The Council also regret that the response from principals was insufficient to warrant embarking upon a scheme of lectures in connection with the London Architectural Association. For the present it must lie in abeyance. On March 24 a fairly representative meeting was held to listen to the papers of Mr. A. S. CROSS and Mr. GEORGE HUBBARD upon the subject of the "Statutory Qualifications of Architects." The resultant of the discussion was a resolution that the Society heartily approves of the principle of the statutory qualification of architects, and urges the Institute to press forward a Bill for that purpose. The Society consists of fifty members, ten associate members and twenty-seven associates.

THE Bessemer Gold Medal of the Iron and Steel Institute has been awarded this year to Professor ARNOLD, of the Sheffield University College. He has resolved to hand over the medal to the City Council, who provided the plant that was employed in the researches for which the medal was awarded. Without that aid the medal would not have gone to Sheffield in the year 1905. He acknowledges also his obligation to his staff for their hard work and devotion during fifteen years. Professor ARNOLD believes in rendering to CÆSAR the things that are CÆSAR's, and therefore he suggests "that as it seems probable that soon with university rank a new Board-room more in keeping with the dignity of the institution will be required, the medal, with its illuminated certificate and frame, be placed there between the Mappin medal boards, to remind students that although they have climbed up a somewhat steep slope, they are not yet quite at the top of the hill, and to encourage them to still further exertions." A tribute has been gracefully paid to the Sheffield Council, who will soon have the satisfaction of having a legalised and complete university in their city.

THE LIVERPOOL ARBITRATION CASE.

AMONG the benefits which are owing to WILLIAM III. the sanctioning of the principle of arbitration holds an important place. If we remember how firmly the English Courts clung to their privileges it required a strong will to have it declared by Parliament that "it hath been found by experience that references made by rule of Court have contributed much to the ease of the subject." The insisting on a rule of Court as a condition of successful arbitration revealed the resolution to keep the new system under the control of the judges. It was not possible until many years had elapsed to have a legal inquiry without an order of Court.

The conditions of business in our time may be said to demand arbitration. So much depends on technical details in many actions, it is not to be expected that the judges can master them from the statements of counsel and witnesses. There is in such cases an amount of drudgery to be gone through from which judges should be spared. Indeed, it sometimes happens that the terms employed can be considered as belonging to a different language. A few years ago it was necessary to compile a glossary to enable a Royal Commission to understand what was said by witnesses in an inquiry relating to trade, and a similar aid would often be of use in the courts of law. To experts all those terms are as familiar as ordinary monosyllables.

Apart from the obscurities of language, there are cases in which the evidence that is brought before the Court can only be, as it were, of a fractional kind. We sometimes find a judge expresses an intention to visit premises which are the subject of the action before him, and it is an avowal that what he has heard from witnesses or seen in models or diagrams is inadequate to enable him to arrive at a decision. Visits of the kind can only rarely be made by a judge, but an arbitrator would probably begin his work in that way.

The remarkable case between Mr. W. H. LEVER and the Corporation of Liverpool reveals the peculiarities of arbitration as now practised, as well as the support which the Courts afford to the procedure in difficult circumstances. Our readers are aware, we presume, of the history of the transaction, and we need not, therefore, enter into the details of it. Mr. LEVER in 1900 purchased a large tract of land for 60,000*l.* Part was presented by him to the people of Bolton to form a public park, a part was to be used in connection with a residence for himself, and the remainder was to be developed as opportunities arose. Additional land was acquired in order to make the estate compact. Roads were also opened. As the land was in the vicinity of the Liverpool reservoirs the Corporation became alarmed, and in 1892 obtained an Act giving them compulsory powers to secure additional lands, or, in other words, to acquire Mr. LEVER's property.

The action of the Corporation was justified. There would be danger to Liverpool if the reservoirs were affected by the existence of a town or village near them. It would have been more prudent if they had anticipated the risk and purchased the ground before Mr. LEVER could have arranged for it. The water supply had, however, cost an enormous sum, and the necessity of possessing so large an area of land would probably be disputed. The question to be decided was what sum was to be paid. The area of Mr. LEVER's estate was 2,200 acres, of which 400 acres were given to Bolton. There was consequently four-fifths of an estate remaining which cost 60,000*l.* The value of land, we need not say, is extremely elastic. If tested by its agricultural use it is supposed to stand at a low rate in this country. But the capabilities of land are not easily measured. If used as a building estate the value would be far higher. But in this case the land was indispensable, and, what is more, there could be no competition. The system of water supply would have to be transformed if the reservoirs were to be free from the encroachment of dangerous elements.

Mr. LEVER, who understood the problem better than anyone else, asked the large sum of 459,000*l.* for four-fifths of an estate for which he paid 60,000*l.* There were no doubt expenses incurred in laying out roads, and some interlacing pieces of land were purchased, but against that may be set the part of the estate which was attached to his residence. It was therefore necessary to determine the amount to be paid by arbitration.

The arbitrators appointed were Mr. ROBERT VIGAN, who has valued a great part of England for railway and other purposes, and Sir EDWARD BOYLE, who has gained experience as an architect, a surveyor, a barrister, and as a writer on compensation. Mr. REGINALD EMPEROR MIDDLETON was selected as umpire; he has had a wide experience of waterworks abroad and at home, and is an engineer to a great many municipal councils for water supply. Three such experts should gain the confidence of the most sceptical. They had a difficult task before them, for, as a matter of course, there must have been divergence among the valuers. According to one witness the value of the land was 40,000*l.*—an amount which we conclude was based on the price given for it by Mr. LEVER. Another witness considered that 200,000*l.* would be a fair price for the ground.

Everyone accustomed to such investigations is able to make allowances for vast differences between valuations, and the umpire could have made his award at his office in Westminster. But a curious claim was set on by the Liverpool Corporation which prevented such a course being adopted. They boldly declared that although they were not owners of the land, yet they were in the position of riparian owners, and were entitled to claim not only all the rain-water which fell upon the land, but also any water which flowed beneath the surface. That it was ingenious strategy cannot be denied. It might be supposed to be a trap for the umpire, as according to one view the determination would involve a question of title which was outside the arbitration. Mr. LEVER, of course, refused to recognise the assertion and claimed a right to all water except such as flowed in defined channels. If such a theory as that maintained by the Corporation could be upheld the value of the estate would be much diminished. In any case, it became necessary for the umpire to have an ocular demonstration of the conditions of the water on the estate. Mr. MIDDLETON accordingly went there in July.

Under ordinary circumstances no importance would be assigned to the visit of an umpire to the property with which he was for the time being connected. But the visit was utilised by the Corporation in a way that is without precedent in the history of arbitrations, and which is not likely to be repeated. Consulting engineers in Westminster are not usually able to tramp over fields as quickly as they were in their younger days when they had to take sections or lay out curves in a hurry. Mr. MIDDLETON, who is sixty years of age, suffers occasionally from malarial attacks, which are the consequence of residing in hot climates. After two days' toiling over the moors he was knocked up. Whereupon at the instance of Corporation officials a doctor was sent to examine the umpire. He found him in his bedroom smiling and walking, and came to the conclusion that Mr. MIDDLETON was out of condition, but with no grave or mental symptoms of any kind. The doctor expected to be paid by the Corporation who had employed him, but he was told to send his account to the patient. Mr. MIDDLETON, who was not aware of the conditions, paid the doctor and returned unattended to London. We shall soon explain what use was made of the incident.

By the Arbitration Act of 1889 an award is invalid unless it can be shown that the arbitrator or umpire was one-sided, or that he allowed himself to be deceived by any of the parties, or had not conducted the inquiry in a proper way. The Corporation resolved to impugn Mr. MIDDLETON's award, that Mr. LEVER was to receive 138,449*l.* on the ground that as he was seriously ill his memory was impaired, and that he was at least

temporarily incapable of properly adjudicating upon the matter. It was no doubt true that the time for making the award had been extended. But no injury arose to either parties from the delay. If a slight attack of illness is a bar to a sound judgment, then many of the decisions given in the law courts must be unjust. Judges do their work fairly, although they may have had to see their physicians before they entered the Court, and may have to swallow medicine while on the Bench. Knowing what has to be sustained by professional men of all kinds, Mr. Justice WARRINGTON, who tried the case, was justified in expressing surprise that a body like the Liverpool Corporation should have adopted such a plea, for which there was not a particle of evidence. It is needless to say that the award was declared to be valid and that the Corporation will have to pay the cost of the arbitration as well as the law costs.

It will follow from Mr. Justice WARRINGTON's action that the position of an arbitrator must be considered more secure than it was. Whatever may be the capabilities of a man who undertakes such an office there is a possibility that he may conduct the inquiry in a manner which does not always correspond with that of the Appeal Courts. Some judges are not always serious. But if an architect or an engineer were to imitate their lighter moods one of the parties would be likely to say justice was not done. A slight attack of illness would also be supposed to seriously affect the arbitrator's judgment. Henceforth, in order to have an award set aside it will be necessary that the arbitrator must be guilty of the misconduct or other offences which are described in the Act.

THE WATER-COLOURS SOCIETY.

It is an advantage in the exhibitions of the Society of Painters in Water-Colours that we are able to compare the influences both of tradition and innovation. There are members who are still faithful to transparent colours, and who impart to their dainty little drawings the finish of a miniature. Other members and Associates admit few restrictions except those imposed by the use of paper and of colours mixed with water. The result is that many varieties of drawings are to be seen this year, and the exhibition, although confined to one room, affords subjects for enjoyable study during several visits.

Some drawings this year are unusually large. Mr. E. ALEXANDER'S *Peacock and Python* measures 70 inches by 40 inches. It required courage to select such a subject, and only a vigorous hand could draw the long lines of the bird's feathers, with which the serpent appears almost parallel. But justice is hardly rendered to the python, for on such occasions the skin loses its gloss and shines as if by the victory. Another drawing of a novel kind and the work of an Associate is the *Theodore and Honoria*, by Mr. H. E. CROCKET. It presents a scene in the strange story which DRYDEN translated from BOCCACCIO. The subject was hitherto neglected, for a more difficult one could hardly be found. For what would now be considered as a mere vision—the continuous murdering of a woman by a mounted knight—has to be treated as a reality. Mr. CROCKET has interpreted the legend in the spirit of the Florentines who first heard it. There is nothing suggestive of the stage vision. The table is placed amidst tall trees, and the chase passes close to the guests.

The guests are startled, but look upon the tragedy as if the actors were living beings, and not ghosts. Such a drawing reveals a power in composition with several figures which is not common with water-colour artists. Mr. CROCKET has two other drawings, a benign *St. Elizabeth*, who is seen carrying a child along a street, and a *Tannhauser*, where the knightly bard appears to be listening to the Rhine maidens. In this so we have novelty, for a floating figure is detached, so that two drawings are given instead of one. Mr.

CADOGAN COWPER in *Molly, Duchess of Nona*, shows a bust of a young Italian girl in an elaborately ornamented robe who is strangely reminiscent of the older *Mona Lisa*. Mr. WAINWRIGHT, who is also an Associate, in his *Covenanter's Sermon*, a *Linner of the Olden Time*, and *An Impromptu*, contributes drawings which are not easily passed over. They are experiments in strongly marked light and shade, and stand out with almost the force of relief.

This year we see several methods of representing architecture. Mr. J. S. SARGENT'S *Palazzo Grimani* would be likely to horrify a quantity surveyor from its being made up of disconnected spots of colour. But at the right distance they all fall in their places and suggest the lower storey of a Venetian building. The treatment, however, seems better adapted for his *Bed of a Torrent*, where there are detached boulders. Mr. REGINALD BARRATT'S manner is different, and we may say more reverential. He has an admirable view of the entrance of the Ducal Palace, Venice, with the sculptured figures, and an entrance to St. Mark's, in which the mosaics are represented in brilliant colours. He has also a view of the great church at Dordrecht, the abbey at Middelburg, and the Campo Santo at Venice, as seen from the canal. In all of these the buildings, however much they differ in style, are depicted truthfully. Miss CLARA MONTALBA'S representation of the *Redentore, Venice*, would delight a French impressionist. The lines of the building, the procession with banners up the steps, the boats and crowds are shown in the thinnest of sienna. It is, therefore, more suggestive of a thought than of an architectural representation. But it has merits, and recalls PALLADIO'S building, which is not his masterpiece. Mr. ALBERT GOODWIN shows views in several towns, from Grenada, in the West Indies, to Bosham, in Sussex. In his *Lincoln* the cathedral appears, but the pencil has to be aided by the pen, for lines in Indian ink are used to emphasise the arcading. The most characteristic of his drawings is *The Last Act and Fall of the Curtain, Pompeii, A.D. 79*. In it we see the amphitheatre—not quite as elliptical as the original—from which the crowds have escaped, for Vesuvius is emitting flaming embers in the background. Mr. T. M. ROOKE has three drawings of French subjects, with two from Westminster Abbey, in which details are honestly given. What a fine series his views of the building would make if collected. Mr. HERBERT MARSHALL attempts the *Tower Bridge* as seen from the roadway, from which the anomalous structure looks more unsuitable than from the river. The subject was not worthy of his pencil. River scenes have not yet lost their interest. Mr. HODSON'S view of the Houses of Parliament appears to be foreshortened to excess, and the length of the building is not made evident. Mr. GOODALL has given one of the ever-popular views of St. Paul's from the Surrey side. The *Open Air*, by Mr. THORNE-WAITE, looks like a view of the Sussex Downs. Sir FRANCIS POWELL has a vigorous seascape which is called *Staffa from the North-East*, the little island appearing on the horizon. The view of Snowdon, which is a large drawing, is one of Mr. CLARENCE WHAITE'S most successful works. Only opaque colours are used for it. It is enough to demonstrate that the praise which the mountain is now receiving is justified. *The Cross Roads*, by Mr. TOM LLOYD, and his *Last Waggon* are delightful drawings of country scenes. *Wings of the Morning*, by Mr. E. R. HUGHES, treats the same theme as GUIDO'S *Aurora*, but instead of amorini there is a vast number of birds of varied plumage, while the birds of darkness wing their way to lower regions. As an imaginative work it merits recognition, but the execution is admirable, and the figures suggest flying.

The office of President in such a Society cannot fail to have an effect upon the holder's works. He must respect the past and curb his invention. Sir ERNEST WATERLOW continues to give transcripts from nature

which can be considered as successful without being remarkable. In *The Chalk-pits on the Sussex Downs* we see a somewhat bolder treatment, and *A Dorsetshire Common* almost makes us feel we are in the open air. But with all their merits we feel the artist could have accomplished much more under other circumstances. Mr. ROBERT LITTLE's *Gateshill* is so luminous as to appear almost like a work in oils. Mr. PATERSON's *Nameless Hills* is more a view of clouds than of the earth, but they belong to Scotland rather than to the South. His *Arthur's Seat* is a panoramic view produced by a few large washes. The night scene by Mr. EYRE WALKER, *Aysgarth Force in Flood*, shows daring, and is well adapted to the subject, for the rush of water seems more mysterious. It offers a curious contrast to its bright neighbour, *Clappersgate Village*, by Mr. CUTHBERT RIGBY. In *Rocks on the Greta*, by Mr. JESSOP HARDWICK, a strong contrast is offered between the barren mass and the rich vegetation around. But the most effective of those scenes comes from Ireland, viz. *Caragh River*, by Miss MILDRED A. BUTLER. Mr. HEMY contributes three marine views. The surging waves in the *Fishing Boats off Brixham* shows a master's hand.

Mr. WALTER WEST has only one drawing, which is delightful: a lady, apparently a Quakeress, thinking over a letter, which to her is *A Weighty Consideration*. The figure would serve for RACHEL GEDDES in "Red-gauntlet." Mr. ARTHUR HOPKINS has a graceful full-length figure of ROSALIND reading the verses, which would be a fitting companion to the Quakeress. *The Magic of Pan's Flute*, by Mr. WEGUELIN, presents a nude nymph in the hollow of a tree who is listening to the god. This is a charming work. The *Citharistria* and *Tibicina* are two of Mr. BULLEID's classic figures, and the most successful of those he has given of late years. In both drawings the figure is supplemented by a Bacchic relief as a background. They are among the gems of the exhibition. Mr. GLINDONI does not present a humorous scene this year, for his only work is *The Betrothal*, a scene from "The Bride of Lammermoor;" it is a favourite incident with painters. In this case there is a departure from the stage types of the ill-fated lovers. Mr. ARTHUR RACKHAM, in *The Princess's Mirror*, makes the ground appear as if it were marble, which has a curious effect. His principal drawing is *Pleasure Seekers*, in which geologists, photographers, mountaineers and other followers of pleasure are congregated within one frame. Mr. MACBETH's *The Ebb Tide*, a group of fisher-folk, does not manifest his customary and exquisite finish, and probably was too early taken from the studio.

On the walls there are 257 drawings, and fortunately not one among them can be considered as a failure. In many cases there is originality of subject, and, indeed, each canvas has something to recommend it. But it is becoming more plain every year that if large drawings continue to be sent in, and if some of the members will send a dozen examples, the wall space is too limited for justice to be done to them all. An amateur who would be resolved to examine all the works that are to be seen would have to go through a wearisome pilgrimage on his knees, for at least one-half the drawings are below the line of vision. If it is not possible to utilise some of the other rooms on the premises for exhibitions a reform will be necessary.

An Interesting Marble Tablet has been discovered during excavations in Vere Street in connection with the Holborn to Strand improvement. The tablet represents a man seated with a youth standing before him, and bears an inscription in the Greek language. Dr. Haverfield, of Christ Church, Oxford, has investigated the inscription, and states that the tablet is sepulchral in origin, and that although of an ancient date it is probably a modern importation into this country. The tablet is to be preserved for the present at the Horniman Museum.

ART GALLERIES, ABERDEEN.

ON Saturday a new sculpture gallery, which is an addition to the Art Gallery in Aberdeen, was opened by Sir George Reid, ex-president of the Royal Scottish Academy. The trustees of the late John Clark gave £8,000 towards the cost of the building, leaving a balance of £4,000 to be subscribed. The gallery contains about 100 casts of masterpieces of sculpture, some of which are not to be seen in the South Kensington collection or elsewhere in Great Britain.

Sir George Reid delivered an address. He recalled the history of the Institution, remarking that without Mr. James Murray Aberdeen would have had no such gallery. It is difficult to speak of Mr. Murray in his presence, and it is not easy to find words to express sufficiently his (Sir George's) admiration of the untiring energy, enthusiasm, and self-sacrifice which he had shown since he took up the matter. Professor Ramsay, of the University, had done much for the movement. In the selection of the committee had throughout had the benefit of the counsel and untiring assistance of Mr. Robert F. Martin, of the South Kensington Museum, to whom they were indebted for the admirable arrangements and groupings in the different courts. Going on to speak of the contents of the sculpture gallery, he pointed out, says the *Glasgow Herald*, that unfortunately much of what had survived of ancient art had come down to us in a mutilated state. Nearly all the finest Greek statues were mere wrecks. The frost and the rain of long centuries had marred the surface, but man had always been the great destroyer. Goth and Vandal, Christian and Turk, alike by turns had a hand in the work of destruction. The interest of the examples given of the sculptured art of Egypt, Assyria, and Greece was chiefly historical. There was a strange oppressiveness and dignity about Egyptian sculpture, but it was bound by narrow rules and deeply influenced by religious tradition. The earliest works which had come down to us were generally the best. It was an art arrested in its growth, and was never able to work out its full freedom. Assyrian art never got beyond the carving of surfaces, and like that of Egypt, knew neither progress nor development; but the Chaldeo-Assyrian sculptor could express the form, motion and character of animals in a quite surprising way. Early Greek sculpture had affinities to that of Egypt, but the Greek race resembled the Egyptian in nothing. It had neither the same original customs, nor the same beliefs. The Greek artist was constantly endeavouring to create his own individual ideal type, and in the end gave the world the most perfect works in sculpture which have ever come from human hands. Greek sculpture dealt chiefly with the ideal representation of the human body—but to make a splendid statue of marble it was necessary, in the first place, to make the living man, and great sculpture developed in Greece at the same period as the institution by which was formed the perfect human body. A noble trait of the body went hand in hand with the discipline of the mind. From the age of sixteen to eighteen the young men and women spent their days in the gymnasium—not to cultivate the mind, but to develop and perfect the body—and those unskilled in the exercises of the gymnasium were looked on with contempt as tradesmen and mechanics. The result in course of time was a beautiful race, and the sculptor perfected what nature had partly done. We were, as a nation, at last beginning slowly to realise the importance of physical training for the young. The sight, common enough, of slender, underfed, spectacled children creeping to school under a load of books, of multitudes of under-sized young men and women in our large manufacturing towns, and the statistics of the army recruiting department were, to the least of it, not reassuring. Although the space at the disposal of the committee was very limited, an effort had been made to illustrate the development of Greek sculpture from the early Archaic period till its culmination in the time of Phidias, and the examples ranged from the rude stelæ to the godlike forms of the figures from the east pediment of the Parthenon. The Roman, occupied with more serious affairs, war, conquest and the administration of conquered territories, had little natural aptitude for art, and was long indebted to the Etruscans in such matters. After the fall of Syracuse, Etruscan influence gave way to that of Greece, and the craving for works of Greek art in Greece and its colonies were spoiled and robbed of their art treasures by a horde of depredators, who carried them to Italy by hundreds of thousands. Greek sculpture

flocked to Rome as the new artistic centre of the world. Greek became the fashionable language; everything was Hellenised. Innumerable works belonging to what was known as the Græco-Roman period fill the museums of Europe, works often less characterised by the ideal than by an almost brutal realism.

After the fall of the Roman Empire the art of sculpture suffered a long eclipse. The gods—great and small—had vanished into darkness. But one of them, "The guardian of the flocks and herds, the all-pervading spirit of the fruitful earth," with his horns, shaggy goat's legs, budding tail and wicked yet kindly face, and who, as gods went, appears to have been not a bad sort of fellow—was destined to reappear later as the devil of popular Christian superstition. If we may judge by his constant presence in gargoyles and corbels, the Gothic sculptor found a fearful joy in carving him. The mocking demons that look down on Paris from the western towers of Notre-Dame were characteristic examples of his genius in that direction. In the early centuries of Christianity carving or modelling the human form was denounced as idolatry, and artists were regarded as "men of infamous occupation"—all the gladness of art had fled before the ascetic spirit of the Christian Church, so utterly opposed to the Greek ideal of the dignity of that bodily frame which they believed they shared with the gods themselves. The body was regarded as a thing to be mortified and held in contempt, and the doctrine of the depravity of the flesh, if we were to judge from the figures in the painted windows of Mediæval cathedrals and in the works of the primitive painters, resulted in the human form degenerating into lank skin and bone. It was difficult to fix a precise date for the beginning of the Renaissance movement, of which Italy was especially the nursing mother. It resulted from two currents of force—intellectual revolt against the bonds of scholastic theology and the extreme spirit of asceticism to which he had referred, and to this was joined an insatiable desire for knowledge. It permeated and transformed philosophy, science and religion, while the revival of classical knowledge and the study and imitation of ancient sculpture gave a new impetus to art. Much had been written regarding the Renaissance, its worldliness, pride, luxury, love of art and of good Latin, as well as of its wider and freer intellectual life which opened men's eyes to the beauty and wonder of the world in which they lived, and made life a thing to rejoice in. But there was only one aspect of the movement to which he would make a passing reference—the strange mixture of Christianity and Paganism in much of its art. Ruskin had frequently referred to this, and Browning had given us a vivid glimpse of it. When "the bishop orders his tomb in St. Praxed's Church," every detail, sacred or profane, of its ornamentation is minutely gone into, and

Pans and Nymphs, the Saviour at His Sermon on the Mount,
Saint Praxed in a glory, and one Pan
Ready to twitch the Nymph's last garment off,
And Moses with the tables . . .

and all were jumbled together on terms of complete equality. There was a fine representation of the sculpture of this period in the eastern gallery, including examples of the work of Donatello, Ghiberti and the Della Robbias, but separated from their natural surroundings and crowded into museums they inevitably lose something of their subtle charm.

Sculpture had never been as popular an art as painting in northern countries. It belonged rather to the more genial south; our cold, grey skies seemed unfavourable to its development, and while Scotland could show a goodly line of painters, its sculptors were comparatively few in number. It remained to be seen what use Aberdeen would make of this fine collection of casts which the Art Gallery committee had, with an amount of labour and trouble which they could scarcely realise, brought together. The students at the University, in Gordon's College, and in the neighbouring School of Art, the carvers in wood and granite, and the proverbial "man in the street," would each find something from which knowledge may be gained, and in those who had eyes to see the sense of the beautiful would be developed and strengthened. Those citizens who had all long taken an interest in the gallery had reason to be satisfied with its progress and the position it had now attained. They had had their share in establishing what was not merely for the present, but what was certain to be of lasting benefit to the community, and to all who had co-operated in the work he was sure he might, on behalf of the chairman and committee, return their most hearty

thanks. He trusted that these galleries would always be kept open free of charge, and he could not for a moment imagine that in a city of the size and importance of Aberdeen there could be the slightest difficulty in maintaining, and from time to time adding to, the contents of a building in which there was now much that was both instructive and beautiful.

LONDON COUNTY COUNCIL OFFICES.

THE latest report of the establishment committee of the County Council of London contains the following information relating to the proposed Westminster Bridge site:—

In considering the reference of the Council of December 6, 1904, we resolved at the outset that it was eminently desirable that the proposed new offices should provide accommodation not only for the staff of all branches of the Council's service, which could be administered from a centre, but also allow some room for expansion.

With a staff properly concentrated and arranged for in one building, an efficient system of organisation would be provided with more economy of space than is possible under the present conditions, and we would also hope that an economy in the service might itself be effected by reason of the large amount of work now entailed upon the staff in consequence of the separation of its various parts.

With regard to the accommodation of the staff, the number of rooms required for single occupants, namely, chief officers and their principal assistants, need not be much in excess of those now provided, but it should include rooms at the central offices for the chief officers of such services the staff of which will not be brought to the county hall. Also it would be well to arrange for a few smaller rooms in the building, so that in the event of the Council's duties being enlarged to any great extent the provision of rooms for chief officers might not be a difficult matter. The next requirement to which we have to draw attention is the accommodation of the drawing staff. For this purpose it is desirable that rooms of varying sizes, capable of accommodating the staff on any one scheme, and containing provision for a room for chief draughtsmen, should be provided. Offices of this kind would be required for the engineer, the architect, the valuer, the chief officer parks department and the asylums department, and for the purpose of meeting emergencies which it appears to us will inevitably occur in these departments from time to time we would suggest the provision of three additional drawing offices not allocated to any particular department, but capable of being used as emergency may dictate.

The next section is that of the technical assistants who require special accommodation, such as the staff of the chemist and the electric meter branch of the engineer's department. The accommodation at present provided for this work is not only extremely limited, but is not in that form in which it can be best used, and undoubtedly additional space will be required in order to make good this deficiency.

We then come to the provision of rooms for the officials in the higher ranks of the service. These officials should, without requiring a special room for each, be placed in a more or less quiet room associated with perhaps not more than two other officers.

Special provision will have to be made for the Council's typewriting staff, and it will have to be larger than at present provided, because under a more regulated system we apprehend that a greater amount of purely clerical work will be entrusted to the typewriting branch. On account of the noise of machines these rooms would have to be comparatively small, though opening out of each other.

The professional and clerical sections of the tramways department should also be accommodated if possible at the county hall. Not only is it an advantage to the public to have one *locus* for all services, but when the northern system is developed the county hall will be more central than the present head office at Camberwell.

It is a point whether the stores can be wholly provided on the new site, but if this could be arranged or partially so it would be a considerable advantage. With regard to the education stores depot at Clerkenwell Close, neither the number of the staff nor the particulars of the premises are included in the figures contained in this report.

Finally, the general staff should, in our opinion, be provided with larger rooms than at present exist, so that organisation and superintendence may be better provided

for, and less space may be occupied in the separation of the rooms.

In some of the former schemes the area allotted for each officer has been 150 square feet. This area was arrived at after careful investigation by Government and other public officers, and much consideration by former committees of the Council. It makes allowance for the extra room which is necessarily required for chief and assistant chief officers who have to receive a number of persons simultaneously, and it is thought that this basis should still be adopted, at any rate, for settling the requirements of the site until more detail plans can be matured.

In estimating the accommodation required it is true that we have not allowed for what we conceive to be the extravagant spacing by reason of the separate buildings of the present staff, but taking into consideration the very inadequate space allowed to each officer, and having regard also to the fact that the Council should maintain a high efficiency of health conditions, we do not think that our estimates are too high.

In the course of our deliberations, we have carefully weighed the advantages and disadvantages of several sites, the majority being considered unsuitable, either on the ground of excessive cost, or on account of the sites being inconveniently situated. The number of sites was eventually reduced to two, namely, a site in the Adelphi and the Westminster Bridge site, and after anxious consideration we have unanimously decided to ask the Council to take the necessary steps to acquire the latter mentioned site, which has an area of 5.6 acres, or 248,776 square feet, being bounded on the west by the river Thames, on the south by the approach to Westminster Bridge, on the east by Belvedere Road, and on the north by the premises occupied by the Council's works department. The proposed site plus the land occupied by the works department has an area of about 7.5 acres.

The site is conveniently near the Houses of Parliament and the Government offices, and, although on the south side of the river, is in a central position with regard to means of communication from all parts of London. The site is near Waterloo railway station, and consequently can be reached from the City in a few minutes, and a tube railway is in course of construction which will link Waterloo with Charing Cross, Piccadilly Circus, Oxford Circus, the Baker Street termini and Paddington station. Westminster Bridge station on the District and Metropolitan Railways is within a few minutes' walk, and in the present session the promoters of the Great Northern, Piccadilly and Brompton Railway seek to extend their line from the Strand to Waterloo, which will connect the latter station with King's Cross and Finsbury Park stations. In fact there is in existence, or will be within the next few years, means of communication between the neighbourhood of the suggested site and the termini in London of all the great railways. The district is served by numerous routes of omnibuses, one of the principal termini of the Council's tramways is adjacent to the site, and additional facilities for communication will be available if the proposed tramways over Westminster Bridge and along the Victoria Embankment are sanctioned. Mention should also be made of the means of communication to be afforded by the Council's steamboat service.

We also think the site offers exceptional opportunities for architectural treatment. The river at this point runs nearly due north, and the site being approximately parallel with the river, three façades would be respectively on the south, east and west aspects, and the maximum of sunlight would thus obtain throughout. In the middle portion of the river façade might be placed the council chamber and committee-rooms which could be grouped as a central feature, and in this position would be subject to a minimum of the external disturbing influences of traffic and noise. The river frontage is approximately 800 feet, and for the purpose of comparison we may mention the frontage of Somerset House is about 550 feet.

The scheme of development contemplates forming an embankment next the river, similar to that in front of St. Thomas's Hospital, which includes a terrace apart from the public embankment, and which would add architectural dignity to the river frontage. To improve vehicular approach, and also the lighting of the lower floors on the east frontage, the width of Belvedere Road will be increased to 50 feet. The leading dimensions will be river frontage 800 feet, the bridge approach 240 feet and Belvedere Road 760 feet. It will be seen that approaches will obtain on three sides of the proposed building, and an important improvement initiated on that side of the river.

On the basis of 150 superficial feet for each officer, the building will accommodate 2,589 officers, and 61,790 square feet for storage accommodation, &c., will be provided.

The estimated cost of acquiring the site of 5.6 acres is	£600,000
The estimated cost of the building, foundations, &c., is	1,056,000
The estimated cost of the embankment is	44,000
	£1,700,000

In considering these figures we would remind the Council that the rent for central offices at which the Council stands, taking into account the estimated rent of certain premises held at ground rents, is 42,165% a year, and the capital value of the Council's interest in the premises used as central offices, including the education offices, estimated at 400,000.

It should also be borne in mind that it is estimated the new site will accommodate 50 per cent. more officers than the present offices, and that the cost of housing the increased number under present conditions, and taking the amount now paid, &c., for rent as a basis, would probably be over 60,000% a year.

The report was presented on Tuesday but was not discussed. Plans of the site were exhibited and a sketch of such a façade to the Thames as would be feasible. The establishment committee say it is intended to treat the exterior of the building in a simple and dignified manner to exclude all useless ornament, and to depend more upon the proportion of the masses to attain dignity and fitness and the appearance of the building.

CULROSS ABBEY.

THE heritors of the parish of Culross have decided to proceed with the repairs and restoration of the ancient abbey. While the works are in progress the congregation will meet in the Abbey House, part of which has been set aside for the purpose by Lord Bruce. The complete restoration of the church, plans for which have been prepared by Sir Rowand Anderson, embodies clearing out the east and south galleries, as well as all the existing seating and woodwork in the area of the church, the seating accommodation lost through the abolishing of the galleries being provided by restoring the north chancel aisle and the aisle on the east side of south transept. Other works to be executed comprise entirely re-roofing and laying wood-block floor on original level in existing building, reducing the ground level at entrance to its original surface, rearrangement of gallery stair, opening up the original windows of the church where possible and reglazing all windows, reseating the entire church to accommodate about 500 persons, along with necessary works to put the building into a complete state of repair. The scheme also includes the erection of a new and more convenient vestry and the repair of the manse. The cost of the scheme is estimated to amount to 4,400. At present, however, the heritors intend to go on with a slightly modified scheme at an estimated cost of 3,760, the intention being that if the sum raised by subscription which meanwhile amounts to 1,200, increases during the progress of the work the whole scheme will be undertaken the architect having arranged the plans with that view. The sum necessary for the work the heritors have agreed to contribute 2,500. In view of the decision arrived at by the heritors, Mr. Jas. Arnot, clerk to the Edinburgh School Board, has offered to fill in the east window with stained glass, Miss Luke, Culross, offering to defray the cost of similar treatment of the north window.

EDINBURGH ARCHITECTURAL ASSOCIATION

AT the last meeting of the Edinburgh Architectural Association, Mr. J. T. Baillie, vice-president, in the chair, the subject of the statutory qualification of architects was discussed. The chairman said the movement had been set on foot many years ago.

Mr. A. W. S. Cross said the present position of their profession was eminently unsatisfactory, for while the work of modern architects often displayed a large amount of creative power or originality that attribute was rarely accompanied by architectural scholarship. In this respect they had much to learn from the architecture of ancient Greece and Rome. He pleaded for a higher standard of culture among architects. He dealt with the Royal Institute of British Architects and said that in its prestige and influence it was amazing that it had taken so small a part in any proposals for registration.

The leading principles of the scheme of reform should include a Bill in Parliament tending to increase the prestige of the Institute, and to constitute it the examining and registration authority. The scheme would afford reasonable facilities to enable every competent architect and student to obtain registration, and would close the door of the profession to incompetent practitioners. The Institute might introduce means for the practical training of architects, and endeavour to induce universities to create chairs of architecture, so that the profession would be raised to a status which would insure that architects of the future would be trained and cultured men.

Mr. G. J. T. Middleton said their aim was to put the architectural profession on the same level as the medical profession, so that no man should practise as an architect unless properly trained and properly qualified by adequate examination. He explained the provisions of the Bill for the registration of architects promoted by the Society of Architects, stated that it was a better Bill than that promoted by the Council of the Institute, and urged agreement between parties so that a registration Bill would be put before Parliament by a united profession.

Mr. Henry F. Kerr said he doubted the practicableness of the proposed compulsory registration by Act of Parliament, and that progress in raising the standard of the profession would be better made by encouraging the taking of the diploma of the Institute.

Messrs. Robertson, Ross and M'Arthy commended the proposal for compulsory registration on the ground that the profession suffered grievously from the competition of untrained and unskilled men such as masons and joiners, who put up their door-plates and called themselves architects. Although no resolution was put, this was the feeling of the meeting.

JOHN O' GAUNT'S CASTLE.

At Newcastle-under-Lyme some Corporation workmen, as says the *Manchester Guardian*, are placidly reburying the foundations of the castle which was John o' Gaunt's home in Staffordshire. The same workmen first found the ancient masonry a few months ago, when they were laying a new sewer along a new street in the hollow that lies below the old church tower. For a short space of time the Newcastle people were genuinely enthusiastic about the preservation of a genuine archaeological treasure. There was talk of excavating the whole site of the castle, laying the masonry and putting up a monument to "time-honoured Lancaster." Old John o' Gaunt left to Newcastle such a legacy by which centuries of Novocastrians have benefited directly. Every native of the town who serves an apprenticeship and continues to live there is entitled to share in the annual distribution of the moneys of the Gaunt Trust, and to-day there are 600 people who march triumphantly once a year to the offices of the solicitor of the Trust and claim a handful of silver—about 28s. apiece. It is for a substantial reason, then, that the Newcastle people talk about Gaunt's "beneficence" and speak with pride of the "royal" associations of their town. But the lip service the benefactor has been put lately to a severe test, and its weakness has been revealed. When the Corporation workmen unexpectedly struck the foundations of the old castle there arose the question of whether the excavations should be continued, and how the cost should be defrayed. By chance most of the land within the area of the castle site was Corporation property. There was, therefore, no serious initial difficulty of ownership to be overcome, and it was a simple matter to estimate the probable cost of the excavations. Some experimental digging was done, and some 40 feet of old masonry in splendid preservation was bared. The stonework was only a foot or two beneath the surface, and its condition was as sound and firm as if it had been laid by masons of the nineteenth instead of a far earlier century. Then came the question of continuing the excavations. A sum of 400l. was named as the probable outside cost, and a proposal was put before the Gaunt Trustees that the members should contribute something towards the proposed outlay from their yearly dole. At this suggestion was made the enthusiasm for uncovering the remains of the castle began to wane. The Gaunt Trustees buttoned the Trust pockets determinedly. Archaeologists came and went and failed to set an example either in enterprise or generosity. The Corporation had finally to decide what was to be done, and the workmen are now carrying their decision into effect. If the Corporation had determined to uncover and preserve what may remain

of the castle they would have had to divert their new street, and perhaps to have made a small purchase of contiguous property. But the members came to the unenterprising conclusion that "it wasn't worth it," and so the sewer has been laid and the displaced earth shovelled back into the trenches.

THE ROYAL COLLEGE OF SCIENCE, DUBLIN.

IN an interview with a representative of the *Irish Times* Mr. Thomas Manly Deane, who is joint architect with Sir Aston Webb of the Royal College of Science, Dublin, gave some details as to the preliminary plans of the new scheme, which, it may be added, will cost probably not less than 150,000l. The entire buildings will be erected in the form of a hollow square opening out on Upper Merrion Street, the frontage being about 390 feet and the depth about 170 feet. The College will form the principal side of the square, and from it on each side will project wings in which the officers of the Agricultural Department and the Board of Works will be eventually accommodated. These wings will have a frontage in Upper Merrion Street of nearly 90 feet, and will run the entire depth of the site, while the College will have a frontage of some 200 feet and a depth of about 73 feet. Between the wings and in front of the College there will be a courtyard of nearly 200 feet wide. Merrion Place will be widened to about 40 feet, and entrance to the College will be gained temporarily through this improved thoroughfare. In the meantime the houses in Upper Merrion Street will remain as they are at present, but as the scheme is worked out and the wings are completed the public boards occupying them will be transferred to the new premises. The College buildings on the inner side of the square are the only portion on which operations will be conducted just now. When the wings are completed and the houses in Upper Merrion Street have been demolished the present railings in front of the lawn will be continued as far as Merrion Place, and will enclose an ornamental grass plot in front of the public offices and the courtyard of the College, and also contain a handsome entrance leading into the main block. From this it will be seen what a vast improvement will be effected by the scheme.

The ground plans of the College are practically complete, and the general arrangements have also been settled, but the elevations, &c., are still in the architects' hands, so that the shape which the buildings will ultimately assume is not in a sufficiently advanced stage to admit of any detailed description. The sketch plans of the College disclose a most imposing structure, with beautifully modelled turrets surmounting the entrance. However, these plans may be subject to considerable alteration, but at any rate they indicate that the architectural beauty of the work is being steadily kept in view. A contract has been entered into for the clearing and excavation of the site of the College, and these preliminary stages of the work are being carried out by Messrs. H. & J. Martin, of Dublin and Belfast.

THE ASSOUAN DAM.

THE last doubts as to the stability of the Assouan dam have brought a communication from Sir William Willcocks on the subject. Writing in the *Egyptian Gazette*, he describes the problems that confronted the engineers, and sums up the position thus:—We may say that at the Assouan dam we have against us (1) The known calculable force of the water trying to overturn the dam; and (2) certain other greatly minimised but possible forces trying to lift it off its base. We have for us:—(1) The whole weight of the dam, which with wide factors of safety is capable of resisting all the known forces by its weight alone; (2) we have a structure built of the most tenacious cement mortar, while in our calculations we have assumed that it is built of mud; (3) we have a rock whose veins are notoriously vertical and therefore safe, and moreover these veins are bounded on either side by solid granite, to which the dam is tied by neat cement mortar thrown in by thousands of barrels, while in our calculations we have assumed that we might have thrown in so much plum jam; and (4) we have a foundation taken down into granite rock regardless of expense and supervised in every detail by sound engineers.

Municipal Buildings are to be erected in Hamilton, N.B., from the designs of Mr. Alexander Cullen.

NOTES AND COMMENTS.

THE instructions to architects who will take part in the competition for the reconstruction of the town hall of Perth have been approved by the committee. The amount to be expended, including all external and internal embellishments, lighting, heating and ventilation, and all requisite fixtures and cost of movable furnishings, and taking down and re-erecting organ, is not to exceed 15,000*l*. The new city hall which will have to be provided must afford accommodation for at least 2,500 people. Exits can be shown on the plans from the hall to streets which will be formed on the north and south sides of it, but the exits on the north side must be opposite the ground belonging to the Town Council next King Edward Street. There is also a scheme for reconstruction of the existing buildings. The competitors can adopt any style they consider suitable.

RAILWAY companies were generally supposed to favour contracts for lump sums, and quantities used to be treated in a wholesale manner. It is therefore somewhat difficult to determine what is the basis of a contract, and a doubt of this kind has given rise to an action of which we may hear subsequently in the High Courts. It arose out of the reconstruction of a bridge on the North-Eastern Railway. The Company entered into a contract with the trustees of JOHN BUTLER & Co., engineers and ironfounders, for the whole work. The trustees sublet the masonry and brickwork to Messrs. ATKINSON & SON, builders, of Stockton, the amount being 583*l*. Before settling the account the work was measured, and then it was discovered that, instead of there being 150 cubic yards as in the quantities, there were only 100 yards. The sum of 84*l*. was accordingly deducted from Messrs. BUTLER's account. The same amount was then deducted from Messrs. ATKINSON's account on the ground that they were bound by the conditions of the contract entered into by Messrs. BUTLER. Messrs. ATKINSON insisted that their contract was for a lump sum, and they sued the contractors in the Stockton County Court for 84*l*. 19*s*. 1*d*. as balance due for work executed. The Judge adopted the sub-contractors' view, and judgment was given for the amount claimed with costs. A stay of execution was granted in view of the appeal. Apparently the dispute might have been avoided if a proper agreement had been drawn up.

THE registration of land in England was for a long time advocated by political economists and statesmen before an Act for the purpose was passed. Registration is not made compulsory, and practically the Act may be said to apply in consequence to a very limited area. The mischief which the Act was intended to remove closely concerns building. Many timid people are afraid to purchase building sites or to erect houses or business premises on them through a misgiving that the title will one day be discovered to have some flaw in it, and that a great loss will follow. From what was said at a conference of representatives of town and county councils which was held in Glasgow, it would appear that registration is more necessary in Scotland than in England. The obscurity of the title requires a long investigation, and, of course, a large expenditure on law costs. One case was mentioned where the transferring of property valued at 142*l*. involved legal expenses of 233*l*. In another where the value was 122*l*. the lawyers were paid 377*l*. A case where the costs were 138*l*. for a property worth 137*l*. must be considered as a cheap transaction. The Corporation of Glasgow had to pay 730*l*. as legal expenses on one purchase. A Blue-book appeared not long ago in which it was shown that on the Continent the transferring of land from one owner to another was a simple operation. In the past the system was accepted as a matter of course. Times have changed; the Cor-

poration of Glasgow have found that the certificate of registrar can serve as well as a vast mass of documents and it has therefore been decided that representative from the city and various burghs shall take such steps as may be deemed expedient for furthering the introduction of registration into Scotland.

IF the opinion of foreign critics could be taken, would be found that Paris is more indebted to Baron HAUSSMANN than to a crowd of other administrators. His transformation of narrow and crooked streets into wide and straight thoroughfares is usually proposed as a model for imitation by other cities. It is remarkable, however, that in Paris the obligations to his enterprise are rarely acknowledged. Although there are such a vast number of statues in the streets, there is not one of HAUSSMANN. An attempt was made last Friday in the Municipal Council to obtain approval for a project of providing a memorial of that kind, but it was rejected by a large majority. What makes the aversion to the late Baron appear more extraordinary is that his principal lieutenant, M. ALPHAND, was, during several years, the director of municipal works, and that a memorial was erected to him after his death.

IT is generally assumed that the provincial museums of France are in a state of efficiency which it would be well for us to imitate in this country. But, according to one of the French députés, M. FERDAND ENGERAND, they are in general mismanaged to an incredible extent. Some of them, he declares, have no catalogues to the collections, and although there may be masterpieces on the walls there are no means to discover their value. Quantities of paintings are to be found in garrets, and many of the musées from the neglect of ventilation are injurious to the collections. M. ENGERAND does not wish the Government to be satisfied with his allegations. He accordingly proposes that a commission should be appointed to investigate and report on the subject, and to explain whether it is possible to derive more advantages from the works of art which are at present neglected.

THE Association for the Photographic Survey of Surrey are able to show a satisfactory result for the past year—660 photographs were received, and, as there were 612 for the preceding year, the total is 1,272. The architectural prints number 455, of which 367 represent church and church monuments. Excluding the Metropolitan area and the more populous districts of Surrey, the portion of the county to the east of Reigate may be said to have been thoroughly surveyed as regards its churches. It is remarkable, considering the number of workers in the town, that Croydon is far from complete. The parish church, St. Mary Magdalene's, Shirley Church and Christ Church, Addiscombe, are practically completed, but the remaining churches are poorly represented. There is a fairly full series of the Town Hall, Whitgift's Hospital and the Old Palace; a recent visit to the latter, however, by the Croydon Antiquities Protection Committee has brought to light some further points worth recording. There are other public buildings in Croydon which should be photographed during the present year, and several houses which, from their interest and liability to disappear, should be recorded.

ILLUSTRATIONS.

ST. ANN'S CATHEDRAL, LEEDS.

STANDARD INSURANCE BUILDING, EDINBURGH.

NEW PREMISES, CORNER OF WIGMORE STREET AND MAYLEBONE LANE, W.

202 BOW ROAD, E.

FACTORY AT BROMLEY-BY-BOW, E., FOR MESSRS. BURROUGHS & WATTS.

THE ARCHITECTURAL ASSOCIATION.

THE concluding meeting of the present session of this Association was held on Friday evening last at 11000 Street, Westminster, Mr. E. Guy Dawber, president, in the chair.

Election of Officers.

The scrutineers in their report said 479 voting papers were received, but 23 had been rejected as invalid. The following were elected:—President, Mr. E. Guy Dawber; vice-presidents, Mr. John Murray (317 votes) and Mr. Louis Ambler (303 votes). Committee (the figures signify the number of votes), Messrs. R. S. Balfour (361), A. Needham Wilson (358), H. T. Hare (356), Arnold Mitchell (311), J. S. Gibson (296), W. A. Pite (282), J. MacLaren Ross (277), A. Rickards (266), J. B. Fulton (264), M. E. Webb (212).

On the motion of the President Mr. Reginald Blomfield, R.A., was elected by acclamation a member of the Association; Messrs. C. B. Bone, F. A. Whitwell and P. A. Ash were reinstated members.

Mr. H. PHILLIPS FLETCHER read the following paper

The Buildings of the World's Fair at St. Louis, 1904.

The "World's Fair" held at St. Louis last year commemorated the centenary of the purchase of the Louisiana Territory by the United States Government from France. This territory contained over 1,000,000 square miles, and forms the central portion of the present United States. The Mississippi river formed the eastern boundary between the Louisiana Territory and the United States, and was the great highway upon which the extensive lumber trade of the Americans was carried to the port of New Orleans. In 1800 this port had been secretly retroceded from Spain to France, and two years later, when the fact was announced, great alarm was caused in the States on account of the strained relations with France. Moreover, Spanish officials still lingered at the port and were a great cause of annoyance to the Americans.

In 1803 Jefferson, the then President of the United States, sent commissioners to Napoleon the Great to see if terms could be arranged for the purchase of the city and island of New Orleans. Napoleon, apparently being in great need of money to carry out his expansive ideas in Europe, conceived the idea of bartering the whole of the Louisiana Territory for much-needed gold. The business capabilities of the little Corsican proved quite equal to dealing with the astute Yankee, and after various negotiations he succeeded in squeezing fifteen million dollars out of the pockets of the American citizens. This, the greatest deal in real estate ever negotiated, more than doubled the area of the original States, which, as defined by the Peace Treaty of 1783, contained less than one-third of the present area of this great Republic. At the time of the purchase there were many who opposed it, but the wisdom of the venture has been more than justified since by reason of its great mineral wealth and agricultural resources.

Site.

The site chosen for the Exhibition included a considerable portion of what is known as the Forest Park; and some idea of its character can be gleaned from the view on the green, which represents the same partially cleared in readiness for the preliminary engineering works. After the plans had been considerably advanced it was found that more land was necessary, and the Exhibition authorities obtained a lease of the Washington University (then in the course of erection), together with the grounds, containing 10 acres of ground belonging thereto. A piece of land known as the "Catlin Tract" was added at a later date, for the owners, knowing that it was indispensable, set a stiff price upon its sale, which the Exhibition authorities had to submit to. During the Exhibition this portion was known as the "Pike," and the amusements concessions were situated thereon. The total area of the grounds was over 240 acres, being greater than the combined areas of the Chicago, the Buffalo and the last Paris Exhibition. About one-fifth of the whole area was roofed in.

General Plan.

The main scheme of the plan somewhat resembled an open fan, and was originated by a committee of some seven or eight architects who were partners in nine prominent American firms. The plan proved to be scarcely comprehensive enough, as the Exhibition assumed much greater proportions than were anticipated. It will be seen that the instructions to the Commission were inadequate. The

consequence was that the Exhibition was to some extent marred by the fact that there were really several separate schemes for the buildings. It would perhaps have been better if some scheme had been devised which would have admitted of expansion. This would have prevented some irritation to visitors, as it involved the separation of more or less allied subjects which wasted one's physical energy in searching out the same.

The central feature of the picture was the Festival Hall, which was situated on the crest of a hill. Restaurant pavilions on either side were architecturally connected to the Festival Hall by the Colonnade of States. At the foot of the hill was the grand basin, into which three series of cascades discharged 90,000 gallons of water per minute.

Three main avenues radiated from the hill and afforded vistas terminating with the highly decorative features of the Festival Hall, the Colonnade of States and restaurant pavilions. These avenues were crossed by a grand transverse avenue, which thus gave the general outline to eight of the main Exhibit Buildings. This transverse avenue was to have had a semicircular sweep, but the extra cost it would have entailed in erecting all the buildings with curved façades was prohibitive. As planned, four of the buildings had a break in one or two of their façades which were cleverly disguised in three of them, viz. in the Education, Manufactures and the Varied Industries Pavilions.

On either side of the Grand Basin was a series of lagoons two miles in length, which surrounded two of the great Exhibit Buildings and were spanned at intervals by tastefully-designed bridges. Well executed statuary was placed in the main avenues. The other main Exhibit Buildings, the Administration Buildings and the Foreign Concessions were situated westwards of these, while the States Buildings occupied the south-eastern corner of the grounds.

An intramural electric railway, thirteen miles in length with seventeen stations, skirted the grounds and served a considerable number of the exhibits, though it missed some of the more important buildings.

After the general plan of the "Fair" had been decided upon, the civil engineer commenced his topographical survey of the ground. It was first marked out in 1,000-foot squares, and was later subdivided into 50-foot squares, readings being taken at the intersections and at such additional points as governed the contour. Maps were prepared to a scale of 50 feet to the inch, and monthly progress maps showed at a glance the advancement made in the erection of the works.

Engineering.

The engineering works and building construction involved by this Exhibition were extensive. In preparing the site for the buildings some 2,000,000 cubic yards of earth were moved. To facilitate the construction and the housing of the exhibits, 15 miles of temporary track had to be laid through the grounds, in addition to extensive storage-tracks in the south-western part of the grounds. Burnt ballast, gravel, macadam, asphalt and brick were the materials used in the road-making. Oak was used in the kerbing throughout, 10 inches by 3 inches in thickness being the scantlings employed.

An adequate water-supply was provided from the mains of the city of St. Louis. Quite a network of pipes, varying from 2 inches to 12 inches in diameter and 21 miles in length, was laid down over the entire grounds and inside of the buildings. In addition to this there were about 36 miles of pipes installed for high-pressure fire protection, and each State, foreign and concession building had to connect its own system of pipe to the Exposition mains. There were 530 high-pressure hydrants and thirty-one deck turrets for the protection of the main Exhibit Buildings. There were also five fully equipped fire-engine stations and a double company of Hale's Fire Fighters from Kansas City. The pipes for the high-pressure system for roofs and the inside and outside of buildings were of wrought-iron, tested to withstand a pressure of 750 lbs. per square inch, and a pressure of 150 lbs. was maintained by means of fourteen 1,000-gallon fire-pumps. Other means of fire protection were provided in sprinkler systems and numerous chemical fire-extinguishers placed at convenient points in each building.

The river Des Peres pursued a somewhat tortuous course through that part of the grounds upon which the main Exhibit Buildings were to be erected, and it therefore had to be diverted and the old river bed filled in. A timber flume, 45 feet wide by 15 feet deep, was constructed for this.

purpose. For the drainage of the grounds, in addition to the waterway of the harnessed Des Peres, 25 miles of storm-water drains were constructed, and ample provision was made for the reception of the water outside the grounds, so as to prevent damage from the overflow.

For the main sewerage scheme the Exhibition authorities laid down 12 miles of 8-inch vitrified pipe sewers and about $1\frac{1}{4}$ mile of brick sewers. These discharged by gravity into two wells near the Mines Building, from which the sewerage was pumped into the sewer mains of the city by four electrically-driven centrifugal pumps. In addition to this main sewerage scheme, there was the system installed for the Washington University Buildings in the north-western corner of the grounds, a few stray sewers laid by speculative builders of real estate plots, and the pipes laid by the various States and the foreign Governments and concessions.

The bridges were constructed on a standard plan. This consisted of a simple arch system of 3-inch by 14-inch timbers for the top and bottom chords, and a solid web of two courses of 2-inch by 12-inch planking. At the centre, where the head room for passing boats, &c., did not allow of the use of this truss, 3-inch by 16-inch joists were substituted and were skilfully connected to the main trusses.

The boiler-house was of fireproof construction, and was situated close to the Machinery Building. The steam mains from the boilers were conveyed through a tunnel to the Machinery Building. A garbage crematory was erected in the western portion of the grounds.

Construction.

The Division of Works had entire control over the construction of the main Exhibit Buildings. A new departure was made in constructing these of timber in lieu of steel, by reason of which a great saving in cost was effected. Ample opportunities were afforded to the architect of studying this, the greatest example of the art of carpentry ever executed, since most of the construction was visible internally owing to lack of funds to complete the plastering. The director of works stated that only forty draughtsmen were employed to prepare the drawings for the Exhibition Buildings. The designing and erection of the same occupied only some two and a half years.

The foundations of these buildings varied according to the nature of the ground, spread footings, timber cribbing or piles being used. Some idea of the timber framing, such as was employed in one of these huge structures, is shown in the view now on the screen, which is the skeleton of one of the restaurant pavilions.

Long leaf yellow pine was used for all posts, roof trusses and framing. The safe tensile strain was taken at 1,800 lbs. per square inch, the safe compression perpendicular to the grain 800 lbs. per square inch, the safe shearing stress parallel to the grain 150 lbs. per square inch. In the white oak keys the safe stress parallel to the grain was taken at 400 lbs. per square inch.

The walls of the main Exhibit Buildings, which were 2 feet in thickness, consisted of timber framing. The timber columns were so constructed as to conveniently approximate to the finished design. Steel and wood lathing was used to carry the "staff." The "staff" was generally composed of 2 parts of plaster of Paris and 1 of Portland cement, to which Manilla or jute fibre was added, and these were mixed together with water till in a plastic state. This composition was then either applied direct to the laths or expanded steel sheets, or was cast into moulds, and, when thoroughly dry, nailed to the framed walls. When cast it could be sawn or planed in the same way as wood. It is alleged to withstand the weather if painted.

The white oak keys of circular cross-section were used throughout the construction in the following cases:—

(1) To make the shear connections between the individual posts of built-up columns (which are subject to direct compression and bending strain). (2) To make all tension splices of jointed timbers break joint wherever they occur. (3) To make all attachments to posts and trusses where a force parallel to these members has to be transmitted to them.

These keys, which were 2 inches in diameter, were driven into holes bored after the individual timbers had been bolted together. When the keys were all in position the bolts were tightened up. The advantage of circular keys is evident from the great saving of expense by their adoption, as but little labour is necessary; they are also speedily fixed in position, and the certainty of uniformity in their fit was certain since the holes were bored with augurs operated by compressed air. The disadvantage in

practice was found to be that when the timbers shrunk these keys could not be tightened up, and in some cases they fell out and did some damage to exhibits beneath. Life and limb being held so cheaply in the States one must not stop to enumerate the accidents that occurred to the mere public therefrom.

Square keys used as folding wedges are undoubtedly superior, since they can be tightened up; and, moreover, the pressure of the shearing strain does not develop a component laterally as with the round keys. Doubtless, therefore, these latter would have been adopted if the buildings had been required for any considerable length of time.

Roof Trusses.

The roof trusses employed were mostly of the familiar Howe type, the span of these varying with the requirements of the different buildings. The main columns measured 14 inches by 3 feet 8 inches on plan, and were composed of two posts 10 inches by 14 inches, and one post 8 inches by 14 inches, with two sets of packing pieces 8 inches by 14 inches, between. The columns supporting some of the smaller roof trusses were composed of two posts, 12 inches by 14 inches, with one set of packing pieces of similar scantling between them. Numerous oak keys, as already described, were employed in transmitting the stresses which these columns were subject to from post to post. In an exhibition, if skilfully contrived, columns internally should not interfere with the exhibit spaces.

The roofs were mostly flat, except where architectural effect necessitated them being otherwise, and composition roofing was the chief covering used.

The buildings were intended to be finished internally with plaster, but lack of funds prohibited this being fully carried out, which was fortunate from the point of view of the architect desirous of studying the construction. The main Exhibit Buildings were chiefly lighted by means of skylights, clerestories and lanterns, or "monitors," as the latter are called in the States. The Commission of Architecture fixed a uniform cornice level of 60 feet above the adopted ground level for the main buildings. This cornice level was, therefore, about equal to the height of the two orders to the Banqueting House, Whitehall, and may give some idea of the scale employed. The earlier plans suggested galleries, but the authorities in charge of the exhibit department deemed them undesirable, since very few would be likely to visit anything above the ground-floor level of such stupendous buildings.

Festival Hall.

Having thus dealt with the general structural features of the main buildings, we will rapidly consider a few of the principal buildings. The central features were the Festival Hall and Colonnade of States with the restaurant pavilions. The Festival Hall was designed by Mr. Cass Gilbert, of New York, in front of his permanent Art Building, the latter being completely screened off by the Festival Hall and Colonnade of States. It was a large circular building, 195 feet in diameter, with a large rectangular annexe containing the stage, the organ, accessory dressing rooms, and offices. The auditorium was covered by a dome, the internal diameter of which was 90 feet. A gallery was provided, and there were promenades on both sides and the ground floor. Seating accommodation was provided for 3,500, tip-up seats being generally employed in the auditorium and the first four rows of the gallery while in the remaining rows ordinary chairs were used. This building was highly decorative externally. Engaged Ionic columns were employed in the circular colonnade which stood upon a lofty podium. The great entrance with its curved pediment and crowning sculptured group was at once very ornate and imposing. Unfortunately, the great statue of Liberty raising the Veil of Ignorance and protecting Truth and Justice, which was placed above the central cascade, completely obliterated it from view when standing on the Plaza of St. Louis. The crowning feature of the building was the dome, which rested on a lofty drum of considerably less diameter than the circular colonnade. Bull's-eye openings were introduced at the junction of the dome with its drum. Originally it was intended to place a seated figure upon the dome, but in execution this was varied to a figure of Victory. The cost of this building was about 53,000.

Colonnade of States and Restaurant Pavilions.

The Colonnade of States, designed by Mr. E. I. Masqueray, was an ornamental screen, 52 feet in height and 1,500 feet in length. It was formed of a succession of

fourteen hemicycles, in which were placed statues symbolical of the States and Territories included in the Louisiana purchase. Ionic columns were used in pairs, and swags were suspended between the capitals. These had a somewhat detached appearance as seen against the sky. The restaurant pavilions, which were placed at each extremity of the Colonnade of States, were extremely esthetic in design. Mr. Masqueray was responsible for these also. From most parts of the grounds these pavilions and the colonnade were rather too much separated from each other.

Cascades and Gardens.

The borders of flowers were tastefully arranged, and changed with the seasons. These cascade gardens, perhaps, attracted more attention than any other decorative feature of the Exhibition. At night the cascades were illumined by means of three sets of incandescent lamps, which changed color and anon from white to red and green.

Art Buildings.

The Art Buildings made a majestic architectural group on the hill behind the Festival Hall and Colonnade of States, and consisted of four distinct buildings, three of which represented a total northern frontage of 830 feet. The central building is of fireproof construction, and remains as a permanent public picture gallery, being a lasting monument of this vast Exhibition. It is 340 feet long and 160 feet wide, and contains a large central hall for sculpture, with galleries on either side for pictures and other works of art. During the exhibition period the main building was occupied entirely by exhibits from the United States. As already mentioned, it did not form a part of the main picture of the Exhibition. The reason given was that this building is of buff-brick, which did not harmonise well with the ivory white staff of the exposition buildings. The temporary structures, each measuring 422 feet by 200 feet, on either side of the permanent building, were to some extent fire-resisting. The Ionic order was employed in these buildings, and the portico of lofty Corinthian columns to the central building accentuated the main entrance. The fourth building was a pavilion, 200 feet by 100 feet on plan, for sculpture by masters of international reputation, and was situated on the fourth side of a court formed by the three Art Buildings already mentioned. The cost of the entire group was over 210,000.

United States Government Building.

The building erected to house the United States Government exhibits stood on high ground at the eastern end of the Grand Transverse Avenue. It was approached by three great flights of steps, in addition to which gentle inclines led to the terrace level. The main façade was some 750 feet in length, and the central entrance portico, with its coupled Ionic columns, was connected to end pavilions by a colonnade of Ionic columns 45 feet high and 5 feet in diameter. Above the main cornice level an attic 5 feet in height was introduced, and it will be noticed that in the case of the central entrance portico the pediment was placed above this attic, thus giving importance to the main entrance. A low dome, 93 feet in diameter, was a prominent feature of the roof, and in general character it suggested that of the Pantheon, Rome, as the *motif*. The general design of the building had a breadth of treatment and unity of detail in keeping with its purpose, and excellent opportunities were afforded for sculptured ornament. This building was the only instance in which the roof was carried by steel trusses, 175 feet in span, at intervals of 5 feet. The architect was James Knox Taylor, supervising architect of the Treasury Department, and the cost was some 73,000.

Main Exhibit Buildings.

We can now come to the Main Exhibit Buildings. I have already mentioned that the general scheme was decided upon by a commission of architects representing fine firms, and each of these firms was entrusted with the design of one of these vast palaces. We have also noted that the Division of Works designed the construction and controlled the erection of the same buildings. Thus the architects were responsible only for the elevations—an altogether unsatisfactory state of affairs, which can only add to the alienation of the two factors of our accepted definition of architecture:—"Design in beauty and build in truth."

(To be concluded.)

UNIVERSITY COLLEGE ARCHITECTURAL SOCIETY.

THE University College Architectural Society, which has recently been formed, held its first meeting at University College, Gower Street, on Thursday, April 6, when Mr. B. O. Fricker read a paper on "Glass and Its Application to Domestic Glazing." Mr. Fricker first described in detail the manufacture of sheet and plate-glass, explaining the materials used and the different processes each has to go through, and then explained the fixing, cutting and leading of glass. He gave some useful advice regarding the size of panes, comes, &c. At the conclusion of the lecture he showed a number of lantern-slides, the most interesting of which were from photographs taken by him inside a glass-house, showing workmen engaged in the different processes he had described.

The meetings will be held fortnightly, and all the papers to be read will deal with practical subjects. The next paper will be by Mr. E. J. Fowler, on "Architectural Lead-work," to be followed by one by Mr. A. C. Hobbs on "Reinforced Concrete." The secretary of the Society is Mr. E. J. Whitley.

GRAY'S INN.

THE following memorial has been presented to the Benchers of Gray's Inn by the Society for the Protection of Ancient Buildings:—"We, the undersigned, have learnt with deep regret that the Benchers of Gray's Inn have decided to demolish No. 15 Gray's Inn Square, and we therefore earnestly and humbly beg that the Benchers will spare the building, on the grounds of its exceptional beauty and the charm which it lends to Field Court, which, with the beautiful wrought-iron gates and other pleasant surroundings, is one of the most picturesque spots in London." About 150 names are appended to the memorial, including those of Sir J. C. Robinson, Lord Balcarras, M.P., Mr. Hamo Thornycroft, R.A., Mr. Richard Garnett, C.B., the Hon. Percy Wyndham, Mr. Walter Crane, R.W.S., Sir Philip Burne-Jones, Sir Alexander Condie Stephen, Mr. Lancelot Speed, Sir Thomas Barlow, M.D., Lord Cathcart, Mr. R. Norman Shaw, R.A., Mr. H. R. Graham, M.P., Mr. T. J. Macnamara, M.P., Mr. John Belcher, A.R.A., Mr. W. Holman Hunt and Mr. Edward Moon, M.P.

CARNARVON CASTLE.

THERE is rivalry in Wales concerning the selection of a site for the contemplated National Museum. Each competitor claims to possess unique reasons for selection, Swansea and Cardiff have wealth to bestow on the museum, but Carnarvon has the great advantage of possessing the historic castle which can easily be adapted to the required purposes. We lately mentioned that Mr. Walter Thomas, president of the Society of Architects, had been invited to examine the building. In his report he says:—

"In accordance with your request, I have made a thorough survey and examination of Carnarvon Castle and its ten towers with a view to advising you as to the practicability of housing within its walls the National Museum of Wales. In my opinion the idea is an excellent one, the castle being in itself perhaps the most interesting object, from an historical and antiquarian point of view, in the Principality, and the setting it would afford to the exhibits would be unrivalled in any ancient or modern institution of this character. The towers contain some very spacious chambers, and from the corbels, recesses and other indications it is easy to form an accurate idea of the construction of the original floors and roofs, and if these were reconstructed a very excellent group of rooms would result—somewhat isolated, it is true, but for this very reason lending themselves to the more thorough and scientific classification of the exhibits. The lighting difficulty could be overcome by making the roofs altogether of glass and treating the upper floors as galleries, leaving a large space in the centre of each for access of light to the lower rooms. Great care would have to be exercised to keep the work of restoration free from any taint of vandalism; there should not be the slightest interference with the ancient fabric, and the restoration should be carried out as faithfully as possible on the lines of the original structure. In the ten towers it would be possible to construct at least twenty rooms, the largest having an area of about 700 square feet and the smallest an area of about 270 square feet (the average area being about 500 square feet). This accommodation

would probably be sufficient for all present needs, and when more room is required I should advise the erection of additional buildings on the sites, still plainly discernible, of the banqueting hall and other chambers within the castle. It has been impossible, in the limited time I have had, to go very closely into the question of cost, but I think an expenditure of between 800*l.* and 1,000*l.*, as an average on each tower, would be necessary."

The committee have also obtained the co-operation of Dr. Forbes, the curator of the Liverpool Museum, who says:—"I am convinced that the various tower rooms, from their form and dimensions, will each afford ample floor space for the perfect display with much artistic effect of a large series of objects. The side windows already existing with a good lantern-roof (as you suggest) ought to make the lighting of the chambers ideally perfect. The altitude of the towers will enable each of them to be provided—when it is thought necessary—with a well lit, commodious upper gallery. The quaint corridors connecting the towers would afford (eventually) covered passage-way from one to the other. In the spacious courtyards of the castle, monoliths or other large objects suitable for outdoor exhibition and whose removal from houses or other original sites might become necessary, could be splendidly displayed and preserved for all time. The ten towers, when restored, would provide ample accommodation for the collections for many years to come; when, however, this space is exhausted there would still remain to be added, by rebuilding upon the old existing foundations, the banqueting and several other halls and chapels, which could not be excelled in form and dimensions and general suitability as picture or other galleries."

ANCIENT ARCHITECTURE AT GREAT ZIMBABWE, RHODESIA.*

I WISH to direct attention to what is admitted to be the greatest archæological wonder of the Southern Hemisphere—the ancient temples of the Great Zimbabwe.

This group of prehistoric buildings lies in South-east Africa, at over 200 miles from the shore of the Indian Ocean at Sofala.

Its name is derived from *Makuru Zimbabwe*, or "The Great Buildings of Stones," the title applied to these ruins by the native race of Makalanga, or "People of the Sun," who inhabit Mashonaland and the country of the Great Zimbabwe.

Zimbabwe was known to the very early Mediæval Arab traders on the Mozambique coasts, who gave descriptions of these ruins to the Portuguese, and in 1552 De Barros made the first recorded mention of their existence.

From Mediæval times until 1868 the existence of these buildings appears to have become completely lost sight of. In that year Adam Renders, an elephant hunter, rediscovered the Great Zimbabwe, but so scanty and so highly coloured were the descriptions of these buildings then given that the scientific world looked askance at their discovery.

It was not until 1871, when Dr. Karl Mauch examined these ruins, that their discovery was treated seriously by the archæologists of Europe. It was then ascertained that their discovery by Adam Renders was but a rediscovery of these ruins, and that the archives of the Vatican and of Lisbon contained earlier information concerning them.

In 1891 Mr. Theodore Bent examined the ruins and embodied his report in "The Ruined Cities of Mashonaland." His account is exceedingly valuable and reliable, but, unfortunately, he only saw the ruins in their buried condition. Later other writers, including Dr. Schlichter, a German archæologist, and Sir John Willoughby, added further to our knowledge of this group of ruins.

In 1902 I explored the Great Zimbabwe on behalf of the Government of Rhodesia. This work extended over two years, and the report to the Government on my explorations and discoveries is now embodied in "Great Zimbabwe," a volume forming a natural sequence to "The Ancient Ruins of Rhodesia," of which I shared the authorship with the late Mr. Neal.

Since my return to England last autumn I have had opportunities of discussing before leading scientific bodies at home several phases of the Zimbabwe problem, such as the origin of the ruins, the evidences of ancient civilisation and arts, the Mediæval and modern records concerning

them, and the progress made within recent years researches regarding these ancient monuments.

Ancient Architecture.

But among the many aspects from which the Great Zimbabwe problem may be considered, there was one which I had not as yet submitted for discussion, and that was the all-important subject of the architecture and construction of these buildings as represented by the temple at Zimbabwe.

In the consideration of their style of architecture and methods of construction will, in most probability, be found a reliable key to the final solution of the enigma that the marvellous structures present to the archæologist. In the first it was necessary to bear in mind that the whole of Southern Rhodesia lying between the Zambesi and Limpopo rivers yields abundant evidence that in some prehistoric times the country was occupied by a dense population of colonists, thought to be Semites of South Arabia, who were engaged in a gold-mining industry of almost inconceivable extent, and which represented an occupation extending over very many centuries of time.

Ancient gold mines exist in all the auriferous districts of Southern Rhodesia, covering an area of 600 miles from east to west, and 500 miles from north to south. Associated with these ancient gold mines are buildings undoubtedly erected for the main purpose of defence, obviously suggested by their architectural features and massive construction, that these prehistoric colonists occupied by force in a hostile country. Certain of these buildings are not believed to have been erected to serve the further purposes of religious worship and solar and astral observation. Some of these structures evidently were capital centres of gold-mining districts, others protected extensive gold workings, while others are found in chains protecting certain well-defined routes throughout the country and also leading towards the coast.

The Great Zimbabwe, by its evident importance and to a great extent, was undoubtedly the ancient metropolitan centre for the whole of the country. There are at least five hundred distinct ruins of buildings throughout Southern Rhodesia, and of these descriptions at least two hundred are to hand. These buildings are of all ages and periods extending from prehistoric times down to within the last few centuries. These various classes of ruins present different types of architecture and yield relics belonging to different periods of antiquity, and generally occupy distinct areas of country. But it is with the most ancient type of buildings, as represented by the Great Zimbabwe, that archæologists are most concerned.

Possible Age of Zimbabwe.

There appears to be unanimity in opinion among many leading scientific men of Britain, Germany and France, that the age of the Elliptical Temple at Great Zimbabwe, and the associated ruins of a similar style of architecture and construction, dates back to some period between 1600 and 1100 B.C. This opinion is based on several grounds, some of which may briefly be stated:—

1. The striking parallelisms existing between the architecture and plan of the Great Zimbabwe and those at least of two ancient temples in South Arabia, as to the remoteness of antiquity of which latter there is no doubt.

2. The orientation of the three Zimbabwe temples and of some score of other ruins in Rhodesia determined independently by British and German scientists, all point to the probable age of many of the buildings being from 1600 to 1100 B.C.

3. The discovery at Zimbabwe of the zodiacal signs showing the sun in Taurus, which astronomers assert represents a period which could not date later than 1600 B.C.

4. The undoubted practice at Zimbabwe of nature worship of an exceedingly old cult believed to synchronise with that period.

5. The absence from Zimbabwe of all sign-writing, the earliest inscriptions found in any Phœnician temple being not older than 700 B.C.

6. The evidences at Zimbabwe of ancient civilisation and arts whose only parallel in many respects, especially in their associations, is to be found in the ancient kingdoms of South Arabia.

7. The evidences of ancient gold-mining operations distinct from those of Mediæval Arabs and Portuguese, of an inconceivably vast extent, showing a total output of gold in prehistoric times of at least 75,000,000*l.* sterling, while mining operations geologists and mining experts show were

* A paper by Richard N. Hall, F.R.G.S., read at a meeting of the Society of Arts on April 5.

conducted at a most remote period, well synchronising with the estimated ages of the oldest of the Zimbabwe buildings.

8. The presence throughout Southern Rhodesia, and especially on the ancient mines and ruins area, of trees and plants which are not indigenous to South-East Africa, and which still bear their fruit in the early spring. But additional internal evidences from the ruins and mines in Rhodesia could be advanced, also external evidences obtained by scientific research in the Near East, the Mozambique coasts and Madagascar, from ethnological and anthropological examinations, and also from Arab traditions.

With these evidences should also be taken into account the inability of scientific men, and especially of geologists, to point to any country or combination of countries other than Rhodesia which could have yielded the enormous wealth of gold which, according to ancient Roman and Grecian historians, and the Scriptures and modern research was so plentiful in all the ancient empires of the Near East.

Rhodesia, it is now admitted, contains the most extensive ancient gold mines known to the world.

Having suggested in mere outline the probable ages of the Zimbabwes, I will now deal with their appearance, plan, architecture and construction.

Appearance of Ruins.

Immediately on viewing the Great Zimbabwe for the first time every visitor, even the most casual, is greatly impressed by the extraordinary massive proportions of its grandly sweeping walls. Undoubtedly the Elliptical Temple is a most awe-inspiring structure. Its appearance powerfully suggests the Near East.

The European student of architecture, to entertain any adequate idea of the oldest type of forts and temple-forts in Rhodesia, must first dismiss from his mind all conceptions of the distinctive features of Grecian, Roman and Egyptian styles of architecture.

I was assured by professors and students of Egyptian archæology that the plan, architecture and construction of Zimbabwe finds absolutely no parallel or similarity with the plan, architecture and construction of any known Egyptian building. This is obvious to any one visiting Zimbabwe.

In Rhodesia the ancient architecture provides no sculptured columns and ornate capitals, no arches and no basilica, but conical towers and monoliths enclosed within stupendous walls laid on an elliptical plan—all unroofed from the very date of their construction and all open to the light of heaven.

So far as archæological researches lead, the ancient buildings in South Arabia—of Yemen, the ancient empire of Saba—alone present any parallel with those of Zimbabwe, and in several of their most important features of architecture an identity is believed to have been established.

Plan.

The plan on which the oldest of the Zimbabwe buildings throughout Southern Rhodesia are laid is always elliptical. Walls are built on curves, and the ends of walls, sides of entrances and buttresses are rounded. The angular form of building is absent, and is only found in the case of structures of obviously much later periods.

Main Walls.

The walls are very substantially built with bases averaging from 7 feet to 16 feet in width, and are beautifully and most skilfully constructed, not only on the exterior faces, but in the internal portions. Levelling instruments must have been used at Zimbabwe.

Each wall has a lean-back or batter-back on either face. Thus the main east wall of the Elliptical Temple is 16 feet wide at its base, but at a height of 30 feet its summit is 8 feet in width.

The average batter-back of high walls of the oldest type is 1 in 10 to 1 in 8, though 1 in 6 is often met with in lower walls.

Building Materials.

The building material employed at Zimbabwe is local granite in blocks, with faces averaging 9 by 7 inches. Many of the blocks have been rudely squared by the use of diorite hammers, some having been cut with metal tools.

Building Material.—How Obtained.

One might ask how the ancients obtained the enormous quantity of building material. Was it by quarrying in the local hills? I am of opinion that no quarrying, in the

ordinary sense in which the word is employed, was carried on by the ancients. All the evidences are strongly to the contrary. Caves occupied by the ancients could have been considerably enlarged and their accommodation greatly increased by simple quarrying operations, but the caves remain in their natural state. Rock protuberances in the floors of some of the ruins have not been removed, but permitted to remain, even to the extent of inconveniencing the occupiers. The hills in the Zimbabwe district show no signs of any quarrying operations on the part of the ancients.

The hills and cliffs which abound round the Zimbabwe valleys are granite. These are mainly whaleback in shape, and layers of granite in some stage of decomposition cover the faces of these hills and whaleback cliffs with gigantic scales, the layers being about 6 to 9 inches in thickness. At the bases of these hills and cliffs are hundreds of tons of scale rocks or slabs, broken fairly square by their fall from great heights. These are flat top and bottom, and only require slight trimming, if any, on their sides to make them fit closely together, and so form the ordinary block of granite as seen in the walls. These gigantic scales from the faces of the cliffs are always falling, especially after long rains; the roar and crash of these falling masses of slabs can at times be heard in several directions. No doubt the ancients finding so conveniently situated these extensive masses of fallen scales of rock, almost suiting their purpose without much labour except for their transport for two or three miles only, used these blocks in building, trimming their sides when necessary. Possibly they assisted to loosen these slabs from their original position on the cliffs in order to increase the supply of materials.

The granite used in the walls is all local, but lithologists state that the ruins on Zimbabwe Hill (350 feet) are mainly built with a local granite which does not correspond to the class of granite yielded by the formation constituting the hill itself. We may be assured that the great majority of these blocks in the extensive "Hill Ruins" was carried up to the summit from a distance of two or three miles. This implies an employment of slave labour of great proportions, but the ruins elsewhere, as well as the ancient gold mines, all point unmistakably to the same conclusion. At least over 100 tons of slate used in the buildings have been carried from a distance of ten or twelve miles, the nearest point of the slate formation to Zimbabwe being about ten miles.

The soapstone extensively found at Zimbabwe must have been imported from a distance of twelve or twenty miles, that being the nearest soapstone formation to Zimbabwe. The huge granite monoliths are believed to have been carried by slaves from the Lumbo district some two miles distant. Each of these would have required an immense number of slaves even to lift it from the ground.

Dry Masonry.

No cement or mortar has been used in the construction of the walls, all these being of dry masonry. The ancients extensively employed a fine granite cement for floorings, steps and dadoes. In their more important dado work the dadoes have had an outer layer of whitish soapstone clay brought to a high polish.

Passages.

One extraordinary feature at Great Zimbabwe is the extent and number of passages, amounting, so far as they have been discovered, to a length of over 5,000 feet, of which over 2,000 feet in length were discovered during the recent explorations. The heights of the side walls are from 5 feet to 30 feet, while some are sunk below the level of the ground. All are very narrow, some being only shoulders' wide.

Each temple has an important passage; these are conjectured to have been the approach of the priests to the inner shrines or sacred enclosures. The lowest floors of these passages yielded great quantities of religious emblems and articles of gold.

At Zimbabwe the ancient architects laid down a splendid system of drainage, which must have been contemplated before the outer main walls were erected. The buildings were open and never roofed, but by this system the flooding of the temple during sub-tropical rains was prevented.

The American Government recently invited Great Britain, Germany and France to appoint engineers to act on the Panama Canal Commission. The invitations have been accepted.

SURREY ARCHÆOLOGICAL SOCIETY.

THE fiftieth annual report of the Council of the Surrey Archæological Society states that by the lamented decease in the early part of the year of H.R.H. the Duke of Cambridge, K.G., the Society lost one who had been its patron since the year 1856. The Council had been much gratified by the honour done the Society by H.R.H. the Duchess of Albany consenting to hold the office which had thus been made vacant. A meeting in celebration of the jubilee of the Society was held at Guildford on April 28, and was very largely attended by members and their friends. The annual excursion was held on July 13, the meeting-place being Leatherhead, whence Mickleham, Fetcham and Ashted were visited. The Council tender the thanks of the Society to all who assisted in rendering these meetings successful. During the year the annual volume of the "Collections" for the preceding year's subscription was duly issued. The annual volume for the past year was in active progress, and would be devoted to Mr. Harold Brakspear's important account of the conventual buildings at Waverley Abbey, as revealed by the recently concluded excavations. The Council express its indebtedness to members for contributions amounting to 42*l.* 13*s.* 6*d.* towards the reduction of the debt of 138*l.* 6*s.* 8½*d.* upon the Waverley Abbey excavation fund. It was earnestly hoped that members who had not yet sent a subscription would come forward with their contributions, however small, towards the reduction of this serious debt, which now stood at 95*l.* 13*s.* 2½*d.*, in order that the Society might be far more generally represented by its members in the most important archæological undertaking it had yet carried out. The Council was most desirous that the debt should be paid off during the current year, and, as a contribution towards this end, would recommend at a special meeting to follow the appropriation of the sum of 40*l.* from the reserve fund. With reference to the resolution which was passed at the annual meeting in March last against the proposed destruction of the crypt on the south side of the High Street, Guildford, the Council had been much gratified to learn that steps had been taken which had resulted in the preservation of this interesting specimen of Mediæval architecture. The Council also referred to the successful agitation against the threatened demolition of Whitgift's Hospital of the Holy Trinity in Croydon. The Council was pleased to report that in consequence of a large accession of new members, due chiefly to the interest aroused in the celebration of the Society's Jubilee, there had been a considerable increase in the Society's members. Nevertheless the Council continued to urge upon members the necessity of introducing their friends to the Society as new members, if the present standards were to be maintained, and also to point out that the Society's present numbers could not yet be said to represent adequately so populous a county as Surrey. The number of members was 436, viz. annual 349, life 86, honorary 1, the total increase during the year being 29.

WORKMEN'S COMPENSATION IN COLONIES.

THE effect of colonial legislation as regards the persons entitled to compensation may be briefly stated. New Zealand (1900) adopts the same list of "dependants" as the English Act of 1897. The same observation applies to the South Australian law (1900) except that it seems to exclude step-parents. Western Australia (1902) and British Columbia (1902) include "brother and sister." All of these Acts include the general qualification, that the person to be a dependant must have been wholly or in part dependent on the earnings of the injured person at the time of his death.

The definition of "workman" in the Acts above mentioned is substantially identical with that of the Act of the United Kingdom. It should be observed, however, that two of the Acts, that of New Zealand (1900) and British Columbia (1902) include in the definition the words, "whether the employment is on land or on any ship or vessel of whatsoever kind and however propelled, in any navigable or other waters within (the colony) or the jurisdiction thereof."

As regards compensation to the injured workman in the case of non-fatal accidents, the New Zealand Act (1900) follows the precedent of the Act of 1897, except that the sum of 2*l.* is substituted for 1*l.* as the maximum of the weekly payments, and, on the other hand, it provides that

the total liability of the employer under this provision shall not exceed 300*l.* This latter provision must have a very important bearing on the difficult question of commutation of weekly payments.

By the Act of 1902 an important modification was made by substituting one week for two as the interval between the happening of the accident and the commencement of the weekly payments. A further Act, No. 88 of 1903, added the proviso that no payment shall be made in the first week in any case where the partial incapacity of the worker does not continue for a longer period than two weeks.

The same Act also made some alteration in the language of the provision for the calculation of "average weekly earnings." These alterations, however, hardly seem sufficient to meet the difficulties which have been experienced in the working of the Act of 1897.

As regards compensation to dependants in case of fatal accidents the New Zealand Act of 1900 follows the terms of the English Act, except as regards the various amounts. It substitutes for the minimum amount of compensation 200*l.* for 150*l.*, and 400*l.* for 300*l.* as the maximum. It also substitutes 30*l.* for 10*l.* as the maximum for medical attendance and burial expenses when there are no dependants.

The South Australian Act (1900) follows the same lines. The important variations from English law as regards amounts are that while (unlike the New Zealand law) it follows the English provision of 1*l.* as the maximum weekly payment, it introduces a minimum of 7*s.* 6*d.* as the amount of the weekly payment in cases of total incapacity. It enacts the maximum of 300*l.* as the total liability of the employer for weekly payments, a most important modification of the (U.K.) Act of 1897, which provides no such limit. This precedent, as has been shown, was adopted by the New Zealand Act of 1902.

Western Australia Act (1902) follows New Zealand, adopting 2*l.* as the maximum of weekly payments, and also (like the colonies already mentioned) fixes 300*l.* as the maximum liability of the employer. It also adopts the two weeks' interval before the payment of compensation begins. In case of death the minimum and maximum figures of the compensation payable to dependants are the same as under the New Zealand Act of 1900. Where there are no dependants, the maximum of the reasonable expenses for medical attendance and burial is fixed at the large sum of 100*l.*

British Columbia (1902) adopts the two weeks' interval, and the sum of 1,500 dols. as the maximum limit of liability for weekly payments. In case of death the minimum and maximum limits of the amount of the compensation are 1,000 dols. and 1,500 dols. respectively. In all other respects the provisions follow closely those of the Act of the United Kingdom as regards the amount and mode of assessment of the compensation.

NATIONAL PORTRAIT GALLERY.

THE following portraits have been added to the National Portrait Gallery:—

Donations.

Sir Charles Lyell, Bart., F.R.S. (1797-1875), the eminent geologist; painted by Lowes Dickinson and presented by Mrs. Henry Lyell.

The Rev. William Mason (1724-97), poet and divine; a miniature painting, artist uncertain; presented by the Hon. Philip Stanhope, M.P., a trustee of the Gallery.

Charles Robert Darwin (1809-82).

John Milton (1608-74), plaster-bust modelled by Horace Montford, and presented by the artist, the bust being modelled from the portrait-head at Christ's College, Cambridge, for the statue recently erected at Cripplegate.

Frederick Denison Maurice (1805-72), the eminent theologian and divine; a death-mask taken and modelled by Thomas Woolner, R.A.; presented by Mr. Lowes Dickinson.

Bequests.

Sir Herbert Benjamin Edwardes, K.C.B. (1819-68), administrator in North-West India; painted by Henry Moseley and bequeathed by Lady Edwardes.

William Henry West Betty (1791-1874), the Infant Roscius, represented as "Young Norval" in the play of "Douglas;" painted by John Opie, R.A., and bequeathed by his son, Mr. Henry T. Betty.

Purchases.

Edward Stillingfleet, D.D. (1635-99), Bishop of Worcester and theological writer; attributed to Mary Beale.

Nicholas Heath, D.D. (1501?-78), Archbishop of York and Lord Chancellor; painter uncertain.

William Whewell, D.D. (1794-1866), professor of natural philosophy and Master of Trinity College, Cambridge; plaster-cast from a bust modelled by E. H. Baily, R.A.

John Baskerville (1706-75), the eminent printer; painter uncertain.

George Brydges Rodney, first Baron Rodney, K.B. (1719-92), the famous admiral; a copy from the painting by Sir Joshua Reynolds at Petworth.

George Stubbs, A.R.A. (1724-1806), the animal painter; painted in water-colours by Ozias Humphry, R.A.

Caleb Whitefoord, F.R.S. (1734-1810), diplomatist and man of letters; painted by Sir Joshua Reynolds.

SOCIETY OF ANTIQUARIES OF SCOTLAND.

AT the meeting of this Society on Monday the first communication was a report on the excavation by the Society of the Roman Fort of Rough Castle on the Antonine Wall, near Falkirk. It is a square with rounded corners, measuring 223 feet each way in the interior space, which is surrounded by ramparts of earth and turf, with a bottoming of stones 20 feet in breadth, with two trenches in front on three sides, the fourth side being formed by the Antonine Wall, bounding it on the north. There are four gates. This system of defence is unique in Britain, but is described by Cæsar as having been used in his Gallic campaign. Sir Arthur Mitchell, K.C.B., contributed a supplementary list of travels, tours, &c., in Scotland; the Hon. John Abercromby gave an exhaustive analysis of the ornament used in the decoration of the drinking-cup or beaker class of sepulchral pottery; the Rev. Robert Paul, Dollar, gave some notes on the prehistoric relics found on Tent's Muir, Fife, of which he exhibited a collection made by himself, and consisting chiefly of flint arrow-heads and small chipped implements, such as knives and scrapers. Mr. John Sinclair, F.S.A.Scot., gave a detailed description of the Holyrood Fore-yett, or forework to the Palace, originally built by James IV.; and Mr. A. O. Curle, W.S., gave a notice of a hog-backed and two coped monuments in the graveyard of the old church of Nisbet, Roxburghshire.

TESSERÆ.

Sir Nathaniel Bacon.

AMONG the artists who lived in the time of Elizabeth should be included Sir Nathaniel Bacon, who was half-brother of Francis Bacon, Lord Verulam. He travelled to Italy, and studied painting there, but his manner and colouring approach nearer to the style of the Flemish school. Peacham, in his book on "Limning," says:—"But none in my opinion deserveth more respect and admiration for his skill and practice in painting than Master Nathaniel Bacon of Broome in Suffolk (younger son to the most honourable and bountifull-minded Sir Nicholas Bacon), not inferior in my judgment to our skilfullest masters." At Culford, where he lived, were preserved some of his works; and at Gorhambury, his father's seat, was a large picture in oil by him of a cook-maid with dead fowls, admirably painted, with great nature, neatness and lustre of colouring. In the same house was a whole length of him by himself, drawing on a paper; his sword and pallet hung up; also a half-length of his mother by him. At Redgrave Hall in Suffolk were two more pieces by the same hand, which afterwards passed into the possession of Rowland Holt: the one, Ceres, with fruit and flowers; the other, Hercules and the Hydra. In Tradescant's museum was a small landscape, painted and given to him by Sir Nathaniel Bacon.

Inn Signs.

In early times the town residences of the nobility and great ecclesiastics were called inns, and in front of them the family arms were displayed. In many cases these inns were afterwards appropriated to the purposes of the modern hotel, affording temporary accommodation to all comers. The armorial decorations were retained, and under the names of signs, directed the public to these places of rest and refreshment. On calling to mind the signs by which the inns of any particular town are designated, a very great majority of them will be recognised as regular heraldic charges. In addition to the full armorials of great families, as the Gordon Arms, the Pelham Arms, the Dorset

Arms, we find such signs as the Golden Lion, Red Lion, White Lion, Black Lion, White Heart, Blue Boar, Golden Cross, Dragon, Swan, Spread Eagle, Dolphin, Rose and Crown, Catherine Wheel, Cross Keys, *cum multis aliis*, abundant everywhere. These were originally, in most cases, the properly emblazoned armories of families possessing influence in the locality, and frequently the inns themselves were established by old domestics of such families. But owing to the negligence of mine host, or the unskilfulness of the common painter who from time to time renovated his sign, the latter often lost much of its heraldic character; the shield and its tinctures were dropped, and the charges only remained; while, by a still further departure from the original intention, three black lions, or five spread eagles, were reduced to one. A house in the town of Lewes was formerly known as the Three Pelicans, the fact of those charges constituting the arms of Pelham having been lost sight of. Another is still called The Cats, and few are aware that the arms of the Dorset family are intended. In villages innumerable instances occur of signs taken from the arms or crests of existing families, and very commonly the sign is changed as some neighbouring domain passes into other hands. There is a kind of patron and client feeling about this—feudality some may be disposed to call it—which a lover of old England is pleased to contemplate.

Tombs in Churches.

The actual burial-place of the founders of churches or chapels was the porch; for it was formerly the custom for worshippers on entering the sacred edifice to pray for the souls of its founders and benefactors. Thus Leofric, Earl of Mercia, and his celebrated countess, Godiva, were buried in the porch of the abbey church, Coventry, which they had founded. The heads of the religious houses were generally interred in their chapter-houses or their cloisters; and rectors or vicars in the close vicinity of the altar, or in the chancel of the church to which they belonged. Lords of manors and patrons were often interred in the chancel. The most obvious guides to the date of tombs are of course inscriptions. As, however, many of these exist without giving any information regarding the time at which they were cut, consisting simply of an epitaph, the following facts, taken in connection with other evidences presented on the tomb itself, will lead to a near conjecture as to its age. During the first twelve centuries, churchyard epitaphs were all written in Latin, and the first inscribed funeral monuments are those bearing the names of Romanised Britons in Cornwall or Wales. These are written in capital letters, but a small hand was introduced about the seventh century. Lombardic capitals became general on tombstones in the thirteenth century, when epitaphs in the French language began to appear, which continued to be used till the middle of the fourteenth century, generally in German text letters. From that period vernacular English and Roman print have been commonly employed for monumental inscriptions; though the clergy and learned have, as might be expected, always preferred the Latin.

GENERAL.

The Salon Jury for architecture will this year consist of MM. Vaudremér, Laloux, Pascal, Scellier de Gisors, Guadet, Nénot, Daumet, Paulin, Moyaux, Girault, Raulin, Bonnier, Deglane, Redon.

The Brighton Town Council have advanced Mr. Weller, deputy borough surveyor, to the position of borough surveyor, in succession to Mr. May. The salary is 500*l.* a year. In all cases of large undertakings expert advice will be called in.

A Meeting of the Royal Institute of the Architects of Ireland was held on Monday, when Mr. George Hubbard and Mr. A. W. S. Cross read papers on the statutory qualification of architects. A resolution was adopted approving of the principle of registration.

The Workshop Urban Council received 116 applications for the post of surveyor, viz. seventeen by surveyors to local authorities, forty-five by assistants to surveyors, fifty-two by architects in private practice and two by local candidates. The general purposes committee recommended that Mr. George Rawson, Workshop, be appointed surveyor at a salary of 150*l.* per annum, and on Tuesday the recommendation was confirmed.

The National Art Survey scholarships of 50*l.* each for six months travelling and sketching of old Scottish buildings in connection with the Edinburgh School of Applied Art have just been awarded to the following architectural students:—Mr. Thomas Linton, with Messrs. Peddie & Washington Brown, and Mr. Thomas Aikman Swan, with Mr. T. Duncan Rhind.

The Board of Managers of the London Institution say that after a very careful consideration of the scheme of amalgamation with the Society of Arts, they recommend its adoption to the general meeting. They feel sure that it insures the carrying on of the London Institution on its old lines and the continuance without a break of the work it has always done in the promotion of science, art and literature.

At the Grimsby Police Court on Monday, Mr. Arthur Gooseman, architect, was summoned for obstructing the highway by leaving sand thereon. The defendant said he was not liable, not being the contractor, but in order to save time would plead guilty. The chief constable thereupon withdrew the summons on payment of 7*s.* 6*d.* costs.

Canon Prior, of St. Peter's Church, Mansfield, says:—"The renovation of the belfry has been carried out with real artistic taste. The plaster has been stripped off and the grand old Norman stones pointed. The time is not far distant when the condition of the interior of the church will require attention. The plaster has perished in many places and the question will arise: Why not treat the whole interior as the belfry, and as Edwinstowe has been done? Certainly the tower can be so treated, but it remains to be seen whether the stones under the plaster in the aisles and chancel are big enough to be pointed or whether they are mere rubble."

At the Park Presbyterian Church, Highbury, on Sunday the minister commenced a series of discourses on great pictures, dealing first with Dürer's "Melancholia." Each worshipper was given a photographic reproduction of the picture so that the points of the sermon might be followed.

The University of Aberdeen announce that the Blackwell prize of 20*l.* will be awarded for the best essay on the following subject:—"The Causes and Conditions that have determined the Sites of the Great Cities of Europe." The prize is offered to open competition. Essays must be lodged with the secretary of the Senatus on or before January 1, 1907.

The Very Rev. Arthur Perceval Purey-Cust, D.D., celebrated last week the twenty-fifth anniversary of his installation as Dean of York. The Chapter of York Minster made him a presentation of an illuminated address. Since he became Dean of York Dr. Purey-Cust has raised 30,000*l.* towards the restoration of the fabric of the Minster, and has restored the lady chapel for the purpose of public worship.

The Lord Mayor of Manchester (Mr. T. Thornhill Shann) left the town hall last week, and will be absent for three weeks. In company with three members of the art gallery committee he will visit the galleries and museums of Brussels, Antwerp, Hamburg and other places on the Continent. The result of the visit will be embodied in a report to the art gallery committee.

Mr. Justice Farwell is expected to deliver his judgment in the Stonehenge case on Thursday next.

The Council of Birmingham University have decided to establish a professorship of civil engineering.

The Aberdeen University have passed honorary degrees of LL.D. on Professor Alberto. Gilli, Director-General of Museums and Galleries of the Vatican; and Edwin Robinson, Keeper of Antiquities at the Museum of Fine Arts, Boston.

The Hamilton Parish Council have selected plans for the competitive prizes for the proposed new Parish Council Chambers at Hamilton:—(1) "Parochial," estimated cost 2,750*l.*; (2) "Cadzow," estimated cost 3,475*l.*; (3) "Brandon," estimated cost 3,600*l.* By nine to six the committee were authorised to appoint a measurer and thereafter agree on the plan to be accepted.

Tidswell Church, sometimes called "the cathedral of the Peak," has been recently restored. The work included the removal of a modern gallery erected in 1826. In addition, oak porches, a screen and doors have been provided. The twelve panels of the new south doors are cut from an oak beam which was taken from the old Guildhall. The six upper panels are decorated with traceried carving. The work has been carried out from plans by Mr. J. Oldrid Scott.

The Metropolitan Asylums Board at a recent meeting discussed a recommendation by the works committee that the commission to be paid to Messrs. A. & C. Harston, in respect of the additional buildings which it was proposed to erect at the Joyce Green hospital, in accordance with the plans already approved by the Managers, should be at the rate of 5 per cent. on the total cost of the works. A member stated that the matter had been discussed at a former meeting, and the commission was then fixed at 4 per cent. He moved an amendment to substitute "4 per cent." for "5 per cent." The recommendation was eventually adopted.

The Secretary for Scotland (the Marquis of Linlithgow) received at his office on the 7th inst. the Lord Provost of Edinburgh, Sir Robert Cranston; Sir James Guthrie, president of the Royal Scottish Academy; Professor Chrystal, Mr. John Ritchie Findlay, Mr. Alexander W. Inglis, secretary to the Board of Manufactures; and Mr. Ewan MacPherson, secretary to Mr. Akers Douglas's departmental committee. A prolonged discussion took place on the various projects that have been advanced for enlarged accommodation for the National Gallery, for the Royal Scottish Academy and for the Royal Society.

The Award in the limited competition for the Crookes Congregational church, Upper Springvale Road, Sheffield, has been published by the assessor. Mr. E. M. Gibbs gives the first and second premiums of 20*l.* and 10*l.* to Mr. W. J. Hale and Mr. W. T. Campsall respectively. The report has been accepted by the committee, and Mr. Hale will receive the commission.

Architectural Association.—A new spasmodic publication with the title "The Tufton Street Tatler, or the Purple Patch," is announced to appear for the first time on May 18. Its objects are to ventilate all grievances; to stimulate the bright enthusiasm of youth; to resuscitate the waning interest of middle age; and generally to render more efficient the present administration of the ancient and honourable society.

The Surveyors' Institution will hold their next country meeting at Exeter on May 25 and 26. In the afternoon of the first day various places of interest will be visited, and a party will be shown over the cathedral by Chancellor Edmonds. The second day is set apart entirely for visits and excursions, the principal of which are an excursion to Torquay and Totnes, visiting Berry Pomeroy Castle *en route*, and thence by steamer down the river Dart to Dartmouth, a visit to Plymouth and up the Hamoaze by steamer to the Devonport Dockyard extension works, the Royal Albert Bridge and the Devonport and Keyham Dockyards, and viewing the warships in the harbour.

The Berwick Town Council discussed last week a letter from the Society of Antiquaries, Newcastle, referring to suggested alterations on the Old Bridge at Berwick, and urging the Council to allow the bridge to stand as at present, and build a new structure suitable for modern requirements. It was pointed out that for two and three-quarter centuries the bridge had formed one of the most picturesque features of the town, and was a unique example of the architectural construction of its period. The Mayor remarked that if the Society of Antiquaries would help them to pay for a new bridge they might consider the matter, but he demurred to outside interference in their affairs.

The Bust of the late Robert Brough, A.R.S.A., has now been placed in the Aberdeen Art Gallery. It was formally presented to the Art Gallery committee by a joint letter from Mr. Frampton, chairman of the London committee, and Mr. Theodore Crombie, chairman of the Aberdeen committee, addressed to the chairman of the Art Gallery. It is a bronze portrait bust by Mr. Derwent Wood on a marble pedestal, the inscription on the pedestal being:—"Robert Brough, A.R.S.A. Born March 20, 1872, died January 21, 1905. Presented to the Aberdeen Art Gallery by his fellow-artists and other friends."

The Contract for the erection of Cathedral Mansions, to occupy the sites of Nos. 258-266 Vauxhall Bridge Road, Victoria, S.W., has been signed between Mr. Tod Heatly, D'Eresby House, Ltd., and Mr. C. Gray, contractor, of Kensington and Shepherd's Bush, and the work is to be commenced at once. The plans contain many novel features in the planning of flats, and there will be a roof garden for use of tenants. The elevation will be carried out in cherry-red bricks, gauged work and dressings of terra-cotta by Dennis, of Ruabon, from full-size details for modelling by the architects, Messrs. Palgrave & Co., Westminster. Mr. Farrell is the clerk of works.



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SIDNEY B. CAULFIELD, Architect.



A Corner in Mr. Burroughes' Private Office.



Caretaker's Apartments and Stores.

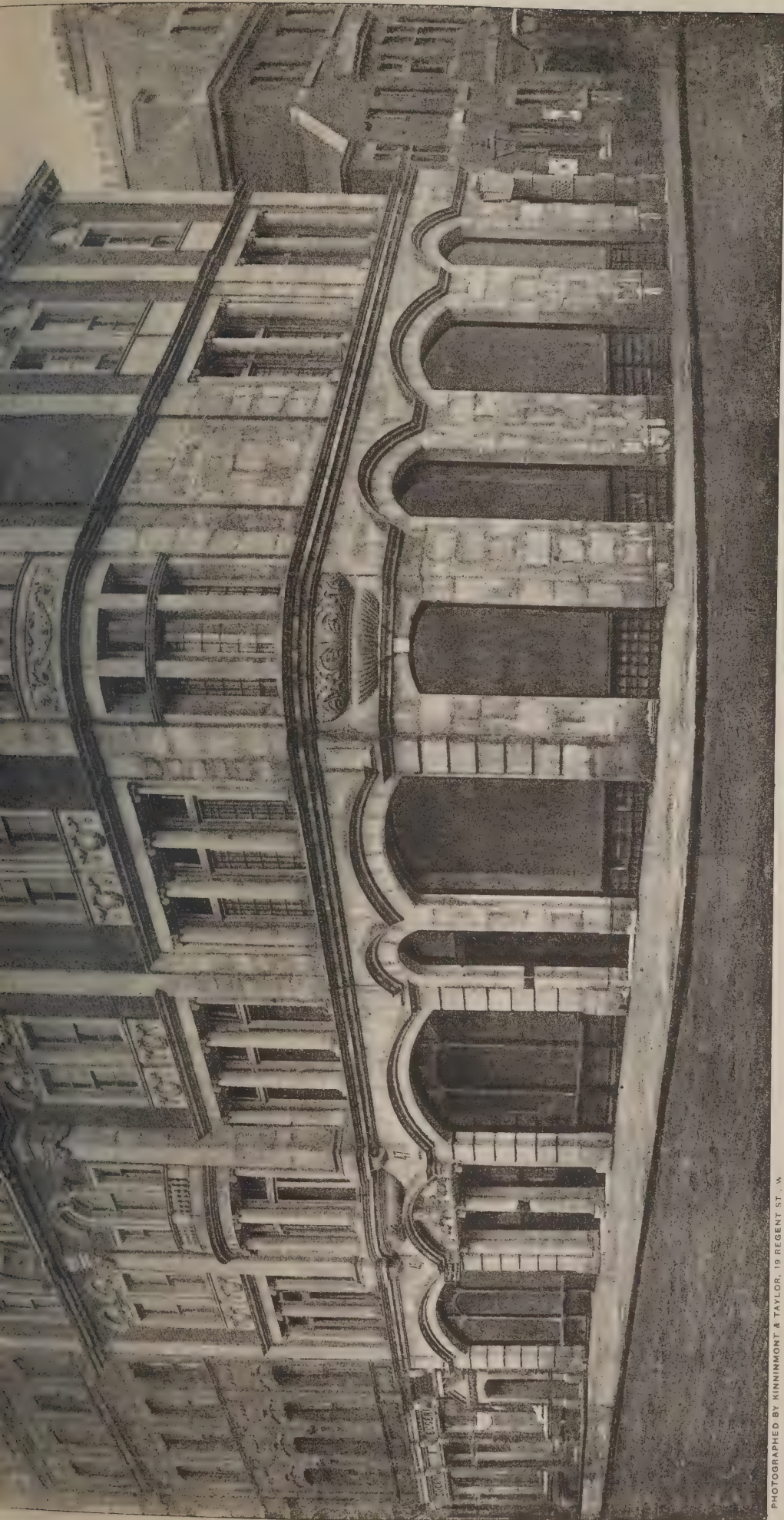
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FACTORY AT BROMLEY-BY-BOW, E., FOR MESSRS. BURROUGHES & WATTS.

SIDNEY B. CAULFIELD, Architect

The Architect, April 14th 1905





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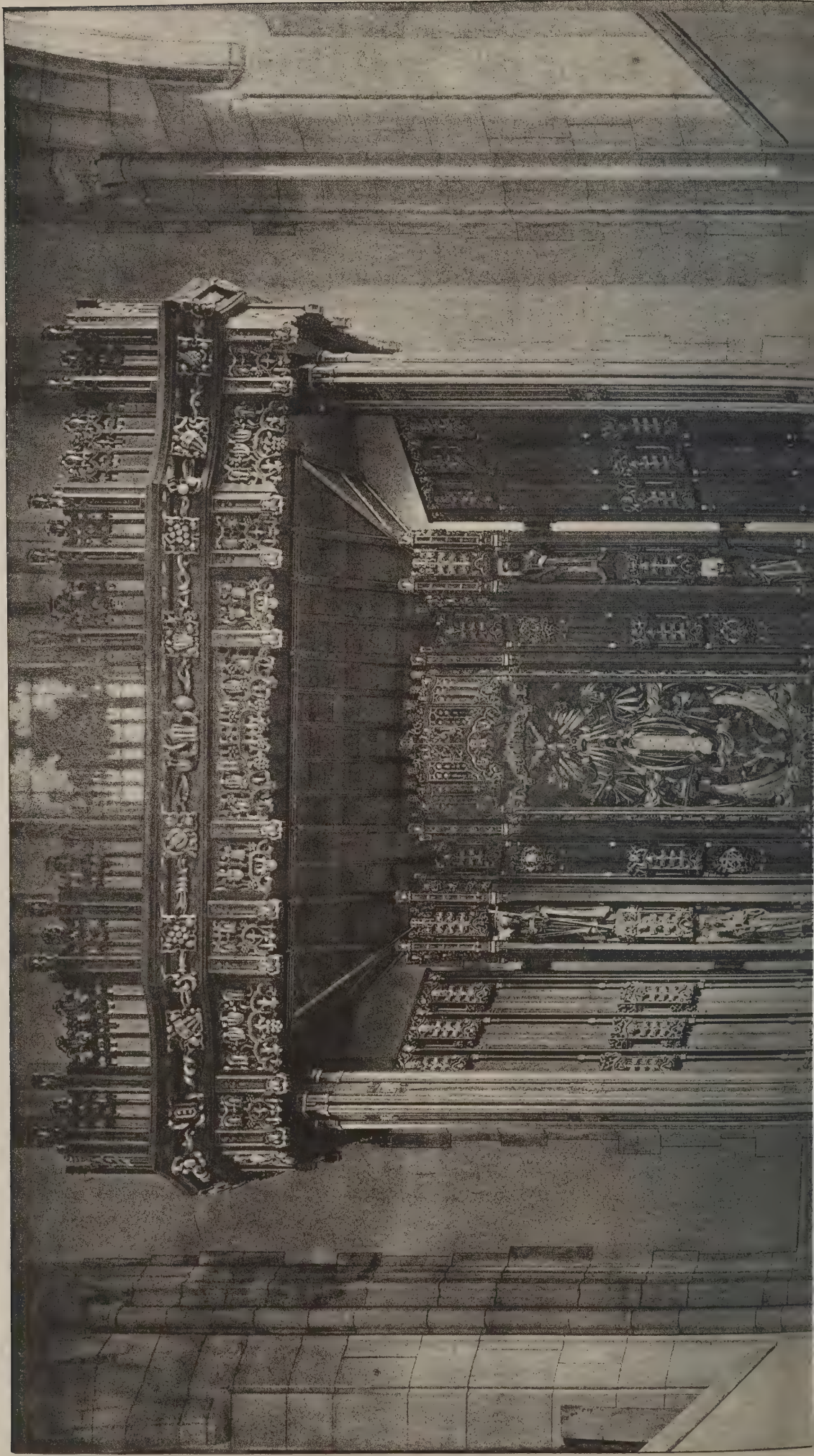
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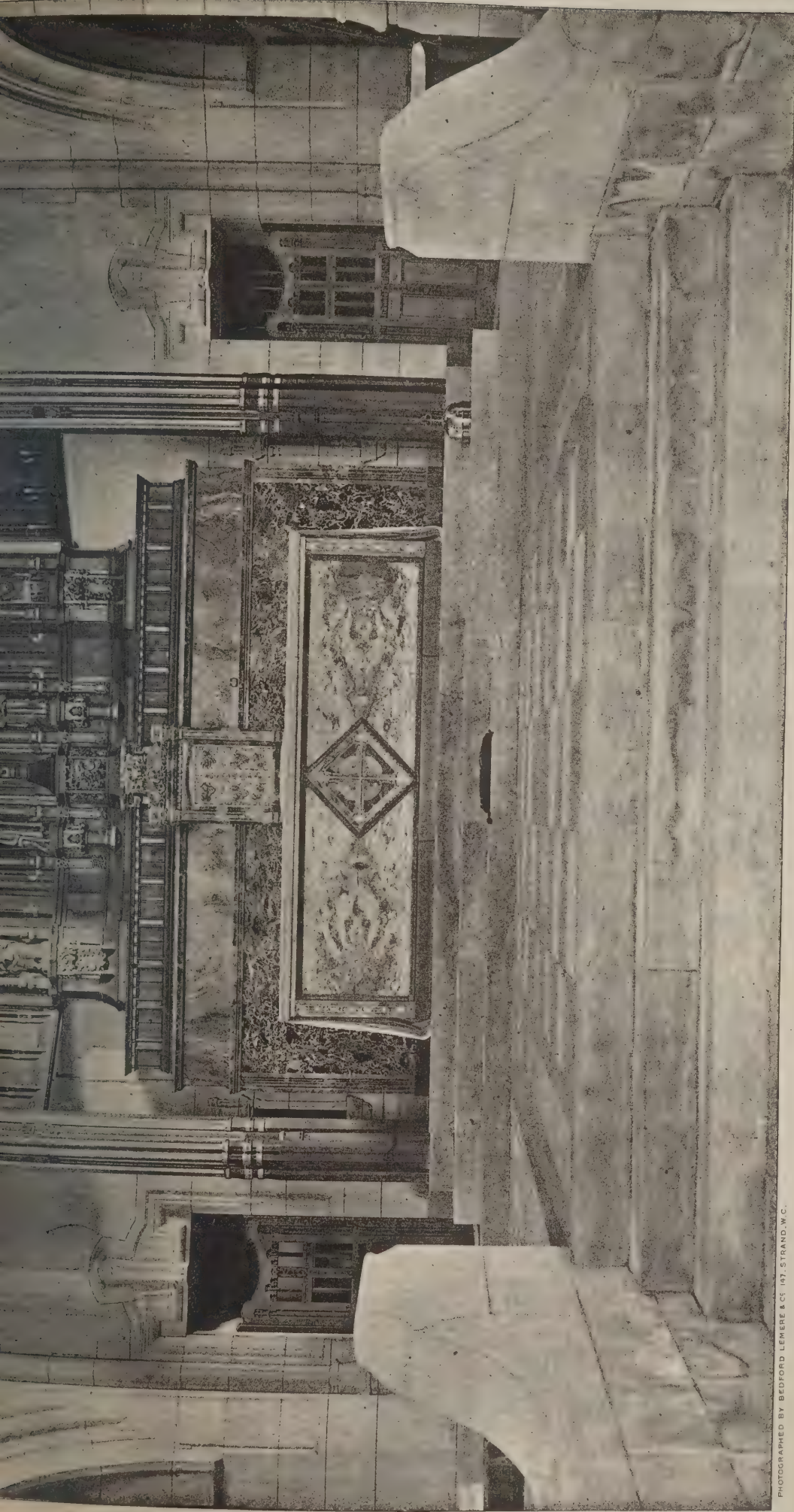
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ST. ANN'S CATHEDRAL, LEEDS.
J. H. EASTWOOD, Architect.

The Architect.

THE WEEK.

THE establishment committee have made a recommendation to the London County Council which, if imitated generally, would obviate the annoyances to architects and clients which arise out of the question of the ownership of drawings. Colonel EDIS, F.S.A., was commissioned by the late School Board for the planning of the board-room and the eastern extension of the education offices on the Embankment. As a matter of course he retained his drawings. In connection with the drainage, foundations, &c., of the offices, it has frequently been necessary to communicate with the architects responsible for the various buildings, and the drawings in question would undoubtedly be of considerable value in the architect's department. It is therefore suggested that the Council should purchase them at the fee named by Colonel Edis, viz. 52*l.* 10*s.* This is an easier and more economical mode of settling a difficulty than by invoking the powers of the law courts. Besides, it is doubtful whether the Statute of Limitations would not be a bar to any attempt to claim a right in the drawings.

THE Court of Appeal, MATHEW, L.J., dissenting, decided in the case of *GRIFFIN v. Houlder Line* that a seaman, at work upon a ship in a dock came within the provisions of the Workmen's Compensation Act. In our note upon that case we ventured to express our approval of the dissenting judgment, pointing out that the Act was never intended to apply to seamen, and that the case of *REINE v. JOBSON*, which the majority of the Court considered decisive in favour of their view, had really no bearing upon the case. We are glad to see that the House of Lords has adopted this view, and reversed the decision of the Court of Appeal. It is clear that to apply the Act to seamen when at work upon a ship in a dock, leaving them to be governed by the special statutes applicable to them at sea, would have produced endless complications.

THE "non-provided schools" of the Metropolis which mainly consist of those connected with churches, are likely to cause a serious outlay to those having charge of them. A special survey has been made of 438 schools, and out of that number only sixty-four are found to be in a very good state of repair or requiring few repairs. About twenty-five per cent. have been found unsuitable, and it has been impossible to make suggestions for improving them so as to meet the requirements of the London County Council. According to the report, the staircases in many buildings are positively dangerous in the event of fire and panic, and are besides very inconvenient for the work of the schools; ventilation and warming are in many cases either very bad or quite inadequate for the needs of the children. Closed stoves, which easily get red-hot, are particularly numerous, and should in all cases be replaced by modern grates with brick flues. The smoke from these is usually carried off by an iron pipe, and in many instances these iron pipes are faulty. In several instances ventilation is secured only by opening both windows and doors, with resultant draughts and serious inconvenience to the scholars. In one case the boys' school is described as under the church, four steps below the street level. In another case, which is also under a church, the schoolroom is only 11 feet 4 inches high. Seventy-eight per cent. of the drains were tested and were found to be unsatisfactory. In twenty-six cases the Managers would not allow tests. If the recommendations are adopted there will be a deficiency of 68,824 school places. The work will therefore have to be undertaken without delay, or, in other words, as soon as financial arrangements can be completed.

MR. W. H. GOODYEAR, of the Brooklyn Museum, should be happy, for it has been arranged that the new cathedral at Denver, Colorado, will include in its design the refinements of the outward divergence and of the vertical curves in the piers of the nave which he has explained as characterising Gothic buildings. This will be the first building of modern times, or within the last 350 years, to exhibit this constructive refinement. The peculiar significance of this announcement lies in the fact that it carries with it the proof that the use and æsthetic beauty of this system of construction are not hidden or incomprehensible to modern taste, as has sometimes been suggested. That the modern artistic temperament can actually revive this system of construction proves that it can also be understood, not only as a matter of theoretical self-projection into the past, but as a desirable improvement in great modern churches.

FOR the first time in the history of the Académie des Beaux-Arts a lady has been allowed to take part in the competition for the Prix de Rome in the section of painting. This combatant, who deserves recognition although she may not win the victory, is Mdlle. RONDENAY, who has studied in M. HUMBERT's atelier. Her opponents are:—MM. FLOUTIER (M. CORMON), LÉTY (MM. BONNAT and HUMBERT), BOURDON (M. CORMON), RENÉ ROUSSEAU (MM. BOUGUEREAU, TOUDOUZE and FERRIER), PATISSOU (M. CORMON), JONAS (M. BONNAT), AUBRY (MM. GÉRÔME and FERRIER), GONTIER (M. JEAN-PAUL LAURENS), CONCARET (MM. BOUGUEREAU, FERRIER and LAROUZE).

THE early iron bridges must necessarily suffer under constant traffic. Exaggerated statements about the extent of the deterioration have appeared which were generally based on imagination rather than observation. Mr. W. MARRIOTT lately explained before the Institution of Civil Engineers how he had strengthened some of the early bridges. One was over the river Ouse, and consisted of three spans of 117 feet and two end spans of 70 feet. The reinforcements were extra plates to increase the flange area and provide extra rivets for the braces, new cross girders and flooring. The bridge was thus brought up to modern requirements at a cost of some 8,000*l.* Another bridge was over the river Thurne. There were three spans of 79 feet each, which necessitated extra plates at all panel-points to give extra rivet-area, new cross girders and longitudinals and rearrangement of flooring. The whole of this work was done while traffic was running, at a cost of about 2,050*l.* Mr. MARRIOTT recommended the use of Portland cement for the purpose of preserving girders from rust.

A QUARTERLY meeting of the Royal Society of Antiquaries in Ireland will be held in Dublin on Tuesday next, when papers will be read on Hall-marks of Irish Plate, Dublin Engravings, and Iniscathy. On May 30 and May 31 there will be a meeting in Kilkenny, when there will be visits to the picture gallery of the castle, which contains valuable works, St. Mary's Abbey, the Black Abbey, St. Canice's Cathedral, Thomastown Abbey, Jerpoint, and various other examples of antiquity. Arrangements are in progress for meetings and excursions from Belfast for the week extending from July 3 to July 8, the programme for which promises to be very attractive. The report of the Council says that a series of suggestions relating to ancient monuments prepared by them have been virtually accepted by the Estates Commissioners, and that body has already consulted the Council as to several ancient structures on estates being transferred through them. This has thrown a considerable amount of work and correspondence on the Council and the committee. It is often difficult to supply the required information, but if the local secretaries acquaint themselves with the particulars likely to be needed, the Society will be better enabled to fulfil a useful public function.

PROPOSED COUNTY COUNCIL HALL.

AMONG the sites which were suggested for new offices for the London County Council no architect, surveyor or amateur mentioned one adjoining Westminster Bridge. If eligibility were alone to be considered there are many places within the metropolitan area which would seem to be better adapted for the purpose. A building of the kind ought to be near other important buildings, and to be of a character which would suggest the supremacy of the government of London. The County Council appear to have adopted the site after finding that others were unobtainable. In 1893 it was proposed to purchase 98,000 square feet in Parliament Street, which could at that time be acquired for 750,000*l.* But the Council declined to approve of the special committee's recommendation. Three years afterwards a Bill was introduced for the purpose of securing a site between Spring Gardens and Trafalgar Square, which would have an area of 84,000 square feet at a cost of 813,000*l.*; but the Bill was not passed. Then in 1902 another special committee suggested the purchase of 145,926 square feet in the Adelphi, the cost being 900,000*l.* But as the Council were equally divided on the matter that project fell to the ground. The site near Westminster Bridge, which extends to the Belvedere Road, and part of which is occupied by the Works Department, is still larger, for the part to be obtained contains 248,766 square feet, and with the land already acquired would have an area of about $7\frac{1}{2}$ acres. The cost is 600,000*l.*

We need not consider whether the site is convenient. The establishment committee have investigated the subject and declare that "it is in a central position with regard to means of communication from all parts of London." There are so many changes in railways, tramways and omnibus routes that few parts of the Metropolis can be considered as isolated, and if the County Council offices were erected care would be taken to bring them into communication with the most important parts of London. In this connection it should not be forgotten that the steamboat service could easily be utilised.

The structures which are now to be found on the site are enough to convince a spectator about the unsuitability of the place for one of the most important public buildings. The neighbourhood is also of a mean kind, and for a time at least the environs of the new offices will appear still worse than they are at present from the force of contrast. But St. Thomas's Hospital, which occupies a similar position on the other side of the roadway, is an object lesson that demonstrates the improvement which can be accomplished in such a place.

It is well to remember that many years ago the erection of important buildings on the site was contemplated, in order to avoid the sordid contrast with the Houses of Parliament. Anyone who will look at the plan prepared in 1857 by Sir CHARLES BARRY will find on it "Belvedere Terrace Road upon arches," and new buildings were proposed to be erected as far as the Waterloo Road. According to Bishop BARRY, "all the eyesores on the Surrey side of the river, which marred the view from the terrace of the new palace, were to have been swept away, and the river would have flowed on through a vast Gothic quadrangle." Fashion has changed in the course of half a century, and the view will be none the worse if members have to look upon a fine Renaissance building.

The establishment committee say:—"We also think the site offers exceptional opportunities for architectural treatment. The river at this point runs nearly due north, and the site being approximately parallel with the river, three façades would be respectively on the south, east and west aspects, and the maximum of sunlight would thus obtain throughout." At one time it is well known that mansions were erected on ground close to the river, and more especially on the Middlesex side. Old views of London suggest that the buildings

which were most deserving of admiration might be found near the banks of the Thames. In our day the advantages of the position are not sufficiently appreciated. But many foreigners, and artists particularly, are more fascinated by the river than by the streets. Long before there was a Thames Embankment we find THÉOPHILE GAUTIER, when writing from London, saying:—"Forgive me if I am always talking to you about the Thames, but the moving panorama which it ceaselessly unfolds is so new to me and so grandiose that I cannot tear myself away from it." The Thames is now a cleaner river than it was then. It has been improved. There is, indeed, no reason why a Renaissance building should not be as effective on the Surrey bank as one alongside the Grand Canal at Venice.

The building must be however worthy of its position and of its purposes. The experience which is derived from the Houses of Parliament and from St. Thomas's Hospital suggests that something more is demanded in such a place than would be required in building in a street. The movement of the river and of the boats upon it does not appear to be in unison with monotony. The lesson is conveyed to us by Venice. The arcading of the Ducal Palace imposed a repetition of arches in the library, which is continued in the Piazza of St. Mark. But if Venice consisted of a series of similar repetitions, would it have the charm which it still retains for strangers? If a Renaissance building is to be erected we hope it will not be suggestive of designing as well as building with the aid of machinery. We are disposed to put a liberal interpretation upon the words of the report:—"In the middle portion of the river façade might be placed the council chamber and committee-rooms, which could be grouped as a central feature, and in this position would be subject to a minimum of the external influences of traffic and noise," and assume that there will be no rivalry in monotony with the Houses of Parliament.

A building of the kind is worthy of the best architectural skill in the country, and, indeed, only the best should be allowed to participate in its production. MARRABLE'S building in Spring Gardens was designed at a time when the Metropolitan Board of Works could be considered as being in a tentative state. Mr. THWAITES, the chairman, was rigidly economical, and had been accustomed to the circumscribed conditions of a vestry hall. The building was therefore designed in that characterless Italian which seemed to be especially adapted for emergencies. The greater part of the business since the County Council came into existence has been transacted in private houses, the superintending architect's department being located in seven. According to one statement, no less than 1,264 officers are located in outside offices. From such a state of things it is easy to draw the conclusion that a building of the barrack type would serve for the business of the Council, as the Belvedere Road would serve to contain it. Public opinion does not appear to be in favour of spending 1,056,000*l.* on a building and 441,000*l.* on an embankment in front of it. It is advantageous, however, to have a centre which would be typical of the greatness of the Metropolis, and any shortcomings which may belong to the site can be compensated for by means of architecture. It may be objected that the time is not opportune for the expenditure of so much money, but when it is remembered that the Council is at present paying 38,765*l.* 10*s.* a year for office rent, it is desirable that such an incubus should be removed.

The remarkable majority in favour of the project (83 to 21) is evidence that those who have the opportunity of judging all aspects of the subject have realised there is no more satisfactory issue out of the difficulty. It may now be assumed the site is determined, and we hope that when deciding on the character of the building an effort will be made to obtain one which will be a credit to the Metropolis and to the architectural and constructive power of our time.

BRAUWEILER ABBEY CHURCH.

By JOHN A. RANDOLPH.

AT about twelve miles to the north-west of Cologne, on slightly rising ground dominating the plain that extends from the range of hills pierced by the Horrem railway tunnel, stands the noble abbey church of Brauweiler, once attached to a Benedictine monastery (on the site of which is now a reformatory and house of correction and poor-house combined).

The lofty but otherwise comparatively small church is mainly Byzantine, with a colossal tower and spire at the west end, flanked on each side by slender square turrets reaching to the base of the spire; and the east end apse—a singularly graceful feature in this case—has a square tower at each side, while at the crossing of nave, transepts and choir a large octagonal lantern helps to give a most imposing grouping of roofs, towers and turrets. But charming as is the picture from outside, especially from the north-east corner of the courtyard on the north side of the great church, and also from the small courtyard on the south side of the nave, with the cloisters in front lining the aisle and the chapter-house that lies to the south-east—this south courtyard being entered from the main door of the Anstalt—the interior of the church is much more interesting, on account of the quaint frescoes, sculptures, double crypt entrance at the chancel entrance, and the exquisite altars; while the chapter-house, now partly used as a chapel for the non-Catholic inmates of the Anstalt, is celebrated for the frescoes covering the whole of the vaulting, each panel between the ribs bearing different subjects of Old Testament history.

The history of the abbey dates from a long way, as will be seen in the following brief survey. The origin goes back to the last quarter of the tenth century. The Pfalzgraf HERMANN, whose castle was at Brauweiler, allowed the little wooden chapel of St. Medardus, in the forest there, to be replaced by a stone structure, which was consecrated by WARINUS, Archbishop of Cologne (976-85).

EZO, HERMANN'S son and successor, who married MATILDA, daughter of OTTO II., resolved to build a religious house in Brauweiler, and in April 1024 the founding was completed by Abbot POPPO VON STOBLO, and the church was consecrated early in November 1028 by Archbishop PILGRIM.

The monastery was not on the site of the chapel, but at a few paces to the north of it—about where the women's part of the poor-house is situated. So rapidly did the abbey's reputation grow, that at the end of June 1048 it was found necessary to rebuild the monastery on a larger scale, and the first structures were demolished. Two and a half years later the crypt and three altars were blessed by ROBERT, Bishop of Münster; and ENNO, Archbishop of Cologne, assisted by ENGELBERT, Bishop of Minden, consecrated the completed new church in 1061.

From that time for the next thirty years, under the rule of the third abbot (WOLFHelm), exquisite frescoes and mosaicwork were executed in the church.

In the west tower was an altar of St. Michael, evidently a popular custom, as examples are known at Maastricht, Kiedrich and elsewhere. This altar was blessed in 1141, but was destroyed later to allow for the organ being placed there. The present organ dates from the eighteenth century.

About 1141 an enclosing wall was erected round the church, and at this period the hitherto "flat" ceiled roof of nave, aisles and choir gave way to vaulting of masonry. In the great nave several columns were placed and others were strengthened, while the main buttresses were made stronger and received the addition of colonettes on the inside of the walls. The plan was quite simple in its extension, and the "new work" only distinguishable from the old by irregularity of plan and detail.

The Abbot BERTRAM of Aurath, who died at the end of the twelfth century, proposed to extend the church, and collected money in the diocese for the purpose, but it is not known whether the amount he obtained went to the building of the tower or to what particular part of the church the sum was devoted.

Under Abbot GODESMANN during the next quarter of a century there was an enlargement of the church. After 1200 the whole of the east end was rebuilt right up to the transepts, and the choir itself extended by about 12 feet, but the crypt was not touched. To strengthen the foundations of the new chancel arch the crypt columns had to be built round. In 1200 three new altars were consecrated in the crypt. The work of extending and rebuilding stopped before the end of GODESMANN'S rule (1226), when the turret, from the old materials, on the south side of the west tower had reached the level of the parapet at the spire base, and was covered by a provisional roof. The one on the north side was not so advanced and was later cut down to half the height of the choir. The beginnings of a central lantern got no further for a while than beginnings.

The organ was transferred, under Abbot HERMANN II., from the north side of the church at the end of the fourteenth century by WYLMELMUS, Canon of Suzato.



Nothing much appears to have been done constructionally from 1200 till the sixteenth and following centuries. In the first quarter of the sixteenth the sexpartite vaulting of the nave bays was altered to a late Gothic form, the nave space being thereby curtailed by about 5 feet but raised by that amount. The interior was painted in 1556 and the frescoes of the east end obliterated. Half a century later a hurricane destroyed the west tower and seriously damaged the roof, but the steeple was restored to its original design by Abbot JOHN MÜNCH in 1629. He also began the arrangement of the south-west part of the crypt as a burial vault, thus altering and destroying much of it.

NAPOLEON, by decree, in 1802 suppressed the abbey, and the church was given to the parish in 1806, the abbey buildings turned into a poor-house in 1810 (by decree of November 16 of the previous year), and to a workhouse and reformatory in 1815. Since September 21, 1872, the buildings belong to the State in which the province lies.

A thorough restoration was initiated in 1860, with

the Kreuzgang, or cloisters, the chapter-house, and the chapel of St. Medardus. To the Cologne Cathedral architect, ZWIRNER, that portion of the work was entrusted, but the whole church was not undertaken till 1866, under WIETHASE.

CLEMEN gives an account of the condition of the church then:—"At the eastern end the shell had pressed out of plumb; the vault was torn and only held together by cramps and ties; the nave vaults had thrust the supporting walls out of line; the windows had been made bigger, without regard to their date; long tiles covered the north turret of the side, as also the sacristy; and the roofs were in bad condition and the whole building sunk about 6 feet on the north and east sides."

The restoration required the readjustment of the choir vault, the preservation of the frescoes and an underpinning of that part of the church. The nave was freshly "tied," and the foundations of the walls and columns strengthened, and doors and windows restored to their original shapes, and one of the rose windows altered on the north side in the style of the beginning of the thirteenth century, while parts of the damaged and blocked-up crypt were reopened and the ground outside cleared at that part.

On the inside the lateral towers were completed and their upper storeys finished, the lantern re-erected on its vaulting, gables and roofs rebuilt to former measurements, and a rich entrance made in one of the cloister bays on the south. Inside, the painter, MÜNSTER restored the whole of the thirteenth-century frescoes. The restoration works, as far as they then went, took ten years, and cost 150,000 marks (7,500*l.*), or, with contributions from the Provincial Board of Works and private persons, 180,000 marks (9,000*l.*), these last coming in from 1866 to 1874.

In 1885, thanks to a further grant of 10,000 marks (500*l.*) from the province, the restoration works that had been begun were completed, and in 1895 the works were superintended by HENRY RENARD, of Cologne.

The reformatory buildings are grouped round three quadrangles, the one alongside the church on the south side being the oldest, the old Romanesque cloister arcading still remaining on two of its sides. Due west thereof the main buildings of the eighteenth-century addition were erected, to the south of which are the original guests' house and the chapter-house (this latter already alluded to).

The western block, the only one visible to the passer-by, and the only one of interest, is of brick, of two floors, with middle and end pavilions and saddle-back roof with louvres, the spaces between the middle and end pavilions being lighted by seven windows and the pavilions themselves by three, and, in the case of the end ones, finished with a central window under a pediment. The main pavilion has a large entrance door with two windows on each side, and crowned with a cornice and round-headed gable termination. In the panel, or lunette, on that front are the arms of the last abbot, and under them a statue of St. BENEDICT.

On the main gable of this block there is a statue of the Madonna in a niche, on a crescent moon; and in the round-headed gable the arms of the builder and the date, 1781.

To the north of this block, abutting on the street, but standing back a little, is a galilee porch of rude style, leading to the entrance to the church under the tower.

Mr. Frank Sumner has been appointed City engineer by the Court of Common Council, vice Mr. D. J. Ross, who retires on a pension. The salary is 1,000*l.* per annum, rising to 1,500*l.* Mr. Sumner entered in 1885 the office of Mr. J. Alfred Gotch, where he remained three years. He is now in his fortieth year, and will relinquish his office of borough engineer and surveyor of Woolwich. He was placed second in the recent appointment of City surveyor. Mr. A. Collins, city engineer of Norwich, was the alternative selection.

ROYAL INSTITUTE OF BRITISH ARCHITECTS.

A MEETING of the Institute of Architects was held on Monday evening last, Mr. John Belcher, A.R.A., president, in the chair.

Mr. ALEXANDER GRAHAM (hon. secretary) announced the decease of the late Mr. Francis Edward Caws, of Sunderland, a past president of the Northern Architectural Association. Mr. Caws passed the Associate's examination of the Institute, and was admitted a Fellow in 1893. He was responsible for much architectural work in Sunderland and neighbourhood, and he designed and carried out the pier at Sea View, Isle of Wight, and the Suspension Bridge across the Wear at Stanhope. It was silently agreed that a letter of sympathy and condolence should be forwarded to the relatives and family of the deceased.

Mr. MERVYN MACARTNEY read a paper entitled

Garden Architecture.

He said that scarcely any subject had been so exhaustively studied of late years as that of garden architecture, and heated controversies had been waged over the rival advantages of formal and informal gardens. At present the former held the field, and he hoped that in this case fashion would prove constant. Citing some ancient instances of formal gardens, the author quoted at length the graphic description given by the younger Pliny of his villa garden, with its spaciouly well-proportioned portico, in front of which was "a sort of terrace, embellished with various figures and bounded by a box hedge, from whence you descend by an easy slope adorned with divers animals in box answering alternately to each other into a lawn overspread with the soft acanthus: this is surrounded by a walk enclosed with tonsile evergreens shaped into a variety of forms." Later, there were the formal and natural schools as represented by Lucullus and Martial, fighting the "battles of the styles" even thus early. Mr. Macartney confessed he could not see why in the construction of a garden human thought and labour should be eschewed. The most interesting examples were those on which the greatest skill had been expended. Not that the larger the amount of wall and terrace employed the better the result. It was possible to overdo these and produce failure. In the case of Versailles there was a sense of enormous effort with little result. Vast terraces, lagoons of water and huge fountains produced no satisfactory result, only a sense of futility, a useless expenditure of labour and money without adequate return. Turning to some English examples, the author said:—"Montacute, to my mind, is the most satisfactory. It fits the position, and yet, like so many other English and British examples, it owes little to site. It is comparatively flat, and there is no distant view. What charms it has are of its own making. So it is with Wilton and Melbourne, and herein lies a difference from the Italian examples. They generally owe a great deal to position, perched on a hill you have vistas of distant country framed by towering cypresses into delightful pictures. Yet in the British examples you have a distinct sentiment; it is of a garden that you love—a charm that can only be gained by the employment of rare knowledge and design. There is a subtle charm about the terrace at Haddon Hall and the bowling-green at Bramshill that is absolutely absent in Trentham or Versailles. There is no great striving after effect. I would rather be the designer of Montacute than Versailles—I will go further, and say of the Haddon Hall terrace rather than Versailles. Indeed, there are few of the vast garden conceptions that please me. Chatsworth bores me, so does the Crystal Palace; yet they are laid out on grand lines: they are meant for spectacular performances, and unless all the fountains are playing the effect is dismal as an empty theatre." The gardens placed on hills give the architect an opportunity of showing his skill in designing terraces, balustrades and steps. Some of these in the Italian gardens are wonderfully ingenious and beautiful. Water as part of the garden design was very largely taken into account by the Italians. Garden flowers were no part of the scheme, and scarcely came in at all. Architectural features and evergreen trees were the two principal factors in considering the effect to be produced. Antique fragments—such as vases, urns, capitals, altars, &c.—were largely used, some as cisterns, others as receptacles for plants, &c. These were useful to lighten up the sombre depths of the ilex groves, and were suitable in that climate, but here they look cold and unhappy. Mr. Macartney exhibited lantern views of various notable examples of Italian gardens to show what masters in their art and craft their designers were. Remarking on the essential difference

between English and French, Italian and Spanish gardens, the author referred to the beauty of the English lawns. Abroad they could only be obtained by great care and attention, and are a source of trouble and difficulty. Shade, too, in those countries was of vital necessity. Here it rarely was the case, and many of the pergolas that people were so enamoured of were nasty damp places totally unfitted for the climate. A third point was the effect of strong sunlight and heat. A marble seat here was a very uncomfortable place to sit on. It was generally damp and cold and therefore unsuited to our climate. The paper next dealt in considerable detail with home gardens, showing examples of different ways of treating some of the many factors that make up the sum of an architectural composition—such as terraces, steps, &c. As regards the width of terraces, there is more chance of failure by putting a narrow terrace than a broad one. Generally speaking, the width is largely governed by the amount of surplus earth excavated from the foundations. If the site is a very steep one the terraces are usually narrow. Balustrades admit of much play of fancy. The turned baluster is very commonly used, and the author favoured the widely-spaced English work. Quaint terminals on the piers, and also pavilions at intervals and at the corners, are introduced to vary the monotony of lengthy balustrades. Montacute is a case in point; the play of fancy in this design is very happy. Other architectural details referred to and illustrated were gate piers, fountains, ponds, sun-dials, pavements. Summing up his own views on the subject, the author said that if he were called on to lay out an extensive garden site in England he should avoid geometrical beds—those unhappy compositions with shapes like tadpoles, kidneys, &c. Neither should he embark on topiary work on any great scale. Hedges of yew, privet, hornbeam, &c., were charming adjuncts to a garden, and here and there trimmed shrubs were useful; but he could not admire Levens, Elvaston or Blickling. As our country is the most beautiful in the world, he would take advantage of every opportunity that offered of incorporating it into his scheme. Supposing he had not merely the laying out of a site of a garden, but also the choice of its position, he should not choose a lofty hill with a panoramic view. From the result of his experience he was certain that this was a mistake; foreground and middle distance was wanted—human interest. Avenues of trees bordering a long stretch of water, as seen at Fontainebleau and Hampton Court, pleased him more than the terraces and beds of Versailles. One could not disserve oneself from one's climate, and though he vastly admired the superb cypress, ilex and arbutus groves of Italy, he was as fond of our deciduous trees, even in winter. He did not care very much for the appearance of evergreens in England, except the yew and holly; their foliage had a hard metallic look that seemed to indicate that they were not happy in their surroundings. To his mind the detail, invented and perfected in this country, of terrace walks, balustrades, &c., was preferable to that of any other country. Further, he would avoid marble, as looking too white and staring. A very fair surface can be got in cement (concrete) provided too much sand and water is not used, and that it is not rammed down too well; otherwise, the sand and cement will come to the surface and show the lines of the plank crutting. Dwarf walls of brick laid dry assume an appearance of age very rapidly. The author's conclusion was that we have nothing to learn now from foreign examples, that we have enough in this country to guide us, and that the best are those which are not slavish copies of other lands.

Mr. R. MAWSON, in proposing a vote of thanks to the author of the paper, said he was in the dilemma of believing that the proposer of a resolution of the kind he had undertaken was supposed to give not only praise, but a certain amount of blame, or at least criticism on the points in the paper. But he agreed with all that Mr. Macartney had said. One of the objects of the papers read before the Institute was that a discussion might follow, so that the meeting would benefit by hearing different opinions. The subject that evening had, however, been so well threshed out by the author of the paper that there were really no questions to be asked or answered. There was one thing, in passing, he desired to draw attention to. He had noticed that whenever the works of George Devey were brought to notice, his name was left out. When the views of Penshurst were shown on the screen, the name of the designer was not mentioned with them. The speaker remarked that in designing a garden they must try and consider the matter from the centre rather than from the circumference.

They would find that the centre rested in the client, and they must therefore study him, so that the house and landscape being considered together, they could say that the one was suitably received into the other. He was afraid that in considering the garden rather from the point of detail than from the design in mass, they ran some risk of losing what ought to be the chief characteristic of garden making. They must consider the garden in its larger aspects, and having made the general design finish up in the details. The opportunity that the site offered was the first point to be considered. The poet Wordsworth, in his schemes for garden making, always tried to weld the rugged, the wild and the house garden into one. By regarding garden designing in that respect they would bring the picturesque into their schemes and success to their work.

Lieut.-Col. PRENDERGAST seconded the vote of thanks, and said as one of the outside public it was not without reason that he should say a few words. He was glad the subject had been brought to the notice of the Institute, because he was old enough to recollect that it was once considered that when the last slate was put upon the roof of a house the architect's business was ended. Times had changed, and he rejoiced that nowadays they were asked to design a great deal more than the house. Garden-making was ruled largely by pounds, shillings and pence, but he ventured to think that the paper they had heard would be of great importance to the profession if the times improved. He was sorry to differ with the lecturer, for he could not agree with the insular interpretation he had given to his paper. Foreign countries had their beautiful examples of gardening, but it was wrong to hold that schemes unsuitable to the English climate were not correct in other lands.

Mr. F. R. FARROW said the garden was a place in which to grow things, and he thought that their work as architects ought to be confined simply to the provision of a frame in which things might grow. If they remembered that was the issue they would abstain from much of that formal cutting of hedges and the distortion of nature into geometrical forms which was one of the points Mr. Macartney had made in his paper. As architects he believed their work in garden making was well done when they had laid down the general lines of the mass, and then gave the gardener a free hand in the choice and selection of plants in order to produce a succession of colours, so that the garden might have constant variety in the beauties of nature. That was the beginning and the ending of the architect's connection with the garden. All he had to provide was the frame and such adjuncts as might be necessary to complete it. In an English garden they must have opportunities for shade occasionally, and for shelter, and this gave architects the excuse of pushing in summer-houses and arbours as part of the scheme and framing to a garden. He was fully in accord with the remarks in the paper concerning the introduction of sculpture in an English garden. Sculpture to be effective in such positions must be in nude figures, and representations of that kind executed in white marble against a background of dark green produced a most depressing effect. Sculpture should be avoided in the laying out of gardens unless their clients were prepared to have loggias and museums.

The PRESIDENT said that with respect to gardens generally, it was the architect's opportunity for linking his work with nature. The rigid geometrical lines of the architecture would come rather suddenly upon nature left to itself. Garden designing was therefore like the pushing out of tendrils to link the whole scheme to the soil, softening the harsh lines between man's work and nature. Mr. Macartney had drawn their attention to the rule that architectural details in relation to garden designing should not be too refined, and that was undoubtedly true because, as the paper had said, small detail was not in scale with nature. The size of the garden, too, was a question of proportion with the mansion or house which belonged to it, and therefore the garden should not extend to too great a distance. The screening of certain parts of the garden should enter into their design. This last generally raised a difficulty with clients, who desired to see in one glance the beauty of the whole scene.

Mr. MACARTNEY, in reply, said that with regard to the mentioning of names, he happened to know Penshurst very well, and he believed he was right when he said that Lord De Lisle had more to do with the design of the garden than Mr. Devey. And he ventured to think that though Mr. Devey influenced Lord De Lisle, the latter had influenced Mr. Devey. Lord De Lisle had in answer to Mr. Blomfield

claimed the design as his own. The speaker thought Colonel Prendergast had misunderstood that portion of the paper which dealt with the laying out of gardens. He agreed with Colonel Prendergast that the scheme should be geometrical, but he did not hold with carpet gardening. There should be mystery in a garden, vistas, and as much as possible arrangement in accord with the surrounding country.

ARCHITECTS' GRIEVANCES.

THE following address was delivered by Mr. Charles Cole at the annual meeting of the Devon and Exeter Architectural Society:—In accordance with custom, I have now to deliver the usual valedictory address; but in the first place, allow me to thank the members of the Society and our honorary officers for the uniform kindness which has been extended to me at all times. If the year's work of the Society has not been startling, it has at all events been sound and useful. Although we have not had a great number of papers, we have had some very practical and interesting discussions on various matters, many being quite informal.

You will remember possibly that your Council, so far back as September last, endeavoured to ascertain if something could not be done in the matter of providing the younger members of the profession with a definite scheme for their better education in professional knowledge and practical work on well arranged lines as distinct from the ordinary routine of the drawing office; and negotiations were opened with the Architectural Association with a view of obtaining the services of gentlemen willing to give lectures in various places in the provinces. I am sorry to say there was so much apathy that it was felt impossible to proceed; the expenses would have been, comparatively speaking, very great, and the Council reluctantly dropped the scheme.

Your Council also appointed a sub-committee to deal with the question of by-laws, more particularly as regards Exeter, whose City Council intend to redraw and remodel those now in existence. The town clerk has kindly expressed his willingness to allow us to lay our views before him. On the general question of by-laws so much has been written and said lately that one hardly knows whether to let this burning question go on burning or add more fuel to the flames. Of course, there must be by-laws—that everyone admits, but the model by-laws one would fancy were drafted by men who had never done any practical work at all, and as all local authorities copy them to a great extent, we get some very curious anomalies. They must not introduce any clauses suitable to their locality or make any of them at all elastic, or the Board above will refuse to sanction them. So we get this strange state of affairs. A little one-house town in the wilds of Nowhere has the same by-laws as a large city, which is preposterous. The effect of some by-laws is that in large towns many old buildings are not pulled down and rebuilt, because in addition to light troubles and party-wall questions (which bulk largely), the unfortunate architect has still to deal with the local authority, whose views are often—well, I will say, "quaint." If there were any elasticity many a client would rebuild entirely instead of "tinkering" by taking out a floor, putting up a new front and so on, often involving a great deal of trouble and anxiety and a liberal use of steel or ironwork. Even if a new building did not quite comply with all the cast-iron rules of the powers that be, it must be a great sanitary advance on old timber buildings, crusted with age and other things in its numerous cavities and worm-eaten woodwork. Perhaps one of the most irritating features of the whole thing is that where a local authority is willing and anxious to frame sensible by-laws to suit its locality, the Local Government Board will have none of them. The question now is interesting the man in the street. He begins to see now why all the houses are built alike in a new street; why there are no wooden bays or good half-timber work. I am glad to say that progressive Exeter does allow the two latter, and has also approved of bay windows projecting over our streets, so that architects get some chance of breaking up a front. Would that it was possible to renovate, remodel or rebuild the Local Government Board.

The matter of registration is still on the knees of the gods, but it really seems to be progressing at last. On March 24 two papers were read before this Society by Messrs. Cross and Hubbard on "Registration," but I very much prefer the titles they gave their subjects, viz. "The

Statutory Qualification of Architects," for, after all, what really mean by registration is education. I wish I could have had those papers before me when drafting these few notes; but perhaps, for your sakes, it is as well not, as you should probably have detained you for another hour, as you will have them in the "Journal of Proceedings."

The Royal Institute has at last drafted a Bill, although it is erroneously given the title of Act; nevertheless, it is gratifying to a great number of provincial architects to know that the premier body has at last come to the conclusion something must be done, and has actually done something, and here let me say that the Society of Architects has justified its existence. It has been most loyal throughout the eight or twenty years of its existence, and is and was ever ready to support the Institute and allow it to take the lead. I do not want to labour the point unduly, but credit must be given where credit is due. It is evident that some of our leading architects do not quite appreciate the position of affairs in the provinces, and the longer things remain as they are, the worse it will be. It seems to me to be obvious that we must all get under one umbrella. Old-fashioned notions die hard. The passing of the Medical Act showed that, now nearly every profession has its central and examining authority, from the lawyers, doctors and accountants to the midwives; only architects remain unpractical and dilatory. Just one example. What happened to the memorials issued by the R.I.B.A. and the Society of Architects, and forwarded to nearly all local authorities? They were treated generally with silent respect, and allowed to lie on the table. No one took the trouble to read them. Where they are now, goodness alone knows. When we are all united we can speak with a louder voice, which will carry more weight. With a proper legal status, when we are more united, I do not think the Courts would ride roughshod over us, as they often do now. Take the ownership of drawings question; "it is only an architectural matter," and the greatest injustice is done. The drawings are only the means to an end, and yet, forsooth, a cantankerous client, even if he cannot understand which is the right side up of a plan, may insist on having the drawings handed over to him. They are of little service, and nowadays not even drain plans are as necessary as they used to be, because the manhole covers and gullies show exactly where the pipes are; and now I note that the Master of Rolls has lately dismissed Mr. Gibson's appeal against the decision of Mr. Justice Ridley that he must give up his plans, he had prepared for certain flats. Plans of buildings erected during the course of his career, together with brains and experience, are the architect's stock-in-trade, but unless he goes to the trouble and expense of making tracings all his records may be swept away. I have pointed out to clients before now that if the drawings are taken away they will assuredly be lost. Time has already, more than two occasions, proved the correctness of my statement, and the strayed ones have been restored to their fold. I must say that I think the R.I.B.A., with its splendid income, and if I am correctly informed substantial reserve, should help the profession, or at least their members, to fight with all its strength such legal injustices and unfairness.

I feel sure that the new lady architect, who is the A.R.I.B.A., would, if placed on the Council, wake up the slumberers, and help the new and younger blood on the reformed body to greater efforts and a real progressive policy—not too progressive, but just progressive enough.

The architect has to face competitors on every hand. The enterprising builder keeps the tracings of various works of which he may become possessed. Even if the architect is sharp enough and insists on their being returned before the issue of the final certificate, an office boy does the needful with pen, ink and tracing paper, and many a clever design is repeated *ad nauseam* in a row of jerry-built houses or put in a more pretentious building in entirely the wrong position. The auctioneer and house agent have a little free day occasionally, as well as—speak very lowly and with due respect—the solicitor's clerk. The engineer too builds a steel bridge and loads the spandrels with tons of cast-iron "ornament," bolted on securely to prevent the structure from rising on its pin joints or hinges and shaking off its architectural adornments into the river below. Its balustrade panels are Gothic, so are the bases of its electric-light standards, all fearfully and wonderfully designed and made. There are beautiful castings further up the steel posts, but these are not Gothic, and the lamps look down bashfully and admiringly on the bases and wish that they had crochets for their shades.

Gentlemen, generally speaking the past year has been one of bad trade, and naturally people do not proceed with new works under such circumstances. Let us hope that shortly matters may improve and find work for a very deserving class, and that those who promote competitions may so draft the conditions that architects may feel that they will be treated fairly. The public and committees generally have only very crude ideas of the enormous amount of work involved in preparing the necessary drawings, and I think that the suggestion of the R.I.B.A. is most excellent, that promoters should pay a successful competitor 1½ per cent. on the estimated cost of a delayed abandoned scheme; but one may call "spirits from the sty deep." The question is, will they come?

I do not propose to give the ordinary schedule of works carried out either locally or throughout the country. You will all read that for yourselves; but I really believe the public generally are taking more interest in architects and their works, and one hears less and less every year of the coarse remark or jest that "they keep the cost of the work so because they are paid a commission on it." When registration is *un fait accompli* it will die out altogether. We must all endeavour to see that the younger men who come in have a real love for a beautiful art and science, and be determined to be a credit to it by being well informed of all its various ramifications, because, after all, even with registration—let me misquote—"the name is but the guinea stamp, the man's the gowd for a' that."

Gentlemen, I am afraid that mine has been a most unsatisfactory address—nothing new; words, simply words. I have studiously avoided talking to you about art with a capital A. Only a master could do that satisfactorily, with credit to himself and satisfaction to his hearers; and opinions differ so considerably.

AMERICAN DRAWINGS.

At the International Congress on Art Teaching recently held in Berne, nothing attracted greater attention, says the *Scotsman*, than the specimens of art work executed by pupils of American schools. From an educational point of view they were probably the most notable feature of the very interesting selection of examples brought together from various countries. For some weeks past they have been on exhibition in Paris. At the request of the Scottish Education Department they have now been sent across to this country, and they have just been arranged and placed on view in the School Gallery of the Royal Scottish Museum.

The collection consists of a large number of drawings, which, as they are hung, occupy about 240 feet of the museum wall space. The greater number of them illustrate the various grades and stages of the work done by the pupils in the public schools of Springfield, Massachusetts, under the direction of Mr. F. H. Daniels. With these are associated a group of drawings by the pupils of the Training School at Hyannis, accompanied by a collection of objects in basket-work and by photographs of the school building and its internal arrangements. The pupils of the Pratt Institute at Brooklyn have furnished a series of decorative compositions, while the private school carried on by Miss Wheeler, of Providence, U.S.A., a well-known enthusiast, is also extensively represented.

The whole exhibit was brought over from America by the delegates who came from the United States to the Congress. With characteristic generosity the majority of the specimens were presented by their owners to the Swiss Pedagogic Museum in Fribourg. The commission of that museum, much impressed by their value as object-lessons, placed them at the disposal of the International Federation of Art Teaching in order that they might be circulated for exhibition in different European centres. Paris was their first resting-place, and from Paris they have come direct to Edinburgh.

Apart from the interest which attaches to these specimens in themselves, the whole movement with which they are connected is one of very great importance for art teaching generally. The Berne Congress was the second of what is hoped may be a long series. The first was held at Paris in 1900, on the occasion of the Great Exposition, the idea having originally been mooted by the Paris Association of Teachers of Drawing. This latter meeting, which took place in the end of August 1900, was not very representative, three-fourths of those who attended being French. At the same time it was really a success. Many important questions were discussed, and the exhibition of

drawings connected with it was of great practical service, bringing out, as nothing else could have done, the distinctive characteristics of work executed in schools of widely varying types and of different nationalities, and so giving an excellent opportunity for comparison of methods and results. It was wisely resolved to make no attempt at an annual gathering, it being felt that one meeting in four years would probably suffice for a fruitful interchange of ideas, without entailing any undue effort to secure a large attendance. The second meeting was organised under the direct charge of a committee selected by the art masters of Switzerland, and those who had the good fortune to attend the congress of 1904 can testify to the great success of the arrangements carried out by this committee under the direction of its genial chairman, M. Leon Genoud.

The Berne Congress, as might have been expected from the circumstances, was of a much more obviously international character. There were delegates present from all the nations of Europe—France, Russia and Switzerland being most largely in evidence. A considerable contingent came from the United States, while Japan, Mexico and the Argentine Republic also contributed their quota. There was a fairly large party from England. Scotland, however, had very few representatives, and Ireland had none. The countenance given to the proceedings by the Federal Government was testified to by the fact that the opening and closing ceremonies were held in the National Council Chamber of the Swiss Houses of Parliament, and were presided over by the President of the Republic in person. For hospitality during the ordinary sittings the Congress was indebted to the University of Berne, in the handsome and commodious buildings of which its meetings were held. French, German and English were recognised as official languages. A delegate might make his remarks in any one of the three. If his speech was important it was usually followed by a brief summary in the other two. This plan was found exceedingly successful in maintaining the interest of the different nationalities in the whole proceedings.

As has already been indicated, the collection of exhibits now so worthily represented in the museum was an important adjunct of the Congress. It is all the more to be regretted that the display from England was meagre, while Scotland and Ireland sent absolutely nothing. Our Scottish schools have already proved themselves well able to supply worthy specimens of similar work to various centres both in England and America. That they sent nothing to Berne is probably to be accounted for by the fact that through a misunderstanding the request for contributions from Britain was addressed to the English Board of Education, no official application being made to Scotland at all. As London is to be the centre of the third International Congress, it may be taken for granted that Scottish teachers will see to it that they are fully represented there in 1908, both personally as members and by an adequate display of characteristic work from their schools.

An examination of the drawings in the museum suggests that natural objects, or rather the study of the forms and colours of natural objects, is now regarded by American teachers as providing the best basis for a course of instruction in elementary drawing. The widespread recognition extended to this view was emphasised by much of the continental work that was shown, particularly that from schools at Kladno and Dresden, and also by the speeches of many individual members of the Congress. It is worthy of note that in all the best of Scottish schools the fundamental principle of which such teaching is the expression is almost universally accepted nowadays. In short, the whole trend of enlightened opinion is in favour of always giving pupils actual objects to study and represent, and never diagrams to copy. This is, of course, no "new-fangled fad" of the moment. It is the policy that was so eloquently pleaded for by Rousseau in the eighteenth century, and again by Herbert Spencer in the nineteenth.

The collection is to remain in Edinburgh for about three weeks, and it is to be hoped that not only those directly concerned with the teaching of drawing, but all who are interested in educational questions generally, will take advantage of this quite exceptional opportunity of seeing for themselves how drawing and manual arts are being taught on the other side of the Atlantic, and how these branches are being brought into connection with different subjects of the school curriculum.

The Portrait of the Duchess of Sutherland, by Mr. Sargent, R.A., is among the works in the exhibition of the National Society of Fine Arts in Paris.

NOTES AND COMMENTS.

THERE is at the present time much discussion in Paris respecting the fortifications. Since the last war their existence was doomed. The Government have agreed to the demolition and the Municipal Council have arranged the price to be paid for the ground. The difficulty now is to determine what is to be done with so large a zone. At first the Municipal Council contemplated disposing of the ground as building sites. But in Paris, as in London, there is a desire to preserve open spaces; and it is considered that if there could be a series of gardens the city would become far more beautiful than it is at present. Some believe that the ground could be assigned to philanthropic societies in order that houses for the working classes could be erected at a modest price. So many projects have been brought forward that the Municipal Council have been puzzled to decide between them, for the adoption of any one of them would add to the taxation of Paris, as in each case it is expected the ground will be assigned gratuitously or at a price far below that paid to the Government.

A CASE has been decided in the Carnarvon County Court which must affect a great many quarrymen in North Wales. The claimant's eye was injured while he was engaged in driving a level. It is common in those cases for the men to make "bargains," which are contracts on a small scale. The question then to be decided was whether the claimant was a contractor, in which case he would be outside the Workmen's Compensation Act. The consulting engineer to the slate quarry company said the contract in question went beyond the ordinary bargain, and that the applicant was not controlled by the manager in the same way as ordinary quarrymen. The Judge came to the conclusion that the man was a contractor and that he would be liable to be sued for any breach of the conditions. This case is remarkable, for it is believed that compensation has been obtained by quarrymen who held a similar position.

THE Eighth Arrondissement is one of the most important in Paris, for it includes the expensive streets in the neighbourhood of the Champs-Élysées. But by a contrast which is almost inexplicable the *mairie* is about the most insignificant of the whole city. Efforts have been made from time to time to secure a suitable building, one of the latest propositions being the purchase of the Hôtel Pavia in the Champs-Élysées. Arrangements may be said to be completed for overcoming the difficulty. The barracks in the Rue Penthievre—so called after a son of LOUIS PHILIPPE—are to be made over to the Municipality in order to provide a site. Between the barracks and the Rue la Boétie another piece of ground will be acquired, and in that way there will be a space for a fine building. The principal façade will face the latter street, which leads to the fashionable church of St. Philippe du Roule. It is strange the district should be neglected, but the explanation is that the inhabitants did not take steps to be strongly represented on the Municipal Council.

If there is any use in art besides affording means for trafficking in auction-rooms, it must be exemplified in the Whitechapel Art Gallery. The four exhibitions in it during last year were visited by 340,000 people, making the total since 1901 amount to a million and a half. We must suppose that at least a portion of them were in some degree improved by seeing the pictures and other works. There can be no doubt they received pleasure for a short time, and that is worth much. The outlay is not excessive; the cost of exhibitions, salaries, lighting, repairs, insurance, amounted during the year to 1,814*l.* The receipts were 218*l.* less, but by the generosity of the trustees the account was

settled. The trustees ask the public for general support to enable them to do their work, this year. There will be at Easter an exhibition of "British of Fifty Years Ago," but subsequent exhibitions depend on the subscriptions they receive. Mr. AITKEN, director, and Mr. Ross, the secretary, have devoted service for very small salaries. The trustees have promised Mr. AITKEN an increase as soon as it is permitted, and the chairman, by means of an anonymous donation for this purpose, had the pleasure of giving him last year the equivalent of such increase.

THE first stage has been passed of the competition for the working-class houses which are to be erected in the Saint-Antoine quarter of Paris by the Rothschild family. There were 127 sets of designs submitted with mottoes or other device. The jury have selected two hundred and five, and the authors will take part in the second competition. The designs were numbered, and the lucky ones which were fortunate were Nos. 10, 17, 23, 28, 30, 45, 59, 68, 72, 74, 75, 84, 88, 90, 95, 97, 98, 100, 105, 113, 114, 119, 120. It is often found in lotteries that the highest numbers gain prizes, and the same chance is exemplified in the ROTHSCHILD competition. The last twenty-five numbers yielded seven competitors or nearly a third of the whole. Some mottoes were appropriate, as "Où le soleil ne pénètre le mécontent," "La plus douce chaleur est celle du foyer."

ACCORDING to the British Consul there has been a great demand for Venetian mosaics for interior and external mural decorations in Europe and America. The new system of exporting ready-made mosaics has given a great development to this branch of trade. A cartoon to be copied is exhibited before the artist at the spot, who fixes the tesserae on that section of the cartoon assigned to them with common paste; and when each workman has executed his work the mosaic is taken together and again divided into sections, each section being numbered and carefully packed. The key is forwarded to the consignee who will enable him to have all the sections pressed in the cement and laid on the wall, and when the cement has properly hardened, the paper on which the tesserae have been pasted is removed and a perfect mosaic is seen. The Consul says he hears that mosaic art is carried on in the United Kingdom, and that orders for the pieces of enamel or tesserae, to be made according to the instructions of the firms in the United Kingdom, are sent to Venice. Purchasers of such enamels must be careful in entrusting their orders to reliable firms, and not look to cheap prices, which in the end would prove dearer to them. As the enamel pieces are sold by weight, when they are composed of coarser and heavier materials a smaller number of pieces per unit of area and a consequent smaller surface can be covered. Besides, the quality of the colours used in the composition of the enamels has also a great influence on the beauty and durability of the mosaics.

ILLUSTRATIONS.

COUNTY SESSIONS BUILDINGS, PRESTON.

MOUNT STUART, ISLE OF BUTE, N.B.—THE GRAND STAIRCASE.

STABLE BUILDINGS, SEVENOAKS.

THE contract for the erection of these buildings was carried out by Messrs. WILLSHIRE, of Sevenoaks. The designs were prepared by Mr. SYDNEY PERKS.

HOUSE AT MERSTHAM.

THE house was erected by Messrs. CHAS. NIGHTINGALE & SONS, Reigate. The architect is Mr. SYDNEY PERKS.

CALEDONIAN STATION HOTEL, EDINBURGH: HALL AND STAIRCASE.

PORTLAND CEMENT.*

THE raw materials required for the manufacture of Portland cement consist of limestone in its various forms, such as chalk, crystalline limestone, blue lias rock, sea shells, &c., and silicate of alumina in the form of clay, shale or marl, varying in composition according to the locality in which it is found. Portland cement consists of a mixture of such raw materials in proper and definite proportions calcined at a high temperature, causing a chemical combination between the calcium oxide of the limestone and the silicate and alumina of the clays, resulting in a semi-vitrified basic compound in the form of a clinker, consisting chiefly of tri-calcic silicate and di-calcic aluminate.

The cradle of the cement industry is in the Thames and Medway, and the materials which were first used for the manufacture of cement, and which are now used in a much larger degree than any other materials, consist of the chalk obtained from the Kent hills on the banks of Thames and Medway, the alluvial clays found on the marshes adjoining these rivers and the gault clay which crops out on the surface in the upper reaches of the Medway. By far the greater quantity of cement manufactured in this country is made from these materials, and there is no doubt that they are more suitable for the manufacture of the finest quality of cement than any other materials in the United Kingdom. The industry has been in existence some seventy or eighty years; enormous quantities of cement have been manufactured, and the chalk contiguous to the river has been drawn upon to such an extent that it has become necessary to go further afield to obtain the requisite supplies.

The greater amount of clay is obtained, as already stated, from the saltings or marshes on the banks of the Medway and Thames. It is got out chiefly by hand-digging and in some cases by steam diggers, transferred to lighters or barges and conveyed by these means to the various points of consumption. In some cases where the cement works are so situated that the chalk and clay are found immediately adjacent the clay is obtained by steam diggers and conveyed at once to the mixing mills.

In the inland districts, where the material for manufacture consists of blue lias limestone or a hard crystalline stone, some difficulty is experienced in removing the material which is found inter-stratified between the layers of limestone, necessitating the removal of large quantities of waste material, adding greatly to the manufacturing cost. When such materials are used the limestone found in these quarries varies very considerably in composition, and more or less silicate of alumina in the form of clay has to be added to obtain the requisite proportion for the manufacture of a well-balanced Portland cement; in others, such as the Cambridge district, the materials consist of chalky marl, containing varying proportions of carbonate of lime, and so graded that the mixture produces a raw material of the requisite proportions. In other districts we have the pure crystalline limestone in near proximity to shale or clayey slate. With these materials some different process has to be adopted, they being first dried and mixed together in definite proportions. Under no circumstances, however, owing to the varying composition of the materials found in various parts of the country, are these so suitable as the pure chalk and the alluvial clay of constant composition which is found in abundance on the Thames and Medway.

My remarks this evening will apply more particularly to cement manufactured with chalk and clay by the processes already described. These are brought to the works and there carefully mixed by means of powerful machinery in fixed and definite proportions, in accordance with the requirements of the specification under which it is intended the cement manufactured therefrom is to be supplied.

The object of this preliminary process is to bring the chalk and clay into an intimate state of mixture, reducing the whole to the finest possible state of subdivision. This is obtained in different ways at various works, but the most suitable method is found by experience to be that in which washmills in series are utilised. This machinery consists of a battery of powerful mills into which the chalk and clay is panned in definite proportions, as ordered by the chemist who is in charge of this portion of the manufacture. A definite quantity of water is added at this stage to assist

the breaking up of the chalk, and the more perfect incorporation of the two materials. The quantity of water found to be most suitable is such that, together with the water found naturally in the raw materials, the resulting mixture, technically known as "slurry," contains from 40 to 45 per cent. The mixture in definite proportions is kept in motion by the rotation of the various mills of the series, to which are attached powerful harrows and other crushing implements, which reduce the larger pieces of chalk in conjunction with the clay to a fine slurry, which is kept in the mills for such a period of time, and eventually ejected through fine screens, reduced to such a state that 95 to 98 per cent. of the material is capable of passing through a sieve having 32,400 holes to the square inch. When you see the size of the chalk that is being conveyed into the mills and the large quantities of clay which are being put in at one operation you will realise what a large amount of work is done by this class of machinery, some of the batteries of washmills at the Associated Company's works having a capacity to reduce the raw materials from their natural condition to this extreme state of fineness at the rate of 50 tons per hour. The process is an absolutely continuous one, the chalk and clay being fed in in the requisite proportion at one end of the battery and the finished slurry passing away at the other or extreme end of the same battery of mills. A very careful watch is kept on this operation by the staff of chemists engaged at the various works, as any serious mistake at this point in the relative proportions of the two materials would be somewhat difficult to rectify. By modern methods, ample provision is made for the slight variation which must necessarily exist when dealing with such large quantities of raw materials. This variation is kept to the lowest possible limit, and is such that until quite recently no provision was made for further mixing in bulk after the material had left the washmills. In recent years great care has been given to this point of the manufacture, and an apparatus patented by the Associated Cement Company has now been largely brought into use at most of their works for the mixing in bulk of large quantities of prepared raw materials. The apparatus or plant consists of large circular tanks 66 feet in diameter and 12 feet deep, into which the whole of the product from the washmills of a works is pumped. These revolving mixers keep the raw materials in a constant state of motion, and provide such a perfect means of mixing that when the slurry leaves these tanks for the purpose of calcination the variation in the percentage of carbonate of lime present is found within the limits of $\frac{1}{2}$ to $\frac{3}{4}$ per cent.

The methods for determining the amount of carbonate of lime in the mixture are of such a nature that the determination can be carried out in from fifteen to twenty minutes with absolute correctness, and the greatest care is taken in a properly managed works that no slurry is delivered to the kilns for calcination until the composition has been certified as correct by the responsible chemists. When one compares the very great care and attention which is given to this department at well-arranged cement works with the old rule-of-thumb methods which were formerly and until quite recently, and at the moment in some cases, in vogue, one is not surprised that a much more perfect cement is now manufactured than was formerly the case. In years past, when the old system of pumping the chalk and clay from washmills into backs or direct on to the kiln floors, was the custom, little or no regard was given to the fineness to which the raw materials were reduced, and I have myself seen pieces of chalk the size of small peas in the slurry being delivered to the kilns.

When the raw materials are prepared by the more modern process and reduced to such fineness that 95 to 98 per cent. of it will pass through a sieve having 32,400 holes to the square inch, one realises how much better their chemical combination must be when brought to a calcining temperature than was formerly the case, with the result that at most works a very sound and stable cement is now being manufactured, which it is quite unnecessary to treat by the old methods introduced by engineers for counteracting the evil effects of over-lined or badly-burnt cement.

The process so far described refers exclusively to that known as the "wet," by which process in the United Kingdom the bulk of cement is manufactured. In some localities, however, the raw materials, consisting of a crystalline limestone more or less pure and a shale clay, or marl, are more conveniently amalgamated by what is known as the "dry" process. In this the materials, as obtained from their original source, are dried by some mechanical

* A paper read before the Society of Architects on April 13 by Mr. H. K. G. Bamber, managing director of the Associated Portland Cement Manufacturers, Ltd.

or other means, and are then mixed together in the dry condition and reduced to the state, with some form of grinding machine, of a fine powder, by which an intimate mixture is obtained. The same care and attention chemically are required in this as in the wet process, more especially as it does not lend itself so satisfactorily as the wet for mixing the prepared raw materials in bulk. It has advantages, however, in other directions in the economy of fuel, sufficient only being required to expel the moisture naturally present in the raw materials; whereas, in the wet process, that added for the purpose of intimately mixing the raw materials in a state of suspension has to be eliminated by means of decantation, as in the old "back" process, or by evaporation.

We now come to the second part of the process, which is entirely of a chemical character, that preceding it, and which I have just described, being purely mechanical. More attention perhaps has been given to improvement of this part of the process than to any other. Many forms of kilns have been tried, but the most recent development, and one which seems likely to entirely revolutionise the cement industry, is that of the rotary kiln.

The most familiar form of kiln, however, on the older method adapted to the wet process is known as the chamber kiln, consisting of a chamber having a considerable area constituting the drying floor for the wet raw materials, the hot gases from the burning charge passing over and under a further supply of wet raw materials, expelling the moisture therein and leaving it in a dry condition fit for the next charge of kiln. With all these kilns the operator has little or no control of the temperature at the part of the kiln where calcination is going on, and burnt as it must necessarily be in fairly large pieces, so that the draught of the kiln is not impaired, a considerable portion of the product gets over-burnt on the surface, leaving frequently a core of half-burnt which is difficult to remove, and which has a tendency to cause unsoundness in the finished cement.

The rotary process of burning is a development of an idea patented by Mr. Frederick Ransome as far back as 1885. It was first tried at two of the works now the property of the Associated Portland Cement Manufacturers. The machinery then employed is now in existence, and seeing the immense development which has taken place in this process of calcination, together with the revolution which is bound to be produced in the manufacture of cement by its means in this country, these early machines disclosing the first ideas of this process are worthy of a place of honour such as has been given to the earlier locomotives, which resulted in a development of trade the value of which to this country is incalculable. The ideas originated in the early Ransome process, which, for various difficulties that at the time seemed insurmountable were proved to be a failure, were, however, taken up and developed in the United States, where the use of petroleum as fuel removed a great many of the early difficulties experienced in the experiments in England. The process was eventually brought to perfection by Messrs. Hurry and Seamen, whose patents for Great Britain were recently purchased by the Associated Cement Company. So great has been the development of this process in America that the enormous product of that country is now being almost entirely manufactured by the rotary process. By this process the prepared slurry, instead of being dried on ovens or chamber-kiln floors with heat from intermittent kilns, from which ovens or floors it had eventually to be removed when dry and packed with fuel into these kilns at great expense for labour, is pumped from the mixer already described in a thoroughly homogeneous condition into the rotary kiln, down which it passes as the kiln rotates, the excess of water being driven therefrom by the heat from the escaping gases from the lower or calcining end of the kiln, where a temperature of close upon 3,000 degs. Fahr. is continually maintained.

As stated earlier, the semi-vitrified clinker obtained by this method of calcination consists chiefly of tri-calcic silicate and di-calcic aluminate. The proportion of lime to silica and alumina should not be greater for a sound cement than the ratio represented by the equation

$$\frac{\text{Ca O}}{\text{SiO}_2 + \text{Al}_2\text{O}_3} = 2.75$$
, which is based on chemical equivalents and not on percentages.

This brings us to the end of the second process in the manufacture, the third and final process, like the first, being entirely of a mechanical nature. The clinker as produced by calcination in small pieces is an absolutely inert material,

and no chemical combination with water can take place until the clinker has been reduced to a state of fine powder. This is a very important feature in the manufacture, as it is well known that the chemical action and binding quality of the cement when subsequently gauged with water are in direct proportion to the fineness of its particles; the smaller the particles the greater the chemical activity, and the more cementitious value, as a material of construction. For this reason it is much more economical to use very fine ground cement, although somewhat higher in price than the coarser grade of material formerly produced. The reduction to powder of the cement clinker is obtained by several classes of machinery, all of a heavy and powerful type necessitated by the extreme hardness of the material to be pulverised. The method of grinding with millstones has been superseded by many kinds of modern machinery, such as machines of the vertical and horizontal edge-runner type, but the class of machinery mostly used for very fine grinding is represented by the revolving tube system, containing steel balls and flint pebbles, the machine containing the steel balls being known as the ball mill and the latter with pebbles as the tube mill.

The material from these ball mills is then introduced into the finishing or tube mill, a revolving cylinder about 26 feet long by 5 feet in diameter, carrying a charge of round flint pebbles sufficient to about half fill the mill. As the mill revolves the cement in a coarsely-ground state delivered from the ball mill is crushed between the large mass of rolling stones, and finally leaves the mill at the other end, passing from one end to the other, during the whole time subjected to violent attrition between the stones and sides of the mill.

The most modern practice in the grinding department has led to the reduction of the clinker to such extreme fineness that from 85 to 90 per cent., or even more, will pass through a sieve having 32,400 holes to the square inch.

It is at this point of the manufacture that the regulation of the setting time of the cement is effected. A thoroughly well-made and finely-ground Portland cement is always when first ground, very quick setting. The more thorough the amalgamation of the raw materials the more perfect the calcination, and the finer the grinding the greater the chemical activity of the cement produced when mixed with water, and therefore the quicker the set.

Except for work under water a very quick-setting cement is not desirable, and therefore it is necessary for the manufacturer to neutralise the initial setting of the cement by one or other of the recognised methods. Hitherto this has been done by the addition of various small percentages of gypsum (CaO SO_3), but as some engineers have an objection to admixture of this material the manufacturer was left to seek some other means of attaining the same object.

A new and very effective system, which has been in use now for some time by the Associated Portland Cement Company, consists of subjecting the cement in the final stage of grinding to a moist atmosphere. This is done by injecting into the tube mill already described a quantity of steam, regulated at will, which keeps moist the atmosphere in the enclosed mill, so that as it revolves, carrying up and rolling over the stones and cement therein, every particle of the latter is subjected to a continuous and repeated process of superficial hydration, eventually leaving the mill in the finished condition, each molecule of cement equally treated. The process is one of great simplicity and follows quite natural lines. It is well known that a quick setting cement, if allowed to become aerated by exposure to the atmosphere, becomes slow setting, and that in proportion to the period of aeration, through the absorption of water and carbonic anhydride (CO_2) from the atmosphere. This action is very imperfect, however, when cement is stored in bulk, and can only be in a measure successfully accomplished by continually turning over the cement and exposing fresh surfaces for aeration.

The new system was perfected to overcome these difficulties, and it will be readily understood that the amount of hydration or aeration that each atom or particle of cement is subjected to under the new process during a period of one or two hours in the moist atmosphere of the rolling-tube mill is much more perfect than is the case when cement is stored in bulk and depends on absorption from the atmosphere for its aeration.

It is not generally known that the free or loosely combined lime in cement will not absorb carbonic anhydride from the atmosphere until it has first taken up moisture and become converted into the hydrate, in which condition

is free to absorb carbonic anhydride from the air, being converted into inert calcium carbonate.

The effect of the hydration process, as adopted by the associated Portland Manufacturers (1900), Ltd., is, first, hydrate any trace of free lime present, and, secondly, hydrate the loosely chemically combined aluminates of lime, to which latter are attributed the quick initial setting properties of the cement.

The system permits of such minute regulation, depending on the amount of steam injected, that the setting time of the cement being produced can be permanently regulated to comply with the requirements of any specification, the maximum absorption, even for a slow-setting cement, being less than 1 per cent. Having passed this final stage of the manufacturing process the cement is delivered to the warehouse, where it remains until the mechanical heat due to the friction of grinding is eliminated, when the cement is ready for immediate use.

It is not out of place at this point to mention that many of the methods of testing and weathering cement adopted by engineers in the past are not only quite unnecessary, but actually harmful to the product of the present day. It has been a custom for many years with a large number of engineers to bulk and store their cement at their work for very considerable periods of time, going to very great expense in elaborate arrangements for turning over the cement periodically to expose it to the atmosphere. All these arrangements were admirable in the past, when Portland cement was a very unstable and unreliable material, and when at times it was really essential that the fiery nature of the product should be in some measure neutralised before introduction into the work. The cement manufacturer of the past was perhaps himself responsible for many of these conditions by careless and rule-of-thumb methods of manufacture, which resulted in a product which the engineer found to be at times quite unsafe unless treated by some such method as described. It will be some time, however, before the engineer realises what an immense improvement has taken place in recent years in the manufacture of this important building material. He is so wedded to his old habits and customs in connection with a material which has been so long known to him, that it is extremely difficult to persuade him that the methods applied to cement manufactured under the conditions which I have been endeavouring to describe have only the effect of deterioration rather than improvement.

It is safe to say that some few years back Portland cement which would, immediately upon manufacture and without any cooling or bulking, withstand the most severe test now introduced, viz. that of boiling, was not manufactured. Cement manufactured by the process now under consideration will stand this test immediately upon being manufactured, and therefore to go to any expense in bulking for purposes of improving the quality of the cement is quite futile.

Cement Testing.

We will consider a few points on the testing of cement, and perhaps this may best be done by a reference to the new British standard specification for Portland cement.*

Clause 1 relates almost entirely to the raw materials used in the manufacture of cement, and puts certain limits on the addition of materials used for the purposes of regulating the setting time. It permits of Portland cement being made from a very large variety of raw material, in fact, any material which by intimate mixing or otherwise can produce a raw material of a composition which, when calcined, will produce a Portland cement clinker. It clearly states out that no addition of any material shall be made to the clinker after the same has been calcined, but it leaves the manufacturer an entirely free hand as to the manipulation of his raw materials previous to that most important part of the process, viz. the chemical part, in which the combination of the materials takes place. It also limits the amount of calcium sulphate which is admissible for the purpose of regulating the setting time, or the amount of moisture which may be added by one or other methods to produce the same result. I shall have a few remarks to make in reference to both these latter points when dealing with the question of setting time further on in the specification. No cement to which any material has been added, other than those already mentioned, after calcination would be passed by this clause, which was framed with the object of excluding any cement to which any addition of such

materials as limestone, slag or any other silicious or inert material had been made to the clinker during the process of grinding.

Clause 2 refers only to the methods which are to be adopted by the manufacturer in connection with the sampling of Portland cement after preparation and storage at the factory where the cement is manufactured, or at the works where the same is to be consumed. This clause applies only to cement which is being systematically tested in large quantities, and cannot in any way be made applicable to the small consumer, who has not the opportunity or cannot go to the expense of such elaborate arrangements for sampling the commodity which he is desirous of using.

This clause has no reference whatever to the quality of the cement, and is useful only to the large consumer, and its conditions might be modified to suit the special conditions of any particular contract.

Clause 3 refers only to the sampling of cement when the same is to be carried out in a large way, either at point of consumption or of manufacture. As the previous clause, it clearly cannot be applied to comparatively small users, who may be drawing their supplies of cement in small quantities as required from the factory or from some local agent or merchant who retails the cement in the particular district where the work is going on.

These two clauses (Nos. 2 and 3) refer only to the special conditions between the manufacturer and the testing engineer or the consumer, and are formulated to prevent any misunderstanding on these points, and, as a rule, where cement is being dealt with in a large way the conditions are found to work satisfactorily.

Clause 4, unlike the two previous ones, has a distinct reference to the quality of the cement. It sets out that under the conditions of this specification the cement shall be ground to such fineness that 97 per cent. will pass through a sieve having 5,776 holes to the square inch, and 77½ per cent. through one having 32,400 holes to the square inch. When one considers the fineness of cement customary a few years since, this may be described as a very fine ground cement, but it should be realised that the figures mentioned are the maximum percentage of residue which will be allowed on the sieves described, and it is open to any engineer who may desire cement even finer than this specification stipulates to specify and obtain the same; but as the cost of manufacture is directly increased with the fineness of grinding, the cost of such material is necessarily enhanced, and the engineer who specifies for cement finer than the standard set out in this specification must expect to pay a higher price accordingly.

In making the test for fineness, which is purely a mechanical one, great care must be taken to see that the sieves used are made of the correct standard wire; that usually adopted for all sieves is that the diameter of the wire shall in each case be equal to half the diameter of the hole—thus, for the 76-mesh sieve the diameter of the wire is .0044 of an inch, corresponding to a total wire width per inch of .344 (76 by .0044), or practically one-third of the space; thus each hole of this mesh will be practically twice the width of the wire. For the 180-mesh sieve the diameter of the wire is given in Clause 4 of the standard specification as .002 of an inch; this, however, is slightly greater than would comply with the condition of the hole being twice the diameter of the wire, and it would be found, I think, in continental practice that the diameter of the wire of this sieve is more nearly .0018 than .002. A cement having 22½ per cent. residue on a sieve manufactured with wire .002 inch diameter and 180 mesh would probably only contain about 20 per cent. residue on a sieve with the same number of holes, but manufactured with the wire more nearly corresponding to the standard of a diameter equal to one-half the hole, viz. .0018 of an inch.

The test for fineness can be made by any inexperienced person provided ordinary care is taken in sifting to see that none of the cement is shaken out over the top. The shaking should be continued, especially with the finer sieves, until no more residue is found to be coming through, which point can be readily fixed by sifting over a piece of white paper. It has been said by some that the continual shaking has the effect of still further reducing the residue by attrition, and thus obtaining a lower result than would be represented by the bulk of the cement which is being tested; such a statement, however, can only arise from absolute ignorance of the hardness and refractory character of Portland cement clinker. The real fact is that a very large number of pieces of clinker are of such shape that they

* The Engineering Standards Committee, 28 Victoria Street, W. Price 2s. 6d.

would be capable of passing through such a very small hole provided they can approach same in one direction, and it is these pieces which are the last to come through upon long and continued shaking.

By continued use, especially if kept in damp places, the mesh of the wire is likely to become choked with fine cement, particularly in the case of the finer sieves, when the results of sifting with such sieves are of course unreliable. A sieve can be cleaned by washing in very dilute hydrochloric acid and afterwards in clean water and then thoroughly dried.

Another means of determining the fineness of cement is by means of the "Flourometer," an apparatus designed for removing the powder from cement by means of an air blast, maintained at a constant pressure and blown through a known weight of cement. The process is somewhat lengthy and tedious; the results are also variable if the pressure is not constant, in the same way that results of siftings are unreliable if care is not taken to see that the wire used is of the standard diameter, or has not become corroded by the adherence of fine particles of cement.

The specific gravity test has entirely superseded that known as the "weight per bushel," which for various reasons was most unreliable in its results. The specific gravity test is not affected by the fineness of grinding. This test is applied as a measure of the calcination to which the cement has been subjected, as, should there be any considerable portion of lightly burnt clinker present in the fresh cement, the specific gravity would fall below 3.15, which, in the case of this specification, is taken as the standard for fresh, well-burnt cement.

As Portland cement is affected by exposure to the atmosphere and by absorption of moisture and carbonic anhydride, which absorption affects seriously the specific gravity of the cement, it is essential that samples taken for the purpose of determining the specific gravity should be kept, as prescribed by the specification, in hermetically sealed vessels until the time of test. The difference in the specific gravity when fresh at the manufacturer's works and when sampled after delivery to the consumer is to provide for the absorption which must necessarily take place by the exposure of the bulk of the cement to the atmosphere in transit. The standard adopted is a high one, and the greatest care would have to be taken in the manufacture to produce a cement of this kind. It should also be remembered that it is not always possible to test cement immediately it is made; the manufacturer may for various reasons have to keep the cement in stock for some considerable period before the engineer or expert arrives to draw his samples, and, although the cement when ground may have been of such high specific gravity as to pass the standard mentioned, it may yet by absorption in bulk have fallen somewhat below that mark before sampling, and therefore before testing. When such is the case due consideration should be given to the length of time which has elapsed between the time the cement was ground and that of testing. It is well known by past experience that fresh Portland cement when exposed to the atmosphere for some time increases somewhat in bulk. This is due to the fact that moisture and carbonic anhydride is absorbed from the atmosphere, converting that not inconsiderable portion of free lime which was more or less always present in cement manufactured by the old rule-of-thumb methods into carbonate of lime having a specific gravity ranging about 2.75. It follows, therefore, that this would have the result of reducing the specific gravity of the cement in question by making it comparatively more bulky. It is well known that the specific gravity of a substance denotes the ratio of the weight of any volume of that substance as compared to an equal volume of pure water at its maximum degree of density, 4 degs. Cent. or 39.9 degs. Fahr. Great care should be taken to distinguish between a low specific gravity due to excessive aeration and one which is due to an improperly or insufficiently calcined clinker. This point can be ascertained by the application of tests for soundness which are described later in the specification.

Chemical Composition.

It was formerly the custom, in compiling specifications for cement, to state a maximum and a minimum percentage of permissible lime; this was done frequently quite regardless of the acid constituents which went to make up the chemical compound known as Portland cement. The method adopted in Clause 6 of the specification is much more rational than that just described, and it leaves the manufacturer a much

greater scope for the improvement of his manufacture. With some materials it is possible for the lime present in the finished cement to be as much as 65 per cent., and to be a thoroughly sound cement; this is a test, however, which can only be carried out by the expert or chemist, and is invariably engaged when a chemical analysis is stated.

Clause 7 describes the method of gauging cement for the purpose of testing. There is some little ambiguity in the clause, ever, as to the proportion of water which shall be used for this purpose. It is customary with many, although using a percentage of water for gauging which will result in a plastic briquette when moulded, to so mix the cement and water that the mixture is kept in the form of a dry powder until it is packed into the mould; this has the effect of preventing air bubbles being interlocked between the particles of cement forming the briquette, all these bubbles finding their way out through the cement before the sample is eventually shaken down in a plastic mass into the mould. If the cement is gauged with a trowel into an easily workable paste before being placed in the mould it is impossible to remove the air bubbles which may be enclosed, the presence of which in any quantity results in a faulty briquette. The clause stipulates that the cement shall be gauged and filled into moulds without mechanical ramming, by which it would appear that any method of packing cement into the mould, other than by the use of recognised automatic mechanical hammers used more particularly on the Continent, is permissible.

A good deal has been said from time to time as to the varying results that may be obtained by more or less ramming the cement into the mould. As, however, the specification requirement is a given strength on a given section of cement it follows that that section, usually a square inch, should consist as far as possible of nothing but cement, that in as compact a condition as possible; and as it would appear to be physically impossible to pack into a mould more than it is capable of holding no amount of ramming, so-called, even mechanical ramming, can place any material in that mould than is covered by the requirement of the specification. Much more uniform results would be obtained at varying testing stations if more attention was given to this point, and the conditions so arranged that the maximum amount of cement that the mould was capable of holding was placed therein.

The automatic hammers, which are indirectly referred to in the specification, are largely used for gauging cement on the Continent, and the result is a much more compact briquette than one which has been loosely gauged and filled by hand, and this fact has frequently been lost sight of when comparing results obtained with some brands of foreign cement to well-known English brands. It is clear that no fair comparison can be made unless the conditions for gauging are identical in all respects, and by the British standard specification mechanical ramming is barred.

A new and important feature is introduced in Clause 8 of this specification, viz. in the fixing of a sliding scale of percentage increase in strength between results obtained with the same cement at seven and twenty-eight days, and the more modern methods of manufacturing cement resulting in a very much finer product than was formerly the case, much higher strengths are obtained at early periods, and which experience showed were not obtainable with the less reliable cements of the past.

Clause 9 relates only to the method of making briquettes and the results to be obtained with the cement when tested with known proportions of sand. The proportion of sand found most suitable when one part of cement and three parts by weight of dry standard sand are being gauged range from 7 to 9 per cent. of the dry mixture.

Clause 10, referring to the setting time of cement, rightly takes cognisance of the fact that cement having different properties as regards setting is requisite for various descriptions of work. In this case the specification distinguishes between the three descriptions of cement, "quick," "medium" and "slow," the engineer or consumer himself deciding which of these descriptions he will require for the work he may have in hand. As stated in the earlier part of this paper, all cement when fresh sets is quick setting, and it is only by the addition of certain percentages of gypsum or by the method of hydrating already described that the setting time of a cement can be regulated without deterioration. The effect of slow setting would be produced by long storage with a cement without such additions, but the aeration would have been extended to such a degree to obtain a slow-setting cement.

h would be quite detrimental to a thoroughly sound well-balanced cement, and very considerable loss of strength would be incurred; it is therefore preferable when a quick-setting cement is not required that the retardation of the setting time should be effected by one or other of the known processes. In cases where the engineer resorts to the use of gypsum, there is no other method open to the manufacturer than that of hydration or aeration.

The method of determining the setting time of cement is somewhat ambiguous, as the stage when no impression is made is somewhat difficult to determine, because many experiments will continue to show an appreciable impression after the setting of the cement has been completed while hardening is in progress. It would be better if some definite depth of impression could be determined upon and measured by some simple apparatus which would clearly define this point.

The test for soundness, referred to in Clause 11, is the severe test that has yet been introduced, and a cement capable of passing this test is undoubtedly of a high class. It is, however, on the side of severity, as thousands of samples of cement manufactured in the past, which have been tested in excellent work, and also much cement that may be manufactured in the future, which may also do good work, would fail to pass this most stringent test.

THE BUILDINGS OF THE WORLD'S FAIR AT ST. LOUIS, 1904.*

(Concluded from last week.)

Mines.

COMMENCING at the eastern end of the Grand Transverse Avenue and proceeding westwards we first notice the Mines and Metallurgical Building on our left and the Liberal Arts Building on our right. The Mines and Metallurgical Building, measuring 525 feet by 750 feet, was designed by Theodore C. Link, of St. Louis. The great overhanging eaves was a distinguishing feature, the eaves projecting for more than 18 feet beyond the face of the loggia. The piers in the loggia had capitals of an Ionic type, while the columns upon the screen walls were of a Byzantine type. The screen walls were filled with sculptured panels representing various branches of mining and metallurgy. The central entrances—those on the north and west—were surmounted by a globe 30 feet in height, which was supported by colossal figures 28 feet high and surrounded by other finely modelled groups of even larger size. Great obelisks 140 feet in height flanked these entrances, but unfortunately were placed too close to the building, having the appearance of being jammed up against the walls. Moreover, they hid the sculptured groups and globes from most points of view. These obelisks were intended to emphasise the greatest mining (quarrying) feat of antiquity performed by the Egyptians thousands of years before the Christian era. The cost of this structure was about \$85,000.

Liberal Arts Building.

The Liberal Arts Building was designed and entrusted to Messrs. Barnet Haynes & Barnett, of St. Louis, and was of the same dimensions as the Mines Building just described. It was alleged to be designed in the French Renaissance style, and the treatment was described as being somewhat severe. The main façade to the Grand Transverse Avenue had a colonnade of coupled columns of the Roman Doric order. The principal entrance, in which the Corinthian order was employed, was in the centre of this side, and was taken considerably above the main roof in an abrupt manner. Similar entrances occurred at the extremities of this front, and semicircular pavilions crowned with domes were introduced at the corners of the building.

Education Building.

The Education Building, designed by Messrs. Eames & Eames, of St. Louis, was situated next to the Mines Building, and was entirely surrounded by lagoons, which contributed largely to its effect. Its position rendered it one of the most conspicuous buildings in the main picture. In plan it was the shape of a keystone to an arch, and covered an area of about 9 acres. The Corinthian order was employed in the colonnades, the giant column being

50 feet in height. The main entrances, which were placed in the centre of each façade, resembled somewhat the well-known form of the triumphal arch, and were surmounted with finely modelled quadrigas. The break in the façade to the Grand Transverse Avenue was very successfully treated in a simple manner by slightly projecting the main entrance. The cost was about 75,000.

The Manufactures Building.

The Manufactures Building, by Messrs. Carrère & Hastings, of New York, faced the Education Building on the opposite side of the Grand Transverse Avenue. It covered an area of about 14 acres. The northern and southern façades had breaks in them, the former having an entrance resembling a great triumphal arch, and the latter a deeply recessed arched opening which interrupted the lines on either side of the break. The corner entrances were skilfully contrived, and were surmounted with flat Roman cupolas. This building was raised on a stylobate of steps, and the Corinthian order was employed in the façades. The northern and southern fronts had arcades, the columns being placed in pairs to the piers between the arches. The crown of the latter was close to the cornice, which ran continuously round the building. This structure cost about 144,000, being a greater sum than was spent upon any other main Exhibit Building.

Electricity Building.

The Electricity Building was similar on plan to the Education Building and also occupied about 9 acres. It was designed by Messrs. Walker & Kimball, of Boston and Omaha. It was situated on the other side of the grand basin from the Education Building, and like the latter, was surrounded by lagoons. The Corinthian order was employed externally in all the façades, the columns resting directly on the ground. Had these been raised upon a stylobate of steps there would have been a gain in dignity to the building. The raised pediments over the central entrances and the low towers at the angles of the structure accentuated the façades. The treatment of the break in the northern façade was not a happy one, since, the entrance being recessed, the awkwardness of this undesirable feature was emphasised. The cost of this building was some 85,000.

The Varied Industries Building.

The Varied Industries Building was designed by Messrs. Van Brunt & Howe, of Kansas City. It was situated on the opposite side of the Grand Transverse Avenue to the Electricity Building, and covered an area of similar shape and size (14 acres) to the Manufactures Building. The Ionic order, standing on a lofty rusticated base pierced by arch openings, was employed throughout in the façades. This building had a break in its northern and southern fronts, each of which were successfully treated. That on the north front was disguised by a circular colonnade, while that on the south front had a free-standing colonnade which curved outwards in front of it. Domes were placed over the central entrances to the north and south fronts; while the central entrance to the eastern front was elaborated, having large coupled Ionic columns surmounted by a triangular pediment. Twin belvedere turrets, with conical roofs, flanked this entrance. The cost of the structure was about 142,000, the second most costly building erected by the Division of Works. I might mention here that the four buildings last described, namely, the Educational, Liberal Arts, Electricity and Varied Industries Buildings, were provided with internal courts, but owing to the demand for more exhibit space these were roofed over to a great extent, the Electricity Building suffering least in this respect.

Machinery Building.

The Machinery Building was designed by Messrs. Widmann, Walsh & Boisselier. It was situated to the east of the Electricity Building in a position corresponding to the Mines Building, and its main dimensions were 1,000 feet by 525 feet. The northern façade had an arcade of seven arches as the central feature, above each extremity of which rose lofty towers in three stages. The remainder of the façade had an arcaded treatment, the Corinthian order being used, and the corner pavilions were accentuated by towers of similar design to those at the main entrance, but without the middle stage. These towers, while well proportioned in themselves, appeared out of scale with the whole. The cost of the structure without the sculpture was some 110,000.

Transportation Building.

The Transportation Building was designed by Mr. E. L. Masqueray. It was situated opposite the Machinery Build-

*A paper by Mr. H. Phillips Fletcher, read at the meeting of the Architectural Association on Friday, April 14.

ing in the Grand Transverse Avenue, and occupied an area of over 15 acres. The eastern and western façades had an arcade of three great arches, which formed a distinguished feature. This feature was to have been repeated in the centre of the long façades, but omitted in execution. Simple but well-proportioned three-light windows were ranged along the northern and southern façades, at the extremities of which appeared a single arch of similar design to those in the extremities and western façades. Sculpture was sparingly used, the architect depending more upon proportion and mass effects for the success of the design. The cost of the structure was close upon 138,000*l*.

Agriculture Building.

The Agriculture Building was allotted to Isaac S. Taylor, the director of works, to design. It was 1,600 feet long and 500 feet wide, and was situated quite apart from the main scheme and westwards of it. It was divided into nine aisles, with eight rows of columns, which supported the roof trusses. The centre span was 105 feet, and it would have been better if the remainder of the width of the building had been roofed in four spans instead of eight. As it was, when viewed from the side there appeared quite a forest of timber columns, which were somewhat confusing. However, the plan was simple and could be readily divided into exhibit spaces, while the lighting was irreproachable. There were five main entrances to this building—one in each of the northern, eastern and southern façades and two in the western façade. These were 52 feet wide and 74 feet high, and each consisted of a great arched opening, the upper part of which was glazed. Around these openings was concentrated the ornament, and each was flanked by square piers, surmounted with decorated flagstaffs. Along the eastern and western façades were ranged piers at intervals of 100 feet, and practically the whole of the wall space between these was occupied by windows. This building was the largest in the grounds, yet its cost was only 110,000*l*.

Horticulture Building.

The Horticulture Building, which was located south of the Agriculture Building, was still another by Mr. E. L. Masqueray, and the design was very simple. The main entrance projected boldly, and the doorway was a large square-headed opening. It consisted of central portion, 380 feet square, and eastern and western wings, each 205 feet by 235 feet. These wings were divided off from the central block by glazed partitions, the eastern one being used as a conservatory. The cost of this building was rather more than 51,000*l*.

Forestry, Fish and Game Building.

The Forestry, Fish and Game Building was yet another which was designed by Mr. Masqueray. It was situated to the north of the Agriculture Building, and was the smallest of the main Exhibit Buildings, being only 600 feet long by 300 feet wide. The exterior was simple and unpretentious, yet designed in good taste, and the general effect was pleasing. The long façades were terminated by simple gables, and "pent" roofs were supported on brackets above the windows to these fronts. The eastern and western fronts had central gables with triangular-headed groups of windows, which latter feature occurred in the gables to the northern and southern fronts.

Administration Building.

The Washington University Building, with the grounds as already mentioned, were leased to the Exhibition authorities for the period of the "Fair." There are eleven buildings altogether, which are built in what we are told was Tudor Gothic style, and four of the buildings are arranged round a quadrangle. The materials employed are red Missouri granite and cut stone dressings. The principal building is the University Hall, which was utilised for administrative purposes. The central entrance is under a massive square tower, with octagonal towers at each of its angles, which are continued above the battlemented parapet as turrets. The entrance is roofed with a large groined vault in stone. The entire building is of fireproof construction and cost about 52,000*l*. The other buildings of the University were utilised for various purposes, the Division of Works being accommodated in one, while another was used for the anthropological exhibit.

Washington State Building.

The Washington State Building was a unique structure specially designed to demonstrate in its construction the vast lumber resources of the state. The great timbers, which have the appearance of raking shores, were over

90 feet in length, with a scantling of 24 inches by 28. These supported all the floors of this five-storey building. The interior was finished in the finer grained wood produced by the state.

Japanese Pavilion.

As might be expected, Japan fully established herself to be recognised as a competitor to European nations. She secured some of the best sites on the grounds. Japanese exhibits were both varied and extensive. They went a long way to show the resourcefulness of the Japanese. The chrysanthemum. The Mikado's Pavilion will be recognised as a typical Japanese structure.

French Pavilion.

The Grand Trianon at Versailles, which was designed by Mansard, was reproduced at the Exhibition in the French Government Building. Unfortunately the colouring, which were intended to represent the marble of the original, were badly painted and entirely spoil the effect.

German Pavilion.

The castle at Charlottenburg was taken as the model for the German Pavilion, but the most that can be said for the latter is that it was given an appearance of age by the "staff."

British Pavilion.

The Royal British Pavilion, like the French and German pavilions, was designed after a typical English building. The Orangery of the palace at Kensington was adopted as the *motif*, and the architects, Messrs. Ernest George and Philip Yeates, are to be congratulated on their work. The building was erected by Messrs. Trollope, and was constructed of Portland cement on metal lathing. It was undoubtedly the best-built pavilion on the grounds, and was negotiated by the authorities of Washington University as a student club-house.

The British Commissioner, Colonel Watson, R.E., C.M.G., was quartered here, and it was due to his energy and enterprise that the British section was the only one in complete readiness on the opening day.

The view now on the screen shows the fitting furnishing of one of the rooms of the British Pavilion. The old English formal garden was laid out near the pavilion. This was a marked success, and created a great interest and admiration. The portion in the Art Building occupied by the British section approached the ideal of an art exhibition should be. All the pictures were labelled with the subject and name of the artist, which rendered a continual and worrying reference to the catalogue unnecessary.

The hon. secretary of the exhibit, Mr. J. Spence, worked unceasingly for the success of all the British sections, and it was largely due to his instrumentality that Britain took the foremost place in the fine and applied sections. The British Commission was fortunate in securing the assistance of Mr. R. Hunt and Mr. A. A. Long in these sections, and the admirable way in which they conducted their departments at the Exhibition was an excellent lesson to the foreign countries in the Fine and Applied Building.

We have reason to feel proud of the Motherland, for British exhibits were well to the fore in most of the sections. British firms were awarded the following by the jury: 121 *grands prix*, 238 gold medals, 162 silver medals, 132 bronze medals, making a total of 653 medals. This is somewhat encouraging, and speaks more eloquently than words of the vitality of British craftsmanship.

"The Pike."

Before concluding, a few words might be said about the amusement concession. This was known as "The Pike," and was a street about a mile long. Here interesting side-shows were located, as well as exhibits of practical value, among which might be mentioned the "Fighters" referred to in the early part of this issue. Among other buildings there was a reproduction of the Abbey, while the Irish Village, the Tyrolean Alps, Hagenbeck's Zoo Creation and a host of other things crowded this well-patronised section of the Exhibition.

Conclusion.

The record which the great Exhibition holds of itself is unchallenged. Financially it was a failure, and it is improbable that any community will invest money in an undertaking in the future.

Few who visited the Exhibition had anything

cient time at their disposal to see it entirely. Great strength and endurance were essential to those who d to visit all the buildings, of which there were over hundred on the grounds. Many of these were exhibi- in themselves. Anyone who wished to see all the bits in the Agricultural Building was in for a walk of ten miles.

idences of fatigue were frequent, the ambulance kept busily employed. The glare of the ivory white great buildings was most trying to the eyes, and boys busy trade selling smoked glasses.

the Exhibition in itself was typical of the American everything savoured of their desire to create some- that was the "largest on earth." And this all-absorb- ing after magnitude resulted in the neglect of many and in the general want of harmony that prevailed, it would appear that the principles of Tammany Hall not always confined to the great city of New York.

vertheless, one is bound to admit that from an educa- point of view the Exhibition was a great success. It be remembered that it was situated in the centre of a country devoted to agriculture and the extraction of ral wealth, and that the principal people who passed h the gates were mechanics and farmers. The Exhi- was of such a character as to bring home to these es not only the latest inventions in machinery and iciency which they would otherwise have been unable serve, but the ideas and products of each nation could duced side by side. And as one saw the intelligent ers and their families day after day coming in train- to see this "World's Fair," and as one watched them ing the huge Agricultural Building, one could not but hat at least this Exhibition was educating just those to n it would be of the most practical value.

occurs to one that the sturdy men of the Western s will form the backbone and steadying influence of American nation in the future. They are the true en of the Republic, and each tills his own land for his uses and sells the surplus, which is the ideal method riculture.

ne is apt to look upon Americans generally as being nervous, excitable temperament, and this to some holds true with regard to the true Yankee of the New and States; but the inhabitants of the West have that ility of character that will help in the future to weld ner the extremely diversified attributes of this cos- litan race, and will, we hope, do something to divert hich seems to be the pending catastrophe, viz. civil between capital and labour, engendered by the forma- of the enormous and apparently unscrupulous trusts.

olonel C. M. WARSON, R.E., British Commissioner of English Section of the St. Louis Exhibition, in proposing e of thanks to the author of the paper, said the slides he description of them had brought back to him many y days which he had passed in the Exhibition. Some e days were accompanied perhaps with more hard than with happiness, but the control of such an rtaking necessarily meant work. He agreed with the rks Mr. Fletcher had made in his paper. The build- were magnificent outside, and it was quite a fairy when the cascades were illuminated and the halls lighted up by festoons of electric light. In some cts the night view was more satisfactory than the day. any cases the exteriors of the buildings had been ned by one architect and the interiors by another ou, the elevations, indeed, having been designed before interiors were planned. The lighting was not always and in some cases it was excessive. For exhibition oses the best interior was that of the Agriculture ing. It was one of the best lighted, and the view was obstructed by the wooden columns and girders as in of the other buildings. The exterior was not remark- but speaking generally it was an admirable building. e Agriculture Section they did not hear of the oak keys g out to the danger of visitors, but certainly in the ruction of the other buildings it would have been r if some other method had been employed. Screw ight have been used. Referring to the English al garden, the speaker said it was really one of the beautiful spaces set out in the Exhibition, and the e and quiet therein was appreciated by innumerable rs.

r. A. A. LONGDEN, who seconded the vote of thanks, he was sure the Exhibition had done an enormous unt of good in an artistic sense to the people out West. r. A. O. COLLARD said that, after hearing the paper

and seeing the views of the St. Louis Exhibition, he wondered whether they were progressing in the right direction as regarded temporary buildings, and it might be questioned whether it was well to enclose the framing of such buildings in plaster. In the opinion of some the building of the Exhibition of 1851 was the ideal method of construction, and the further away, therefore, they got from that example the further they got from good temporary building. Fibrous plaster was undoubtedly the best material to use in the enclosing of temporary buildings provided it was always beyond the reach of people's hands, and in the open air it should be kept painted.

Mr. BANISTER F. FLETCHER suggested that the designing and erecting of exhibition buildings could offer great scope to architectural skill. The Parisians, however, were the first to look upon such occasions as opportunities for doing something quite novel in the matter of design, and at great expense they did produce an inferior kind of architecture, using iron and terra-cotta. The attempt seemed to have died a natural death, for neither at the exhibitions of Chicago or St. Louis was the experiment repeated, nor was anything novel in architectural design effected. Yet it did seem that something might have been done to evolve a wooden or timber architecture—work in those materials could express the skill of the designer. Still, the architects of the States were to be honoured for the enormous ability they had shown at St. Louis, and their success was well merited. There could be no doubt that in no other country could such an architectural effort on so large a scale be seen.

It was announced that the annual dinner of the Association would be held at the Criterion Restaurant on May 18.

MR. T. J. BAILEY.

THE general purposes committee of the London County Council in their last report say:—"The Council, on November 8, 1904, decided that a survey and inspection of the non-provided schools (some 500 in number) should be undertaken and completed as rapidly as possible, and a report made to the Council on the whole question before the close of the financial year. The work of the survey has been carried out by Mr. T. J. Bailey, the architect (education), and as he is one of the chief officers of the Council, the question of remuneration to be made to him for the work falls within our reference. We have considered the work which Mr. Bailey has been specially engaged upon, and have had before us a paragraph in the report made to the Council by the education committee on July 25, 1904, which is as follows:—

"In regard to Mr. T. J. Bailey, the architect of the late School Board, we are of opinion that the educational requirements of the Council in the matter of architecture and cognate work are so special in character and so considerable in extent, especially in view of the necessity of the inspection of non-provided schools, that it will be desirable for the present to continue an architectural department for education. We are of opinion that Mr. Bailey should be placed at the head of such department at his present salary under the title of architect (education). It will follow, then, that the existing staff of the architect's department of the late Board will be placed in this new department at their present salaries. Mr. Bailey's duties will, of course, be increased, and it will no doubt be the wish of the Council that this shall be duly taken into consideration at the proper time in connection with the annual revision of salaries."

"The Council approved the report, and subsequently on October 11, 1904, decided that Mr. Bailey should rank as a head of a department. We are clearly of opinion that the increased work that has devolved upon Mr. Bailey justifies the Council in giving him additional remuneration, but it appears to us that the present is not an occasion for an increase of salary so much as for payment for a definite piece of work. We understand that the survey, which has been most thoroughly and systematically carried out, has kept Mr. Bailey employed almost day and night for months past; that he has devoted the whole of his spare time and his vacations to it; that he has personally visited every school, and has gone most minutely into every detail of the survey. Mr. Bailey brought an unique experience to the work, and without the services which he has so successfully and willingly rendered it is exceedingly doubtful whether the Council could have completed the survey within the required period.

"We have also considered the fact that Mr. Bailey is

sixty-two years of age. He is in receipt of a salary of 1,200*l.* per annum, and as regards superannuation he is under the provisions of the School Board for London (Superannuation Scheme) Act, 1902. In accordance with the rules of the service Mr. Bailey will retire at the age of sixty-five, and in these circumstances any readjustment of salary would not adequately meet the present case. On the ground, therefore, both of the value of the work done and of the position occupied by Mr. Bailey, we think that the remuneration should take the form of an honorarium and not of an increase of salary, and that the amount of such honorarium should be 1,000 guineas."

THE FORUM EXCAVATIONS.

ACCORDING to the correspondent of the *Morning Post*, recent excavations have not been of so striking a character if compared with the results of last season. There has been a great deal of rain during the winter; the holes in the Forum have thus been filled with water, and in consequence it is not yet possible to resume work at the Lacus Curtius. Signor Boni is only waiting till after the heavy rains, which often fall in May, to resume his explorations at that interesting spot. His men are at present engaged upon the Clivus Palatinus, where he is determining the position of the shops which in ancient times lined the side of that road. He has found traces near the upper part of the Via Sacra of the reconstruction of the Temple of the Lares Publici by Augustus. The Mediæval dirt which had accumulated on the Via Nova under the Palatine has been removed, and the result has been to prove that that road was in classical times a *porticus*. On the opposite side of the Forum a fine piece of ancient pavement, composed of green and orange slabs of marble, has come to light in the Basilica Maxentiana, where work is now proceeding. In the course of the summer Signor Boni hopes to go on with the exploration of the Temple of Jupiter Stator on the left side of the Clivus Palatinus. During the excavations near the Arch of Titus a very perfect Mediæval limekiln has come to light, a proof of the way in which so many priceless marble monuments disappeared in the days before archæologists.

GENERAL.

Mr. Charles Bennett Arding, of Streatham, and late of the firm of Arding, Bond & Buzzard, Surrey Street, Strand, London, surveyors, has left property valued at 27,587*l.*

The Governors of St. George's Hospital have decided to make a special appeal for a sum of 350,000*l.* for the purpose of rebuilding the hospital on its present site. The plans were prepared by Mr. H. Percy Adams, who estimated the cost at 300,000*l.*

Lord Bute has had plans prepared for a Roman Catholic church to be presented to Rothesay, Bute. The designs were by Mr. Weir Schultz, London, and are in the Norman style, with a round tower and spire 140 feet in height. The tower is to be furnished with a belfry and peal of nine bells, and immediately above the sanctuary there is a smaller tower with an angelus bell. The church is to seat 1,000. The site is within the grounds of Lady Bute's orphanage. The total cost will be about 30,000*l.*

The Result of the competition for the new Council schools in Rochdale Street, Preston, has been announced as follows:—(1) Herbert Howarth, Morecambe, 50*l.* premium; (2) A. Brocklehurst, 30 Brown Street, Manchester, 30*l.* premium; (3) F. Quentery Farmer, 36 Dale Street, Liverpool, 20*l.* premium.

The Holborn Borough Council last week considered the recommendation of a special committee as to a reduction in the borough surveyor's staff. It is asserted a saving would be effected of 1,843*l.* per annum without any sacrifice of the efficiency of the department. The report was referred to the works committee for further consideration by eighteen to thirteen votes. The question of compensating the officials whom it is proposed to dismiss will be dealt with by the establishment committee.

The Estate of the late Samuel John Thacker, of Messrs. Thacker & England, Montague Street, Bloomsbury, architects and surveyors, has been valued at 60,193*l.*

The Metropolitan Faving Committee have issued invitations to road authorities to a conference at Westminster City Hall on May 19, to consider the opening of the streets by the Postmaster-General and public companies, with a view to taking steps to obtain further powers for the protection of traders and the public.

The Rev. H. G. Woods, D.D., will deliver three on the Young Velasquez, the Court portrait-painter the Impressionist, at the Royal Institute of Great Britain.

The Congress of French Archæologists will be held at Beauvais from June 20 to 28 under the presidency of M. Lefèvre-Pontalis.

Mr. H. Inigo Triggs, who has for some time been engaged upon a large work on "The Formal Garden in Italy," has received permission to dedicate it to his daughter, Margherita.

The Bexhill Town Hall Extension Committee have considered two sets of designs prepared by Mr. H. G. Triggs, architect, for extension of town hall, recommending set of designs No. 1 be adopted, the estimated cost of the extension being 3,160*l.*

M. Bonnat, the portraitist, has been appointed successor of M. Paul Dubois, the sculptor, as director of the Ecole des Beaux-Arts. He will undertake the duties of the office in October.

The Mansions in Paris which have been selected for the last "concours de façades" are 98 Avenue de la République, M. Natanson, architect; 98 Quai de la Rapée, M. Natanson, architect; 250 Rue St.-Honoré, M. Sibien, architect; Claude-Chahu, M. Klein, architect; 96 Rue de Valenciennes, M. Walwein, architect; 51 Rue Damrémont, M. Walwein, architect.

Mr. W. C. Fenton has resigned the duties of secretary of the Sheffield Society of Architects and Surveyors, and has discharged for the past eight years. Mr. J. R. Fenton has been appointed his successor.

The Executive of the International Fire Service held a meeting at Brussels on Monday to arrange for the coming year, and to prepare a programme for the proposed International Fire Service Congress in May 1906.

Miss Marie Corelli, writing from Stratford-on-Avon, in the *Doncaster Chronicle*, says:—"I am of opinion that the strict preservation and care of the town of Stratford-on-Avon itself, and the restoration of those many houses which it still possesses to their former beauty together with such measures taken as shall tend to add charm and loveliness to its surroundings of river, woodland, would be the best 'National Memorial' and the one most likely to be appreciated and loved by pilgrims of the world."

The Inhabitants of Hythe have formed an association the object of which is to preserve the beauties of the town and district. The Corporation is to be approached with a request that it will endeavour to prevent new houses being built so arranged as to obscure the view of fields and the sea-front.

The Liverpool and District Property Owners' Association discussed last week the report of the Arbitration award. The course adopted by the Corporation was condemned, and a strongly worded protest is being sent against any desire of the water committee to take action in the matter.

Mdme. Carrière-Belleuse has bequeathed to the City of Paris several valuable works of art as a souvenir to her husband, the sculptor, who was at one time employed in England, and was afterwards art director of the Manufacture de la Porcelaine.

Mr. Alfred Spiers, architect and surveyor, formerly of Berwick Street, Oxford Street, has entered into partnership with Mr. Peasgood, of Walbrook. The firm will be known as Peasgood & Spiers.

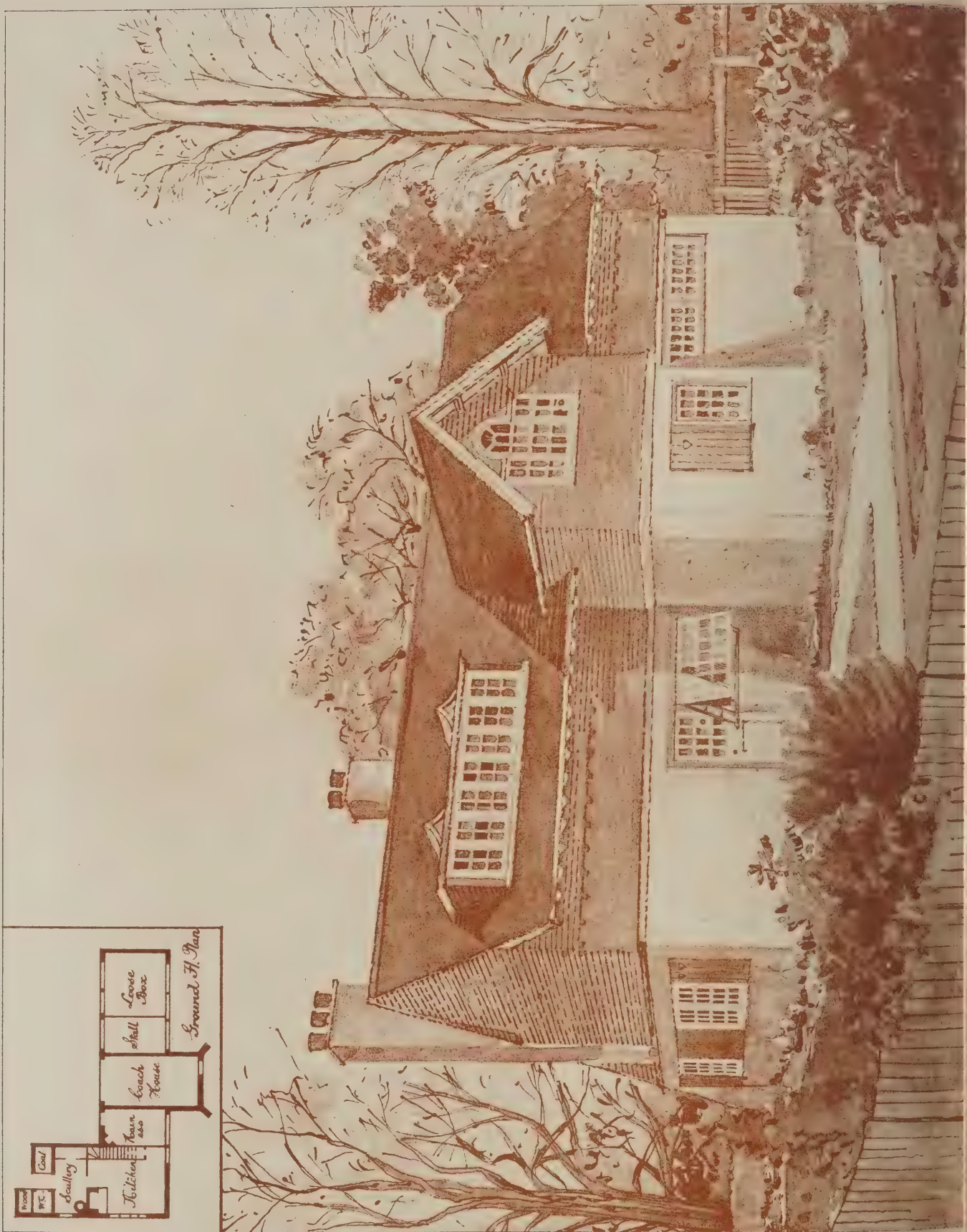
Ferro-Concrete has been used for the transit sheds adjoining the new dock of the Manchester Ship Canal. Each shed is four storeys high.

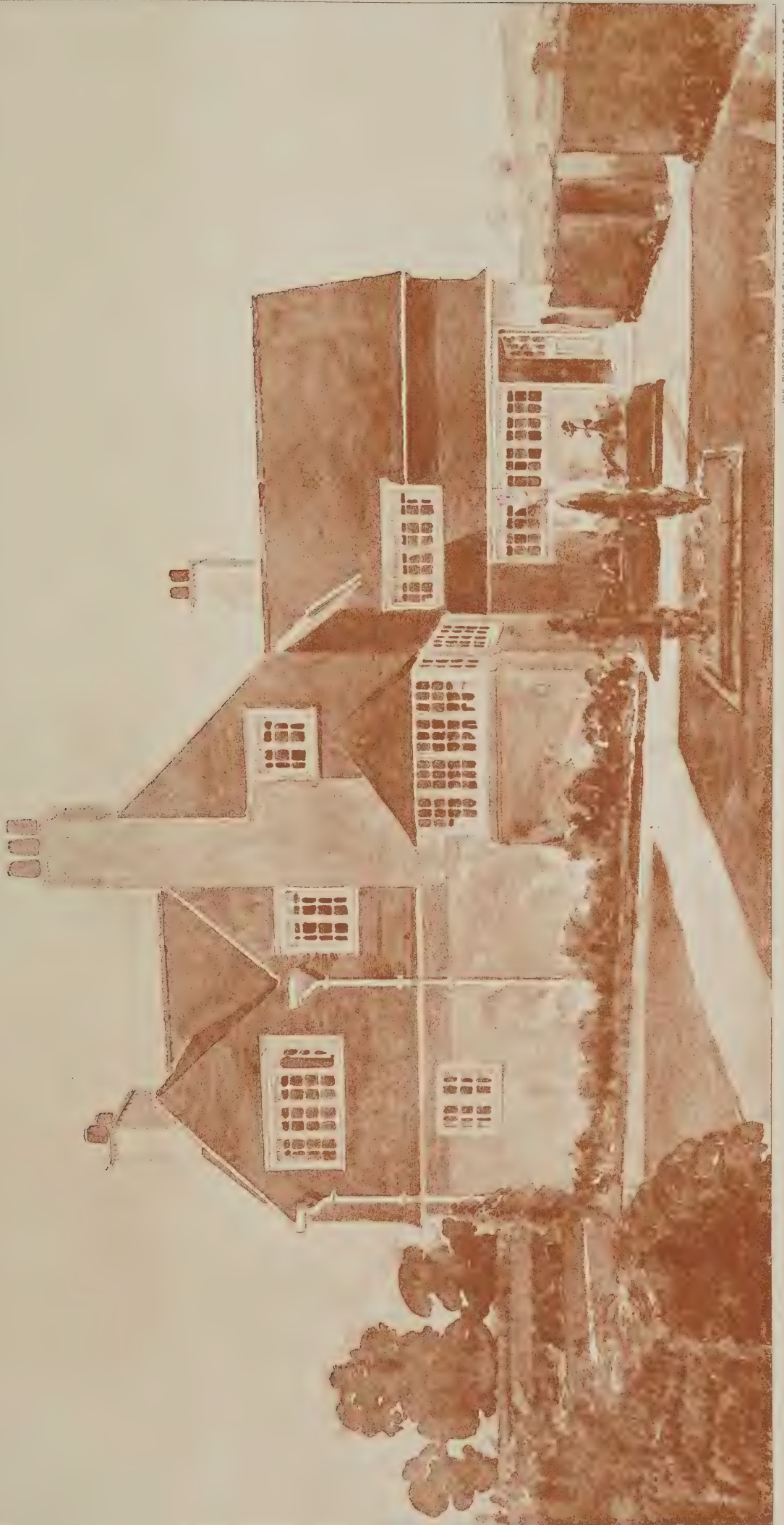
Lord Kelvin is the first recipient of the John Fritz Medal, which was awarded by representatives of the American Society of Civil Engineers and other engineering societies.

The Report of the Palestine Exploration Fund for the year ending last year the operations revealed a large palace of about B.C. 2000, not yet fully excavated; the palace built for himself by Simon Maccabæus; upon which an imprecation, containing the name of Simon, has been inscribed, besides a variety of relics of different periods.

The Hawkins Collection, the sale of which has been held on several days, has realised about 190,000*l.* The principal objects were as follows:—Snuff-boxes, first portion, 1,100*l.*; pictures and drawings, 8,151*l.*; books, &c., 3,358*l.*; and of art, second portion, 77,572*l.*; third portion, 41,900*l.*

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HOUSE AT MERSTHAM.
SYDNEY PERKS, Architect.

The Architect, April 21st 1905





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"MOUNT STUART," ISLE OF BUTE, N.B.: THE GRAND STAIRCASE.

SIR R. ROWLAND ANDERSON, LL.D., Architect.

The Architect, April 21st 1905





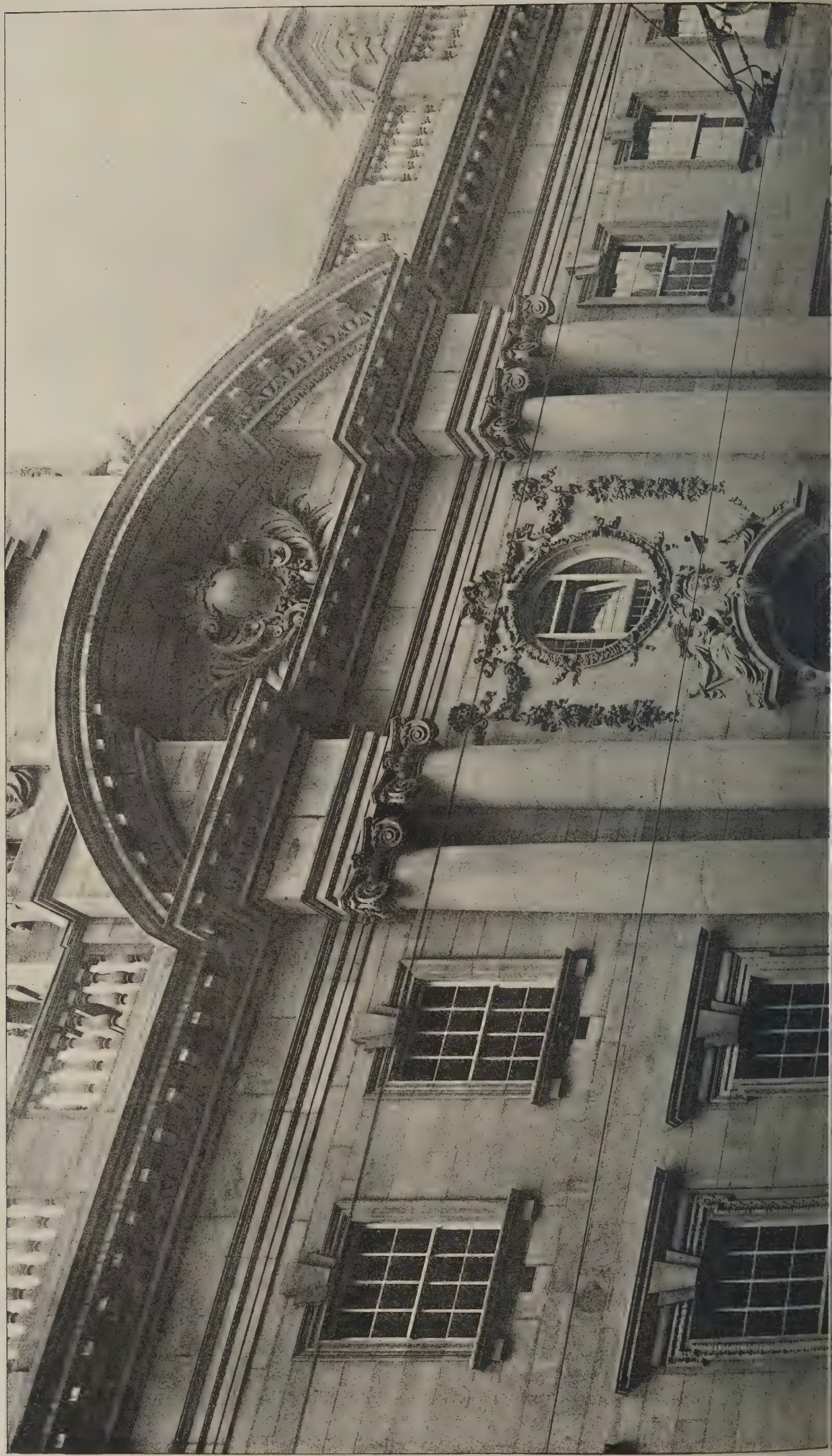
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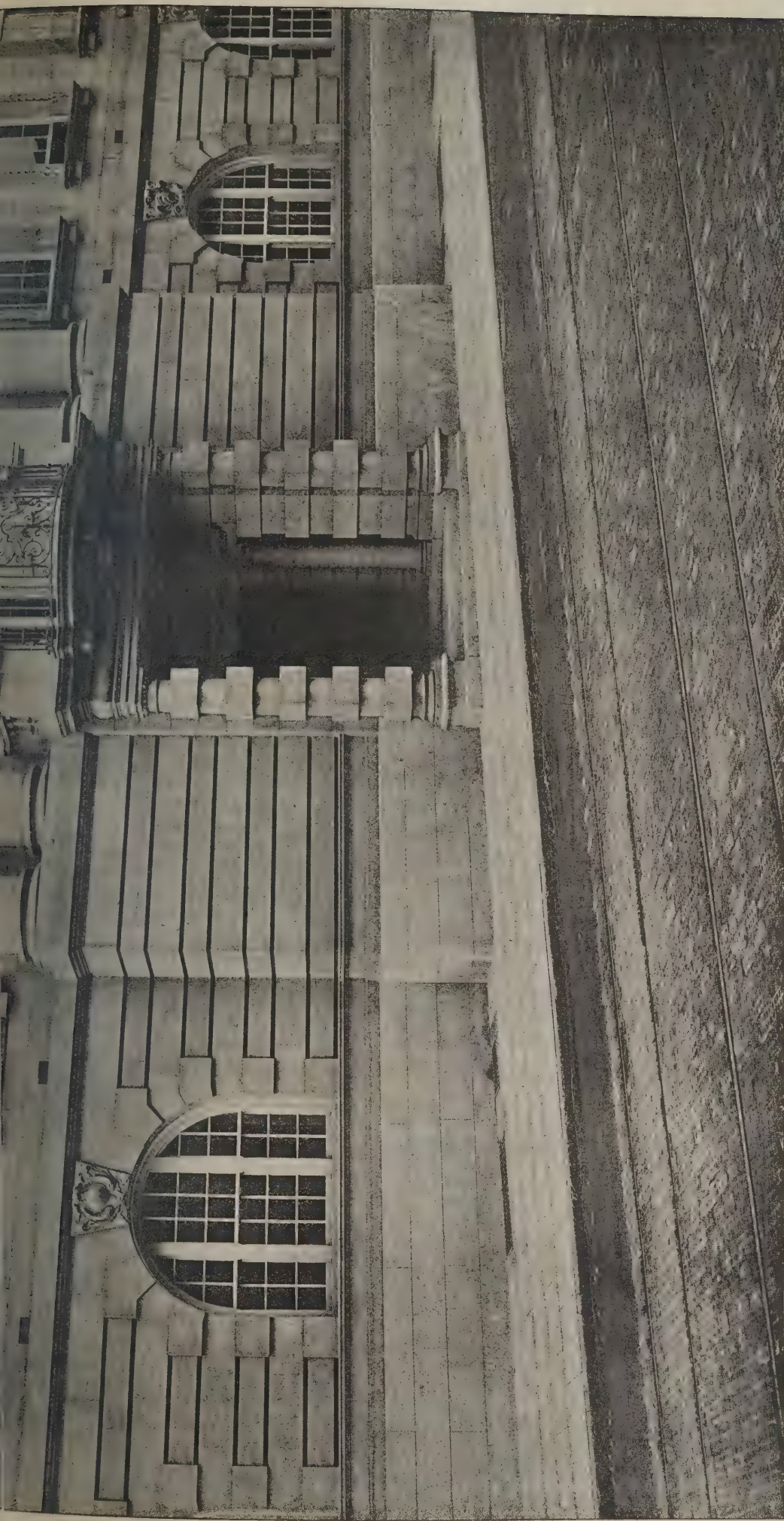
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CALEDONIAN STATION HOTEL, EDINBURGH: HALL AND STAIRCASE.

J. M. DICK PEDDIE, Architect.

The Architect, April 21st 1905.





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COUNTY SESSIONS BUILDINGS, PRESTON.

HENRY LITTLE, Architect.

The Architect.

THE WEEK.

THE Norwich County Council are in a difficulty about the erection of an addition to the Shire Hall. Beside the building is a vacant plot of ground, of which neither the area nor the suitability to carry a building has been ascertained. A committee report says that intending competitors must assure themselves of the exact dimensions of the site, and as it is believed to have formed part of the castle moat the made ground must be of considerable depth. The risks of a successful competitor are therefore serious, for he will have to deal with the unknown. Some of the Council believe that no designing is needed, for all that has to be done is to imitate the Shire Hall, while the report says that as to the front part of the Shire Hall may have to be rebuilt, competitors should remember that continuity. In other words, the building may be altered to be in keeping with the addition. The new part is to be made from thirty-six to forty rooms for the different departments. The condition that the accommodation is to be provided for 12,000*l.* suggests that economy is not neglected. But an amendment was adopted in which the cost is not to be mentioned, in the hope that a still cheaper building can be obtained. There was no difficulty in obtaining the sanction of the Council offering 175*l.* in premiums. We advise intending competitors to be careful in studying the conditions, for there is no unanimity on the subject.

AN important decision affecting drainage districts has been given by Mr. Justice SWINFEN EADY. The County of Lincoln, as is well known, requires special precautions for dealing with running water. In 1804 commissioners were appointed for draining certain parts of the county. They were to construct culverts and keep them in proper order. In 1903 there were extraordinary floods owing to the excessive rain. The premises of B. CANNON & Co., LTD., glue manufacturers, were damaged to the extent of between 3,000*l.* and 4,000*l.* owing to the inaction of an automatic valve which had been in use for over thirty years. It was closed by the formation of a dam and by pumping day and night the plaintiffs were able to clear their works. An action was brought against the West Drainage Trustees, the successors of the original commissioners. The defendants maintained that the floods of 1903 were unprecedented, that the drains were kept in the state in which the Trustees received them, and that the drainage cost amounted to no more than 126*l.* a year. Mr. Justice SWINFEN EADY said it was the duty of the trustees to maintain and keep the drainage works in repair. There was no serious dispute as to the law of the case, for public commissioners were liable for negligence of their servants the same as private persons. Here a public duty was imposed upon them they were liable for the negligence of their servants if that public duty was not properly carried out. The question, therefore, was whether the defendants were negligent or not. When notice was given of the flooding of plaintiffs' premises nothing was done. They were left to take their own steps to ward off the results of the negligence. There must be judgment for plaintiffs, the amount of damage to be ascertained by the official referee.

AN action against an insurance company for the destruction of buildings and other property by volcanic fire is rather unusual. But one has just been tried before the Tribunal Civil de la Seine in which an English company was the defendant. The plaintiff, M. PÉCOUL, claimed 66,500 francs, the amount for which he was insured. The company had guaranteed him against fire of all kinds, even volcanic. When Mont Pelée burst forth in Martinique M. PÉCOUL's buildings were

annihilated by the fire, and for hours they seemed to be a gigantic furnace. The company, however, refused to pay the sum insured. The judges declined to hear any witnesses except scientific experts. M. LACROIX, who was sent out by the French Government to the scene of the disaster, said the eruption was caused by the emission of a burning mass which consisted of solid materials with the vapour of water and gas at a high temperature. Its rapidity was in excess of hurricanes and cyclones, and was supposed to be at the rate of 130 metres per second. The action was of a dual kind, mechanical and volcanic, and the part of the island where M. PÉCOUL's property was situated, which was slightly inclined, was levelled up as if a gigantic plane had passed over it. The destruction, according to M. LACROIX, was not caused by the fire, but by the violence of the volcanic dust, which overthrew and pulverised everything in its passage. The fire was subsequent to the destruction. The decision of the Tribunal was that the ruin of the mansion was to be imputed to another cause than the volcanic fire, and that, in fact, the objects had lost all their value at the moment when they became inflammable. If the evidence of the spectators of the fire were taken, M. PÉCOUL would have gained. But science is often in opposition to the observations of untrained witnesses, and in this case science was successful.

It was decided in the case of *BLUNDELL v. The King* that when the Crown takes land compulsorily under the Defence Acts for the purpose of the erection of a fort the compensation payable includes not only the value of the land, but also compensation for the injurious affection of the owner's adjoining lands by reason of the proposed user of the land compulsorily taken. RIDLEY, J., in so deciding, followed two Irish cases in which the same point had arisen. It was attempted to support the contrary view upon grounds of public policy. Compensation, it was said, should be on a lower scale where the land is taken for national defence than when it is taken for other purposes. The learned Judge, however, could not find that the Acts drew any clear distinction of this nature. Indeed, it is a little difficult to see why considerations of the public importance of obtaining a given piece of land should entitle the State to acquire it for a less sum than it would otherwise be obliged to pay. All legislation providing for the compulsory acquisition of property must be based upon the public importance of the user to which it is to be put. To draw distinctions between varying degrees of public importance, and to say that the greater the importance the less the price, seems to be clearly absurd; yet that is the conclusion to which the argument of the Attorney-General in this case would seem to lead. It is satisfactory to see that the Acts did not compel the Court to put such a construction upon them.

A SOCIETY has been formed under the title of "The Vasari Society for the Reproduction of Drawings by Old Masters." In this country there are a great many examples which are necessarily unknown to artists and amateurs. The subscription will be only a guinea a year, and in return as many permanent collotype reproductions will be produced as funds will permit. In the first year it is proposed to issue a selection of at least twenty drawings in the British Museum by LEONARDO DA VINCI, TITIAN, PISANELLO, JACOPO BELLINI, HOLBEIN, RUBENS and other artists. Subsequently, it is expected that drawings in foreign collections may also be obtained. The wealth of the British Museum is known only to a comparatively few people, and several years ago an effort was made to anticipate the work of the Society by the publication of examples in *The Architect*. We hope the Society will be successful. It often happens that the studies by great masters are more characteristic of their power than the paintings, which may have been in a large measure the work of assistants. Mr. G. F. HILL, 10 Kensington Mansions, S.W., is the secretary.

eyes Stonehenge would be the representative of superstition and an instrument of cruelty, for it might be demonstrated that the stones were used for human sacrifices. He would be within his rights if he demolished the stones or disposed of them to an American millionaire, who wished to ornament a public park with them. What is required is that, in the interests of the country, and as a memorial of an obscure part of its history, something should be enacted which would put a check on an abuse of the proprietorial rights. If Sir EDMUND ANTROBUS were willing there would be no difficulty in now placing the stones under charge of the Office of Works. But there exists no power to coerce him to act in the way archaeologists desire. It is, of course, a difficult and serious matter to introduce a new measure that would interfere with the privileges of landowners, for it might give opportunity for other changes. But the security of the most important of English monuments calls for an extraordinary effort, and Mr. Justice FARWELL'S judgment could easily be made the occasion for an adequate legislative measure.

ENGLAND IN EGYPT.

ARE the Egyptians ever likely to be wise enough to believe that His MAJESTY'S Agent and Consul-General, Earl CROMER, has done more for the present generation of the people than any of the Pharaohs did for their forefathers? Or will explorers ever come across a papyrus roll which will be comparable with one of his Lordship's annual reports? The world now presents no other example of such wise and self-reliant statesmanship being devoted to the service of a strange people, who at any time might rise in rebellion against the Power that has tended them and saved them from misgovernment. At the beginning of his latest report Earl CROMER says his object in writing has been of an educational kind, in the hope that the rising generation of the Egyptians would turn their attention to the future of their country, which is now rapidly striding towards an advanced stage of civilisation. He expresses satisfaction that a considerable number of the last report went to the superior schools and colleges, where they were eagerly read and discussed. Not self-glorification, but anxiety for the welfare of Egypt inspires those important documents.

It is not within our province to deal with all the sections of the report of 1904, and we must confine ourselves to the parts relating to construction. In the first place, Lord CROMER doubts whether another instance is to be found of a State that has devoted so large a proportion of its revenue to the construction of remunerative public works. But such were the circumstances under which the money was raised that no funds could be provided to keep the public buildings, canals and drains in order. It is expected that the outlay will bring returns; but cases arise, such as the construction of roads, lunatic asylums, prisons, drainage of towns, &c., which cannot immediately bring in a profit.

The works which are contemplated as necessary will involve a large outlay. Sir WILLIAM GARSTIN'S projects are estimated to cost £21,400,000, but will amount to a still larger sum. Ultimately the improvements may prove remunerative, but they cannot yield any return in the early stages. On the subject of public buildings Earl CROMER writes:

In spite of the fact that since 1891 no less than £1,600,000 has been spent from the reserve funds on public buildings, the legitimate demands under this head are still very numerous. The Government offices in Cairo are very inconvenient. Moreover, they were originally so badly built that new offices have become an almost inevitable necessity. The cost of maintaining the present buildings is excessive. The prisons are still overcrowded; and the provision for lunatics is so inadequate as to necessitate the discharge of many persons who should be under restraint. Another school for secondary education is much

required. An improved technical school, to take the place of that now established at Boulac, must certainly be built before long. If, as I trust will be the case, industrial education is extended, a school, modelled on that recently built in Cairo, should be erected in every large provincial town. Little or nothing has as yet been done in the way of providing proper accommodation for the village schools ("kuttabs") which are dotted all over the country. A school is required for police cadets, and the War Department has urged that more money should be spent to provide suitable barracks for the troops at Alexandria.

His Lordship believes that the progress of the country is in many directions being retarded by the want of suitable public buildings. No less important is the matter of public roads. Outside the neighbourhood of some of the principal towns there is not a single metalled road in the country. As tourists are aware, many of the streets of Cairo are in a deplorable state. In the provincial towns they are no better. £20,000 was expended last year in asphaltting some of them, and a similar sum will be laid out this year. Sanitary measures also demand a large expenditure. At present attention is directed mainly to water-supply. It is expected that before the end of 1905 pure water from new artesian wells will be delivered in Cairo. Lunatic asylums appear to be on the increase in Egypt as in Europe. A building now used as an army hospital, adjoining the asylum, is to be enlarged and arranged for lunatics. Plans have been prepared for another large asylum, but the site has not been chosen; it will probably be between Tintah and Alexandria. It is to be arranged as a villa colony, which is believed to be suited to the Egyptian climate.

The remarks on technical education reveal not only the wisdom but the kindness for the poor of his Lordship. That improvements are always accompanied by some suffering has been often exemplified in England when machinery deprives workmen of employment. Egypt being in a more primitive condition, the misfortune that follows change is more marked. The improvement of water-supply has ruined the extensive native industry of manufacturing water-skins, and has put an end to the employment of water-carrying, which in 1897 was followed by about 16,000 men. A thriving quarter of Cairo was occupied by makers of sieves. The adoption of the European system of milling has supplanted the industry. By a new law cereals have to be weighed instead of measured; there is no longer any need for makers of wooden measures, or for measurers, who numbered at least 10,000. By the modern preference for wooden floors instead of stone flooring the masonry occupation has been diminished; and so on through various other trades. In order to provide for the new conditions industrial schools have been established, and Lord CROMER hopes to see a model workshop in every important town.

When material interests are so urgent, science and art must be satisfied with partial attention. Lord CROMER seems to think that anyone who will remember that a few years ago the Treasury was almost bankrupt must allow that everything that could reasonably be expected has been done. During the last ten years £115,000 has been spent from the ordinary budget on the archaeological department. A museum has been constructed at a cost of £251,000, and about £14,000 expended on a catalogue; £12,000 has been spent at Karnak, £13,000 at Philæ, and £1,500 at Edfou, restoring and preserving the ancient monuments at those places. Within the same period the preservation of Arab and Coptic monuments has cost £82,000. A museum of Arab art, which also comprises a library, has been constructed at a cost of £58,000. The library receives an annual grant of £4,500 from the Government and of £500 from the Wakfs administration. It contains a numismatic collection. A Græco-Roman museum has been established at Alexandria costing £10,000; it is maintained by the Municipality at an annual expenditure of £1,200. A geological survey

The Architect, April 28, 1905.



Yours faithfully
Hindson

in progress and there is a geological museum. An observatory, equipped with all the most modern instruments necessary for meteorological and seismological observations, has been established at Helouan.

All the columns of the Great Hall at Karnak, which collapsed in 1899, are now rebuilt to their full height. The capitals and architraves are only to be placed on them. During the progress of the works a pit was discovered in which the architects who had restored the buildings in B.C. 300 had buried statues belonging to the temples connected with the residence of the high priest AMMON. About 500 statues have been disinterred, some being in the highest known style of Egyptian art. Their historical value is immense, and nothing equal to the discovery has been made since MARIETTE'S excavation at Serapeum.

M. MASPERO has testified that he is satisfied with the state of Philæ. The stone has hardened under the water, and consequently has more chances of endurance. There is no longer any fear of the action of salt-petre and organic matter. In a recent report Mr. HOWARD CARTER, the inspector of antiquities, says:—

"The state of Philæ as regards stability appears to be better than the general state of the temples in Egypt. The action of the water upon the stonework has been slight, and really only distinguishable when the stone is of bad quality; even then there is at present but little fear of disintegration. The deposits of salts, as well as vegetable growths, on the wall surfaces that have been submerged were certainly far less than in the former year. In many cases the stone appeared to have become harder, perhaps owing to the water replacing, or rather taking the place of, the original quarry sap, as had already been surmised in former reports. To bind the corners of the masonry with metal guards from the high-water level downwards would, I think, be a great protection against the native boats taken into the temple by visitors, as certainly more damage has been done in this way than by the water itself.

Lord CROMER considers it would be premature to discuss what further steps should be taken for the preservation of the temple until the question of raising the Assouan dam has been settled. There is no doubt the temple will have to be submerged if the dam is raised. But the archaeological and artistic must yield to the general interest of the country. His Lordship says the Government would spend more if there is reason to believe results would equal the increased cost. Suggestions will receive careful attention so long as it is not desired that the temple should be removed and rebuilt on the mainland or elsewhere.

During the past year work has been carried on at seven mosques, including the mosque of Sultan HASSAN. Mr. SOMERS CLARKE drew the attention of the Government to the bad state of repair into which the old Coptic monasteries known as El-Abyad (the White) and El-Ahmar (the Red), at Sohag, had fallen, and urged that steps should be taken to preserve them. An examination of these monuments was made, and it has been decided to restore them. The Coptic Patriarch has consented to provide £1,000 of the total sum required for this purpose, on condition that the Government finds the rest.

In the Soudan Lord CROMER and his officials have to deal with savage races, and it is a hard task to endeavour to civilise them. But the natives are willing it is an advantage to be under the control of an honest Government. One proof is seen in the increase of revenue. In 1898 it was estimated at £100,000, and in six years it has increased to over £200,000. The taxing is light and can be collected with ease. What his Lordship says about low taxation is a particular reference to this country at the present time. He describes it as the keystone of the political system. It brings general tranquillity in its train. It is an essential preliminary to steady and continuous moral and material improvement. It allows, either at once or gradually, of the adoption, without serious danger to the State, of a policy in other matters which is in

general conformity with the liberal views and traditions of the British Government and of the British nation. The Soudanese, we suppose, will soon find that as they advance in civilisation their taxes will be increased. As it is, they are becoming acquainted with some of the mysteries of circumlocutionism. Lord CROMER says he notices with a feeling akin to alarm that the Controller of Taxation remarks that the consumption of stationery still increases. Much of the correspondence, he says, is superfluous. He hopes all British officials will do their utmost to discourage this tendency, by which useless correspondence is accumulated and that which is useful is delayed.

A sum of £27,000 was spent on the construction of civil buildings. A number of mud-brick buildings had been run up to accommodate the officials and troops. They are now being replaced by permanent buildings. Captain KENNEDY, R.E., the director of works, says:—"All the building stores, such as doors, windows, girders, &c., have to be transported long distances by camel, and in many cases even fuel, wood for burning lime and bricks, has also to be so transported. This not only enormously increases the cost of building, but also ties us down very much as regards design, as we are restricted in the case of girders for roofing, &c., to loads which can be transported by camel. Till wheeled or other mechanical transport is introduced the cost of conveying heavy stores or machinery to these outstations is practically prohibitive."

Khartoum, around which there are so many tragic memories, has now a bi-weekly newspaper, steam trams, a service of Japanese rickshaws, a steam chain-ferry, and it is practically impossible to find a vacant house to let in either the second or third-class part of the town. The nomad Arabs who live in the neighbourhood and who make plenty of money as cattle-dealers, "still prefer to lead the life of the free-born sons of the desert, no matter how large their herds or how numerous their followings." In concluding his report, Lord CROMER says that the present year appeared to open under auspices of a peculiarly favourable nature for the cause of progress and reform, both for Egypt and the Soudan. All who read his pages must desire that his anticipations will be realised to the fullest.

LORD WINDSOR.

THERE was a time when a First Commissioner of Works, if he opened an exhibition relating to building, would excite surprise. In those days high officials of that rank were not selected because they were able to take an interest in architecture or construction; it seemed to be necessary that they should be disposed to regard both as if they were dangers to the Administration. Happily there is no fear of any want of appreciation on the part of the present holder of the important office, Lord WINDSOR. His Lordship, whose portrait we now publish, has not only studied art practically, but he has demonstrated his knowledge of it by his writings. To have had erected such a house as Hewell Grange, one of the noblest examples of English Renaissance, is a testimony to his skill in judging architecture. Lord WINDSOR has given an additional proof of his interest in construction by giving his patronage to the Building Exhibition, and his action will be valued by all who have contributed their specialties to the collection, as well as by the important body of manufacturers of whom they are the representatives.

In the Competition for the Lambeth Municipal Buildings no less than 144 complete sets of designs were submitted. Mr. Hare, the assessor, having completed his examination, the designs will be open to public inspection at the Lambeth Public Baths (at the corner of the Kennington and Lambeth Roads) from Monday, May 1, to Saturday, May 6 (inclusive), from 9 A.M. to 6 P.M.

CARNARVON CASTLE.

THE Constable of Carnarvon Castle, Sir John Puleston, has come to the conclusion that the adapting of the castle to the purposes of a national museum will not be disadvantageous to the building. Writing to the Mayor of Carnarvon he said:—

"Mr. Thomas called with the plans. I fully approve of them. So far from taking away the character of the castle they will, if carried out, greatly add to its great interest. The fact that only the interior of the tower is to be utilised for the museum will in no way interfere with patriotic sentiment attaching to the old historic castle, but, on the contrary, add to it. It will also have the important effect of preserving the towers, and by a much-needed restoration it will prevent further decay. While I have all along done all that was possible by way of restoration, my trouble has always been that much more was needed to preserve them, so that if, as I think, your plans are carried out, the double purpose will be attained, and I most readily concur in granting the use of the castle for the proposed national museum.

"I feel that with a site of such historic interest, and in the centre of the Celtic population of Wales, the argument in favour of Carnarvon should be irresistible, and with the museum placed there, would speedily attract innumerable objects of Welsh interest and impart to the Welsh National Museum a character which no other place would give it. The reports of the President of the Society of Architects and the Director of Museums for Liverpool are eminently satisfactory. The necessary outlay will be comparatively small, while the advantages from every point of view will be immeasurably greater, I think, than any other place can offer, though I do not at all depreciate the desire of other places to have the museum so generously offered by His Majesty's Government. I think you will speedily be able to get together the amount needed. I will be glad to facilitate here in any and every way open to me."

The committee of the Privy Council will hold the first meeting on May 13.

"SIR" PETER LEWYS, ARCHITECT.

IN a letter to the *Irish Times*, Sir Thomas Drew writes:—

It is to be hoped that the old arms taken from the historic bridge of Athlone will as a matter of course be restored to that town. The practice of dissociating any such monuments from their ancient seat of local interest and "sending them up to Dublin" is absolutely indefensible, and no pedantry of possession should stand in the way of reparation. I have known the relics in question as lying in the cellars of the Royal Irish Academy thirty years ago, and of no interest to anyone there, while to Athlone men and intelligent visitors, and the few who have known something of Sir Peter Lewys (Chancellor and Proctor of Christchurch, Dublin, architect and builder), from the rarely quaint monograph of Mr. Berry, the arms and memorial found on their ancient site would be of lively interest.

There is also to be found in the Academy's museum and elsewhere in Dublin a class of monuments which should never have been wrested from their native sites, such as pillars and ogham stones. To the ordinary museum visitor they are but deadly dull and uncouth objects of no regard there; yet these in the sunlight of their native hills and fields and historic places would be full of sentiment and speculative poetry for many a one.

There are other classes of relics which it is scarcely less impolitic to remove into museums and to dissociate from their native finding, as, for instance, there is a find from the peat bog under Christchurch, Dublin, of some antique Celtic ornamented combs and some "working models" for the Celtic ornaments traced on pieces of deer's antler, of interest to many a visitor while in Christchurch crypt. These were stolen from it, and acquired by the Royal Irish Academy for a trifle some years ago. I would be bound to say such objects find their way to some obscure drawer unlabelled, and soon unidentifiable, and if they reach in transport the Kildare Street Museum are practically unknown to the learned curator, and have passed to be nameless museum rubbish. Yet things such as these associated with their locality of find, and to be seen there, have all the interest in the world for the antiquarian anthropologist who at such a place speculates on the successive races which have occupied the Dun of Dublin or the "Brow of the Hill of the Haxels."

Again, for instance, a body like the Board of Works, with irresponsible officers and subordinates, takes pos-

session of a vested monument, such as part of the ruins of old St. Audeon's, Dublin, to renovate and "tidy it up." A considerable collection of inscribed and ornamented tiles are turned up. Left there they would add history and interest for a visitor, but Board of Works men (as has been done in my sight) in the wanton lust of "rights" and "possession," cartload all such, and remove the relics, to be soon forgotten and unidentified rubbish, and if they survive the removal of the Board of Works to Upper Merrion Street, go to some rubbish heap.

To return to the "Sir" Peter Lewys relics, if there were a difficulty about setting them back at Athlone it is in Christchurch that deposit of such monuments should be next best made, where they are so identifiable with it and the resourceful builder and cleric and restorer of Elizabeth's time. Of his history much that is human lives in its records and has been extracted in its quaint liveliness by Mr. Henry S. Berry, of the Record Office. Peter Lewys was not himself indifferent to his posthumous identity and fame, and that should be respected. When in his diary he fancied himself vastly as to his ingenuity of building which had saved the central tower from imminent destruction, he adds:—"I brought all the choristers to see the making of the foundation, and I beat them all that they might bear in remembrance the making of the work, and I bestowed on the children at the same time sterstyn" (tester).

COLOURED WOOD.

THE American Consul at Gottenborg in his report says:—The coloured-wood industry began in Italy in the seventeenth century and wood-colouring works came to Sweden during the Thirty Years War, but until quite recently the method was used on a very small scale, and a first only dry wood was coloured. Now, by the method invented by the Austrian Joseph Phister in 1901, the wood is coloured when fresh. The tree is cut while the sap is in action, and in the colouring process the dye is forced under heavy pressure into the wood and replaces the sap. Until recently the non-poisonous colours and "aniline" have been used, but those colours fade a little. Now the manufacturers can colour to a length of 13 feet. Birch, beech, alder, maple, elm and basswood are the best kinds of wood for the purpose; oak is not good on account of the tannic acid, and in spruce and pine the colour cannot be made uniform.

The wood looks best when polished and when it is given a gay colour. The prices are yet comparatively high on account of the amount of waste, but improvements may follow, and with cheaper prices and more extensive use is considered that coloured wood will give Sweden an important income. It can be used in furniture, panels and doors, also in outside work in order to avoid painting. It is especially good for fitting ships and tramcars, and also for elegant and modest furniture. During 1903 and 1904 many works for such wood have been built.

TESSERÆ.

Greek and Gothic Architects.

THE Greek architect, having no knowledge of the art of hewing immense blocks from the sides of the marble mountains around him. Some of these he laid side by side in rocky beds hollowed and levelled to receive them; then he united with clamps so as to form a foundation as massive as the rock on which he built—some immovable even to earthquakes. This was the case at Priene, Halicarnassus, Cnidus and elsewhere. Upon these he laid slabs of fine marble for his steps and pavements, and, with carefully worked blocks, he raised the walls of his cella; and the as in his sunny climate shade was the great desideratum he surrounded the cells with porticoes and colonnades. Upon the columns he placed massive architrave and corbels, tying the whole together. The frieze was generally formed of thin slabs connected together, and left on the sculptured elevation. This ornamental work was protected by a cornice, with sufficient projection to throw off the water through antefixæ placed at regular intervals, the whole being arranged according to certain laws of proportion. The architect then called in the sculptor, who began at the top of the building and worked downwards. When the sculptor had adorned the friezes, metopes, and as in the Temple of Diana at Ephesus, even the column

with figures, the painter illuminated the whole with gold, red, blue and other brilliant colours, so that when the temple was completed it was a perfect work of art. The Mediæval architect having, as a rule, smaller stones to work with, and possessing a knowledge of the capabilities of the arch, and a perfect knowledge of the proper ratio between bases of support and superincumbent weight, piled arch upon arch and pier upon pier, causing his building to spurn the earth and aspire to the skies, and so constructed lofty vaults on comparatively slender columns, and erected spires which pierced the clouds on comparatively thin walls. At Salisbury the wall of the tower is in some places not more than 3 feet thick. He, too, designed his cathedrals according to certain rules of proportion, and decorated them with painting and sculpture, so that his building was also a perfect work of art.

Decay of Building Stones.

In building stones there are two principal sources of decay—those inherent in the stone itself and those due to external circumstances. Of those causes inherent in the stone itself, we have first a want of cohesion among the particles and porosity, which, in many cases, is a direct consequence of the former. This want of proper cohesion may be due to the absence of a cementing medium, or the stone may not have been exposed to a sufficient pressure to consolidate the mass. The result is a weak stone, which, if porous, absorbs much water, and is disintegrated by frost—a most objectionable feature. Too much argillaceous matter is also unfortunate, whether it occurs in seams or distributed through the mass. When in seams we find lines of weakness owing to their better absorbing power. Thus distributed it causes brittleness and is rapidly acted upon by the weather. Iron pyrites is another and a most frequent cause of decay. If found in nodules or in large crystals its effect is not so disastrous as when in fine particles distributed through the stone. Ferrous compounds are also deleterious, as is seen in grey freestone. The effects of iron pyrites seem to be more noticeable among the limestones than any other of the building materials. Professor James Hall in a report to the Capitol Commission says:—“If magnesia be present, the sulphuric acid formed by the decomposing pyrites produces a soluble efflorescent salt, which exudes to the surface and forms white patches, which are alternately washed off and replaced, but leaving a whitened surface, probably from the presence of sulphate of lime. If the stone be calcareous, the salt formed is insoluble, and therefore produces less obvious results.” The lime from the mortar may produce a similar effect when the adjacent stone contains pyrites. The size of the constituent particles or crystals of a stone may affect its durability. This is not always the case, for we find varieties of crystalline marbles which are much superior in strength and durability to those of finer grain. A mixture of fine grains of sand with pebbles of various sizes can seldom be relied upon. The integrity of a stone depends largely upon the character of the cementing material. A clayey medium is not good, as it absorbs much water, and is injuriously acted upon by the frost. A calcareous cement dissolved by rain-water charged with carbonic-dioxide, while a silicious cement is undoubtedly the most durable, as weathering seems to have little or no effect upon silicates.

S. Sophia.

The church of S. Sophia, which Justinian began to build in Constantinople in the year 532, was not the first church of that name in the city; it was a reconstruction of an earlier church built by Constantine the Great under this name, which was burnt, together with others, in the rebellion called “Nike” against Justinian in the early part of that century. But the restored church, like some restorations of the present day, was nothing like its predecessor. Of this we have the most convincing proof in two different accounts of the building written soon after its completion by two persons who were both of them eye-witnesses of its construction, the one being Procopius, the historian and panegyrist of Justinian, who wrote the history of his wars, his acts and his buildings, and the other being an anonymous author, who in all probability had been employed in some capacity in the building itself—the one is the description of an amateur, the other that of an architect; both, however, coincide in describing the building as unique and unlike anything that had previously been constructed. The amateur describes the unusual character of this new and wonderful building in terms which, whilst they graphically portray the general effect of its novel and striking features, his senses and imagination, leave no room to doubt that

the building which he thus saw and thus described was the actual building which still exists at Constantinople. The other writer, on the contrary, occupies himself with all the detail of the structure; he records the preparation and the arrival of the material, the purchase of the necessary site, and the contrivances and expedients that were resorted to for persuading or compelling unwilling sellers to cede their land and houses—he even gives their names and callings; he deals with the practical difficulties of the construction—the composition of the mortar, the working and the preparation of the stone, the failures of the work and the remedies provided with all the technical knowledge of a professional man. Altogether these two documents are without any exception the most interesting records of the construction and completion of a building by contemporaneous writers that it is possible to examine, and when we reflect that they are the descriptions of one of the most remarkable and original buildings that the world ever produced, our interest in them becomes redoubled.

Romanising Greek Orders.

In adopting the Greek orders the Roman architect—pre-eminently a builder—displays his particular genius. The Greek columns are usually formed of drums of stone or marble, superimposed with extreme care; for the Greek considers, rightly enough, that in its function a column indicates a monolith. If the mechanical means at his disposal did not permit the quarrying, transport and raising of blocks of very great size, he compensated for the deficiency by greater finish in the execution; moreover, when the materials he employed were coarse he coated them with a fine stucco, tinted, giving, when he thought it desirable, an effect of homogeneity to what was really a combination. The Roman architect, on the other hand, works his column in a single block of stone, marble or granite. In adopting the Corinthian order, whose shaft is comparatively slighter than that of the Doric, and considerably increasing the dimensions of his column, he was naturally induced to make the shaft a monolith. The Doric column has no base, whereas the Ionic and Corinthian have one: but these bases have no square plinth; their circular torus rests immediately on the ground. Certainly no Greek would ever have dreamed of placing at the foot of a column a block with sharp corners, obstructing the passage and endangering the feet of persons entering the porticoes. Before long the Roman puts a base to the columns of all the orders adopted by him; this base has a square plinth; he requires a bed under his monolithic column; it is indispensable for the resting of the enormous block. This bed he shows; he gives it a considerable footing. He finds the Doric order too simple, too severe. The sun is less brilliant in Italy than in Attica and Sicily; he adds a moulding to the abacus of his capital; he substitutes for the fine sinkings and the sharp lintels in the neck of the Greek Doric capital a projecting astragal. In place of the Greek profile suggested in its delicate tracing by the artist's feeling—the torus whose curve cannot be geometrically defined—he puts a torus whose curve is a quarter of a circle. His architects have not leisure to study purity of line—his stone-dressers have not time for these refinements; it is less trouble to describe a quarter of a circle with the compass than to find an indescribable curve. When, in the Greek Doric order, the frieze presents a square return, the architect takes care to put a triglyph at the angle and to lessen the two intercolumniations adjacent to this angle. The Roman desires absolute symmetry—for him it is a law; all the intercolumniations are therefore made equal. The triglyphs of the Doric order are placed over the centre of the columns. This arrangement leaves a half metope, with a square return at the angles; in other words, a hollow beneath a corner. This is contrary to reason, but the requirements of symmetry have been satisfied, and the Roman often mistakes the law of symmetry for artistic feeling. The Greek admits no rules other than those of reason, but reason reflects, considers, and cannot be tried; this does not suit the legislative spirit of the Roman. By proclaiming symmetry as one of the first laws of art he saves himself endless trouble and uncertainty, for everyone understands the laws of symmetry and is apt to apply them. But observe this: the Roman who applies these laws to the forms of art, to the apparel of his building, will boldly and rationally emancipate himself from them when it becomes a question of the satisfaction of requirements—e.g. in the several arrangements and minor details of his public buildings. Here we have one of the characteristic features of Roman architecture.

NOTES AND COMMENTS.

THE Liverpool School of Architecture and Applied Arts has been generally deemed to have obtained exceptional success. But there was some demurring at the meeting of the Liverpool education committee when it was proposed to take over the school. According to one member the school had been unsuccessfully and extravagantly managed. At present, he said, there was a debt of about 500*l.* and by the end of the season this would be about 700*l.* The students only numbered 135, and the annual cost was 2,000*l.* The School of Art in Mount Street, with 357 pupils, only cost 200*l.* more. The history of the school did not justify the committee in taking over the liabilities. It was pointed out by another member that if the liability was not assumed by the education committee the responsibility would fall on individual members. It was also stated that the committee had arranged to work the School of Art with the School of Architecture and Applied Art as one institution. The proposal was adopted. Whether the new arrangement will work well remains to be seen, but it appears doubtful whether the general instruction given in an ordinary art school can be combined with the kind of exercises which are the *raison d'être* of an architectural school.

It was decided in the case of *NATHAN v. ROUSE* that where a drain carries the sewage of more than one house, and such drain being found to be defective, the sanitary authority, under Section 120 of the Public Health Act, 1891, requires the lessee of one of the houses to abate the nuisance, and the lessee of the house does upon his premises all the work necessary to abate it, he cannot recover any part of the expenses of so doing from the lessee of the other house. Lord ALVERSTONE, C.J., admitted that it might have been reasonable to impose upon all the persons using the drain an obligation to contribute towards the expense of repairing the drain if it was defective in any part, but he held that the Public Health Act had not imposed this obligation. The obligation to abate the nuisance is placed upon the person upon whose premises the nuisance arises, not upon all persons who use the drain; and the expenses must be apportioned between the owners and occupiers of property upon whose premises the work is done. This case takes us a step further than the cases upon these Acts which we have recently noticed (*The Architect*, March 3, 1905) towards the elucidation of our sanitary code.

It is generally supposed that French artists in general are not models of piety, and are not remarkable for regular attendance at religious services. But they are competent to appreciate the value of the cathedrals and churches of France, which, all things considered, are the most interesting works of their class in Europe. The proposals by which the churches may be secularised, like the Panthéon in Paris, are therefore obnoxious to many artists, and they have signed a protest which, from the names attached to it, must attract attention. Some of the provincial archæological societies have also urged the Government to be cautious in altering the arrangements which have been long accepted. It is believed, however, that the danger to the church fabrics will be far less than was anticipated when the Anti-Ecclesiastical Bill was first drafted. The buildings will not be utilised for purposes which would degrade them. The recent division in the Chamber removes the most serious danger, and it is not impossible that the churches will be still used as formerly. But a pressing question remains, and that is, how the conservation of the buildings will be secured.

THE influence of Geneva may shortly be felt in industrial art in England, as it is already in other important affairs. The Council of the West Riding of

Yorkshire some time ago requested the loan of works by the pupils of its *Ecole des Arts Industriels* in order to convince recalcitrant members about the advisability of reforms which would bring English schools of art nearer to the Geneva school. The Geneva Government graciously granted the demand. M. BICHERAT, the manager of the school, was invited to arrange the exhibits and to lecture on them before Lord LONDONDERRY and representatives of education in different parts of Great Britain. His Lordship expressed satisfaction at what he heard, as well as his desire to impart a more practical character to the classes in the English schools of art. As a first effort M. PLOJOUX, sculptor, has been given leave of absence for two weeks in order that he may start a class for moulding in Leeds. The school examples, which attracted much attention in Yorkshire, have also been exhibited in Dublin with much success. Applications have come from many other places in Great Britain, but it is feared they cannot be granted as some of the works of art might be injured during the journeying.

As was anticipated, there was some difference of opinion among the Archæological Congress at Athens respecting the restoration of the Parthenon. Those who proposed a restoration of the temple in the modern signification of the word appeared to shrink from an explanation of their schemes in open day. M. CAVADIAS, the official archæologist, was able to assure the meeting that restoration of that kind would not be tolerated either at the Parthenon or in any of the other temples. It is likely, however, that his own project, to which we referred some weeks ago, will be attempted. As we explained, M. CAVADIAS regards the debris around the temple as a mine from which much that is valuable could be extracted or extricated. It may be possible to obtain several drums which could be arranged in columns. They would not be perfect, and the gap between them would form a marked contrast to the closely set drums of the more perfect shafts. The effort would only be experimental, but under so scrupulous a director as M. CAVADIAS, something might be achieved which would increase our knowledge of the arrangements of the building.

ILLUSTRATIONS.

THE MARRIAGE AT CANA.

CHURCH OF ST. MARY HIGHWEEK, NEWTON ABBOT.

THIS church has been designed by Mr. E. SEDDING. The plate is a reproduction of a drawing in the Royal Academy.

NEWTOWN LODGE, HUNGERFORD, BERKS.

THE illustrations show the recent remodelling of what was a singularly dilapidated and uninteresting house as seen from the bend on the high road between Hungerford and Great Shefford. The house had, apparently, gradually grown from an eighteenth-century cottage of humble type. Each extension had been very carelessly carried out. Great care was required when remodelling the building to avoid interfering with the existing structure more than was absolutely necessary. The existing walls were therefore retained as far as possible. The only alterations attempted were the replacing of two bay windows by adding a third, the erection of two gables and the widening of window openings. The rough-cast and half-timbered style adopted in the architectural treatment harmonises with the surroundings and suitably maintains the simplicity and character of the house. The builder's work was executed by Mr. H. HOSKINGS, of Hungerford, now of Newbury. The engineering work necessitated by new sanitation and water-supply was carried out by the late Mr. BRIDGEMAN RUSSELL, Berwick Street, Oxford Street, W. The architects were Messrs. HUBBARD & MOORE.

PAUL VERONESE.*

ACCORDING to VOLTAIRE, the Venetian artist PAOLO CALIARI, or IL VERONESE, was a painter whose colours were brilliant, whose treatment was facile, at whose representation of costume was defective. The costume problem is one which puzzles many people when they see a painting by PAUL VERONESE. His greatest work, *The Marriage of Cana*, of which we give this week an illustration—the first, we believe, which was ever attempted in this country—is a remarkable example of his treatment. We cannot determine what VOLTAIRE meant by defects of costume, unless he referred to the congruities which are to be seen in the majority of the paintings by VERONESE. To the painter raiment was more important than the body. It was not an oversight, it was a manner of treatment that was adopted deliberately, and in excuse for which much can be said.

We can see in SHAKESPEARE sundry attempts to combine different ages as if they were not far apart. In painting that was done at an earlier time. Pictures were often votive offerings and donors wished to be represented as paying tribute to some heavenly being. The custom is found in a limited way in our time, for the portraits in stained-glass windows are no more than the survival of a practice which prevailed through the Renaissance period. In Venice it was carried to a further extent than elsewhere. The city was republican and commercial. It believed in co-operation, and a large number of people who were recognisable were boldly introduced into paintings supposed to represent Scriptural scenes. When we see the picture of TINTORET representing Venice as one of the Divinities, with the doge and senators in proud admiration, we should be thankful that the portraiture of contemporaries was not carried to a still greater length. It is always difficult to transport oneself into a past age and to attempt to understand the motives of people who were then living. If a painter were to exhibit a picture like *The Marriage of Cana* with several academicians in the foreground, his work would give rise to much amusement and sensitive people might be horrified, but we must not judge the sixteenth century by our chilling conventionalities. What Mr. RUSKIN says is true and especially applicable to the great Louvre picture, viz.:—"When you see one of TITIAN's splendidly passionate subjects, or find VERONESE making the Marriage in Cana one blaze of worldly pomp, you imagine that TITIAN must have been a sensualist and VERONESE an unbeliever. Put the idea from you at once and be assured of this for ever—it will guide you through many a labyrinth of life as well as of painting—that of an evil tree men never gather good fruit—good of any sort or kind; even good sensualism."

It must always be deplored that VASARI did not include VERONESE among his subjects. He often heard about him, and a man who was so prominent among Venetian artists could not be unknown in Florence or Rome. In one place he refers to the painter PAOLINO, a Veronese who was in good repute in Venice, where, although not more than thirty years old, he executed commendable works. He describes him as the son of a carver in stone and as having been a pupil of GIOVANNI CAROTO. Several of PAOLO's works are mentioned, among others *The Marriage of Cana* at the upper end of a very large room in the monastery of San Giorgio Maggiore, which, according to VASARI, was said to be most wonderful for grandeur, invention, number of figures—more than a hundred and fifty heads, all judiciously varied and executed with the utmost care—and variety of vestments. VASARI also relates how PAOLO was considered to have surpassed the best painters of Venice by his paintings in the library of the Doge's palace, and in testimony of his success a golden chain was placed around his neck. He concludes by saying, "As

this young man has not yet attained his thirty-second year, I will say nothing more at present about him."

A prophet is not always honoured in his own country, especially when it is favourable to the growth of the species, and it is believed that in Verona, where there were many painters, PAUL CALIARI was of little value. This may explain VASARI's indifference. One effect of it has been that the date of the artist's birth is uncertain. The year 1532 used to be given, now 1528 is preferred. He belonged apparently to a family of artists, for his father was a sculptor, his uncle a painter, as well as his brother, and three of his own sons practised the art. In his youth he helped his father, but afterwards he preferred painting, and studied with his uncle, ANTONIO BADILE, from whom he acquired the love of grand architectural backgrounds. A painter in the sixteenth century must have had little skill if he did not obtain employment in the adornment of churches. There are in St. Fermo and St. Bernardino, Verona, paintings which are ascribed to PAUL. He realised, we suppose, that the competition in his native city was excessive, and he tried his fortune in Mantua. There, if he did not gain commissions, he had leisure to study the daring works of MANTEGNA; and, as his works show, resolved to emulate the marvellous foreshortening and perspectives of that great genius. He was enabled as it were to inhale a spirit of colour in Venice which was wanting to MANTEGNA.

When VASARI speaks of PAUL VERONESE as being in his thirty-first year, the painter had then an established position among the grandees of the art which could only be secured by a series of successes. We may suppose he was not more than twenty when he left Verona. He may have had adventures if not disappointments, and it is in the absence of legends about him that we miss the postponement of a biography by the gossiping VASARI. A rambling life is favourable to decoration, for even the sign of an inn would be useless in the sixteenth century if it were not effective. The scenic paintings of VERONESE have elements which were absent from MANTEGNA and which were not likely to be taught by the masters of Verona. They are deficient in the repose which is essential if academical rules are followed, and were likely to owe their characteristics to a course of practice which was independent of the restrictions which are imposed by schools. If we knew how PAUL VERONESE lived for five or six years of his early practice, his paintings in Venice, Paris and London would be more easily understood.

This absence of academicism or indifference to stereotyped rules was probably the cause of the severity of Sir JOSHUA REYNOLDS in his judgments on PAUL VERONESE. As a new fledged academician it was, we suppose, considered necessary to show no mercy towards a painter whose name was not recorded on the roll of any Italian academy and who dared to be independent. The English students were therefore warned against the captivating splendour of the Venetian style, which originated with men who "seem to have painted with no other purpose than to be admired for their skill and expertness in the mechanism of painting." According to REYNOLDS, the only difference between PAUL VERONESE and BASSANO is that one introduced gentlemen into his pictures and the other the boors of his district as patriarchs and prophets. REYNOLDS, who generally employed only a few figures in any of his compositions, could not understand a painter who required at least fifty to express an incident. When he was compelled to praise it was grudgingly he allowed the merits of the painter, as in the following remarks on the lighting of the picture we illustrate:—

In the great composition of Paul Veronese, *The Marriage of Cana*, the figures are for the most part in half shadow; the great light is in the sky, and, indeed, the general effect of this picture, which is so striking, is no more than what we often see in landscapes, in small pictures of fairs and country feasts; but those principles of light and shadow being transferred to a large scale, to a space containing

* See Illustration.

nearly a hundred figures as large as life, and conducted to all appearance with as much facility, and with an attention as steadily fixed upon the whole together as if it were a small picture immediately under the eye, the work justly excites our admiration, the difficulty being increased as the extent is enlarged.

The world has not adopted REYNOLDS'S decisions about the Venetian painters, and especially PAUL VERONESE. As an idolater of MICHEL ANGELO he upheld form rather than colour, but in later days there has been a reduction, and many defects in proportion are tolerated if compensation can be found in attractive colouring.

In the days when PAUL VERONESE was painting, artists were indebted to the Church in more ways than obtaining commissions. When a monk rose to be a sub-prior or prior he was able to do much for one of his nephews who followed any of the arts. If he had no relatives he found substitutes for them in the sons of the companions of his early days. It is believed that it was owing to a man from Verona who had been raised to a priorship that PAUL VERONESE went to Venice. He was acquainted, no doubt, with the works of the artists who were then renowned, and he may have hesitated about entering into rivalry with them until the opportunity was given him. The monastery of St. Sebastian appears to have been a home for him during life, and his remains rest in it. He painted a *Coronation of the Blessed Virgin* which is now in the Academy of Venice, and which must have imposed a sacrifice on him, for there could be no architectural structures introduced. He also painted the history of St. SEBASTIAN, and various other scenes. The *Coronation of Esther*, which is also in the church, might have been painted in competition with MANTegna or from a design by the earlier master, so marked is the treatment of the figures. The painter's name will always be associated with that church, and it alone enables the student to realise the dramatic power of PAUL VERONESE. The pictures are not now to be taken as examples of his manipulation, for they were restored by less skilful hands. Their success when first seen must have been extraordinary. Jealousy was dominant in Venice among artists, but even the patriarch TITIAN had the generosity to acknowledge the genius of the young painter. Some years afterwards when the library was to be painted it was owing to the influence of TITIAN with the competing artists that the supremacy of VERONESE was acknowledged, as we have already mentioned.

It is impossible to tell in what order his works were executed. It is believed, however, that *The Marriage of Cana*, of which we give an illustration, was completed in 1563, when the painter would be in his thirty-fifth year. When the French conquered Italy it was among the spoils of war which were sent to Paris. In 1815 it was arranged that the picture should be returned. The Austrian officials became alarmed at the trouble in which they would be involved with a picture measuring 30 feet by 20 feet, and they accepted instead an example of CHARLES LE BRUN.

The great work excites the admiration of all who visit the Louvre, and every figure in it is as familiar to Parisian amateurs as any of the portraits in the gallery. There is a description of it as it appeared in the Refectory at Venice by the President DE BROSSES, who visited Venice in 1739. He says it not only belongs to the first class of paintings, but it is the first in that class. From the grandeur of the composition, the number of the figures and the beauty of the composition, it can be compared with *The Battle of Constantine* by RAPHAEL and GIULIO ROMANO. There may be more fire, design and science in the battle-piece, but what riches, colours, harmony of colours, varieties of stuff, and what astonishing order in the whole composition of the marriage scene. It is pointed out that the architecture, which has so much to do with the success of

the picture, was the work of BENEDETTO, the brother of PAUL. DE BROSSES refers to the figure of TITIAN in the foreground, who performs on the cello; also PAUL VERONESE, who plays on the viola, and TINTORET on violin, whilst BASSANO plays the flute. He said the painter wished in that way to express the profound science and the slow and wise execution of TITIAN. PAUL'S own satisfaction, the rapidity of TINTORET, the suavity of BASSANO. He draws attention to skill with which the painter appears to endure interruption of a man who is talking to him. The standing figure on the right holding a cup and wearing a richly embroidered robe is BENEDETTO VERONESE, architectural painter. Evidently the majority of heads are also portraits, although they are no longer to be identified. The two principal figures somehow lose their importance amidst such a crowd.

The introducing of supernumeraries became habitual with the painter, he seems at last to have looked on them as of no more importance or relation to the subject than the buildings or accessories of the background. On one occasion the liberty was carried to excess. PAUL VERONESE represented a servant who was with an accident and who was bleeding from the nose as well as mercenaries who were intoxicated. He was summoned before the Inquisition in 1573. As he was a supper scene he said that the only essential figures were those of CHRIST and the Apostles, but the practice was whenever there was any vacant space available to fill it with figures. PAUL VERONESE admitted that he had acted wrongly, but he had for precedence the works of earlier masters. In Venice the powers of the Holy Office were limited, and he escaped with a reprimand and an order to alter his work within three months at his own expense. In Spain his conduct would have met with a different sort of penalty. It will be observed that in the upper part of the illustration several figures are to be seen which we can only consider as tokens of creative power which it was difficult to control.

Venice must have suited the genius of PAUL, for on one or two occasions is there any record of him visiting any other city. He lived until 1588. He is the most scenic of painters, and he preferred to represent men as surrounded with noble architecture rather than with the adjuncts of life in the country. He was essentially a citizen and painted for citizens, and especially for Venetians.

ARCHITECTURAL ACOUSTICS.*

UNDER the general heading of Architectural Acoustics we shall have several related problems to solve, and it may be well at the outset to consider what these are. There will be,

1. The best form to give to an auditorium in order that the audience in all parts of the room may hear easily and without any confusion of sound or discrete echo. Here may be pointed out that sound being reflected and refracted similarly to light, there may be formed regions of interference and foci representing concentration of the sound waves which will materially interfere with good hearing, such points lie within the zone of the audience.

2. The arrangement of the heating, lighting and ventilation in such a way as not to interfere with the hearing in any part of the room.

3. The deadening of walls to prevent sound penetrating beyond the audience chamber. In this connection would also be included the location of pipes, ventilating shafts, &c.

4. The control of the acoustics of any audience-room so that

- (i.) The sound shall be sufficiently loud to be heard easily in any part of the room.

- (ii.) That the components of a complex tone maintain their proper relative intensities.

* A paper read at the annual meeting of the Ontario Association of Architects by Mr. G. R. Anderson, lecturer in physics at the School of Practical Science, Toronto, and published in the *Canadian Architect*.

iii.) That the separate syllables be heard distinct from one another. . . .

iv.) In the case of music, that there may be sufficient enunciation of tone to prevent the music from appearing muffled or oppressed.

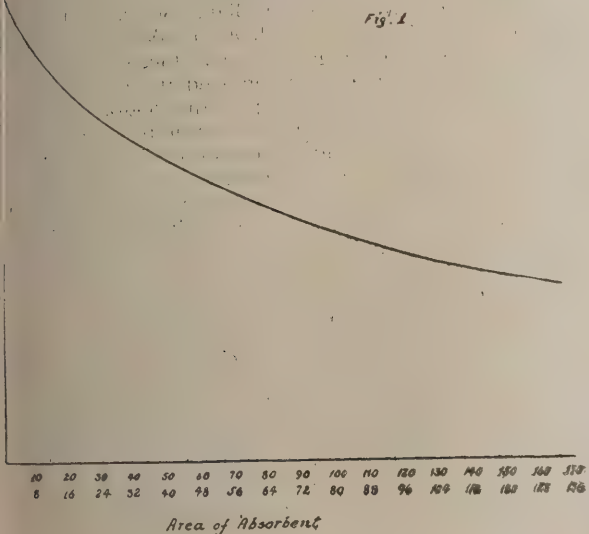
Apropos of this last condition, it may be pointed out that in a hall destined for public speaking the reverberation should be as nearly as possible eliminated, and that the desirable duration may be different for different forms of music, so that a knowledge of the purpose for which the auditorium is mainly intended is necessary.

Sound, being a form of energy, when once started will continue until it is either absorbed or transmitted by the furniture and boundary walls of the room. Scarcely any one can have failed to notice how a sound is prolonged in an empty hall or church, and how much more quickly it dies away in the presence of an audience. This continuance of sound after the source has ceased will be called reverberation, and is a measure of the duration of what may appropriately be called residual sound.

This paper will deal with the question of obtaining such a result as may enable the architect to secure any required reverberation depending on the purpose for which the auditorium is intended. The solution of the problem will then be to determine the absorbing power of the various materials used in construction, and of the audience, and then to so apportion them as to reach the desired result.

Lecture Room, Fogg Museum.

Fig. 1.



To measure the absorbing power of any room it will be sufficient to measure what is inversely proportional to it, the rate of decay of the residual sound. For this purpose we require a sound and constant intensity and a device to measure with accuracy the reverberation after the source has ceased to speak.

The apparatus here exhibited consists, as you see, of an organ-pipe of pitch C-517, mounted on a wind chest and operated electrically. This is in series with a specially designed torsion chronograph, so that the drum on which the records are made is held in its initial position so long as the pipe is sounding, but is released the instant the pipe stops. A second electric key serves to operate a pencil which makes a record on the moving drum at the instant the operator decides the sound has become inaudible. Then, knowing the period of the drum, we can readily determine the exact duration of audibility of the residual sound. The method of solution will be best understood by the study of concrete examples.

We may lay down the following preliminary propositions:—

1. The duration of audibility of residual sound is practically the same in all parts of an audience-room.
 2. The duration of audibility is independent of the position of the source.
 3. The efficiency of an absorbent in reducing the duration of audibility is ordinarily independent of its position.
- These propositions which are readily verified by experiment are *a priori* evident when we consider that in a room of even fairly large dimensions the time taken by the sound to distribute itself is very small, the velocity of transmission being about 1,100 feet per second.

If a room could be constructed whose walls were perfectly reflecting, the sound once started would continue indefinitely, and to measure the absorption of any material we would merely have to introduce a certain quantity of it and measure the duration of the residual sound, and so calculate the absorbing power directly. But such a room is not possible, and therefore we are driven to calculate the absorption of any material by a process of elimination.

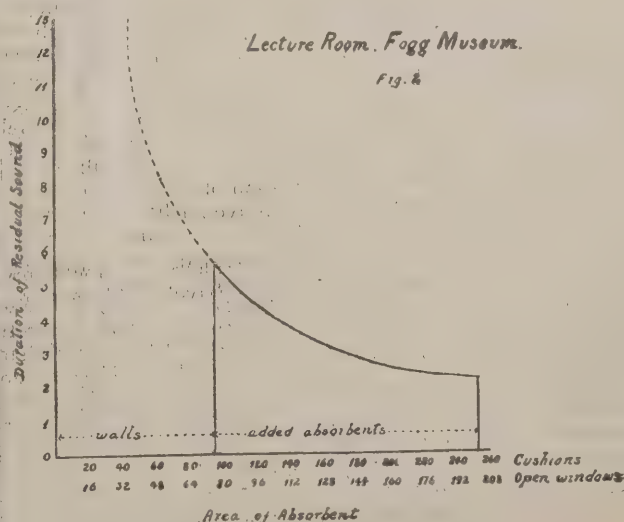
We will consider the lecture-room of the Fogg Museum at Cambridge, having a seating capacity of about 500, the volume being 2,740 cubic metres. In this room there were introduced by degrees a number of elastic felt cushions, the duration of the residual sound being measured from time to time, the results of which are indicated in the annexed table:—

Area of Absorbent.		Duration of Residual Sound.
Cushions.	Open Windows.	
0	0	5.61
5.2	4.2	5.33
11.	8.8	4.94
18.2	14.6	4.94
28.6	22.9	4.21
41.	32.8	3.94
54.	43.2	3.49
67.6	54.1	3.33
83.2	66.6	3.
94.2	75.4	2.85
105.3	84.2	2.64
122.8	98.2	2.36
138.4	110.7	2.33
157.3	125.8	2.22

In order to render these results universally serviceable we must adopt some standard absorbent, and for this purpose an open window is at once the most easily available one and is practically absolute. A comparison of the absorption of the cushions with that of an equal area of open window gave as the coefficient of absorption of the cushions in question 8. If now we plot these results on a system of rectangular co-ordinates, we obtain this curve (fig. 1), which from the fact that it is evidently tangent to the horizontal axis suggests a rectangular hyperbola. To exhibit such a curve in full we shall have to shift the vertical axis to the left, as shown in this second figure (fig. 2), where the curve is symmetrical with regard to the axes. Here the full line represents the absorption due to the cushion or open windows, while the dotted line is evidently that due to the walls of the room. The formula for this curve is $(a-x)t=k$ a const, a representing the fixed absorption of the walls, and x that of the added absorbents, either cushions or open windows.

Solving this equation from the given data we have
 $a=94$ square metres of cushions,
 75 " " " " open window.

That is the total absorbing power of the walls, floor, ceiling and furniture of this room—75 square metres of open windows.



Having thus obtained the total absorbing power of a room, the next thing is to apportion that absorption among the various surfaces. For this purpose we shall require observations on as many rooms as there are different substances in order to secure enough independent equations to

effect a complete solution. The following example of four small rooms will illustrate the method:—

Room.	Area of Absorbents.		Brick and Cement.	Total Absorption.
	Hard Pine.	Glass.		
1	127	7	0	8.37
2	84.8	6	30	5.14
3	12.7	80	85	4.64
4	2.1	0	124	3.08

Coefficients of absorption .058 .024 .023

To find the value of the constant K we may substitute in the equation $(a+x)/t = K$ any of the values already given—e.g. $(75+83.2)/3 = K$, which gives $K=474$ for this particular set of experiments.

In order to get at the physical significance of this constant K we will consider it in connection with a number of different sets of observations.

Room.	Volume=V.	Absorp's=a.	K	K/V
1	99	8.08	15.4	.155
2	1480	34.5	243	.164
3	1960	101	345	.176
4	2740	75	474	.170
mean			.166	

Here K is approximately equal to .166 V. That K should be proportional to the volume of the room may be inferred from the following considerations:—The absorption of the walls, &c. (a) is proportional to their area, that is, to the squares of the linear dimensions, and the duration of the residual sound (t) is inversely proportional to the number of reflections of the sound; that is, it is directly proportional to the linear dimensions, and consequently K, which is proportional to the product of (a) and (t), is obviously proportional to the cubes of the linear dimensions, i.e. to the volume.

It is evident that K will also depend on the initial intensity of the sound, but the consideration of this point may well be omitted from this already long paper; and, furthermore, so long as the intensity is constant, its absolute value is not material to our results. In all these experiments the initial intensity was approximately 1,000,000 times that of minimum audibility.

We will now give some data derived from these experiments:—

Substances.	Co-efficient of Absorption.
Hard pine sheathing	.058
Glass	.024
Brick set in cement	.023
Plaster on wood lath	.034
Plaster on wire lath	.033
Plaster on tile	.025
Ash settees, per seat	.007
Bent wood chairs	.008
Upholstered settees, per seat	.28
Upholstered chairs (hair and leather)	.30
Hair cushions, per seat	.21
Elastic felt cushions	.20
Oil-paintings (including frames)	.28
House plants (per cubic metre)	.11
Carpet rugs	.20
Oriental rugs (heavy)	.29
Cheese cloth	.02
Cretonne	.15
Shelia curtains	.23
Linoleum	.12
Audience, per person	.44
Isolated man	.48
Isolated woman	.54

To illustrate the practical application of the foregoing principles we will consider the result arrived at in the construction of the Boston Symphony Hall:—

Absorbents.	Area in Sq. M.	Coeff'ts. of Ab.	Total Ab.
Plaster on lath	1040	.034	35
Plaster on tile	1830	.025	46
Glass	22	.024	.5
Wood	625	.06	37.5
Audience	2570	.44	1135
Orchestra	80	.48	38
			1292

Volume = 18300 cubic metres

K = 18300 X .164

= 30012

t = $\frac{30012}{1292}$ = 2.32 seconds

The figure arrived at was decided upon from the consideration of two buildings, the old Boston Music Hall and

the Leipzig Gewandhaus, the former having a capacity of 2,391 and a reverberation of 2.44 seconds, the latter a seating capacity of 1,517 and a reverberation of 2.3 seconds.

For the data used throughout this paper I am indebted to Professor Sabine, of Harvard University.

MONUMENTS IN YORK MINSTER

A LECTURE was recently delivered by the Dean of (Dr. Purey-Cust) on "Minster Monuments." He explained, says the *Yorkshire Herald*, that intramural monuments in churches might be comprised under three classes: incised slabs of stone or marble, with or without plate brass, in the flooring; tablets on the walls; and effigies with or without canopies, in the aisles. Of the first there only a scanty remnant is left of those which once covered the floors of the Minster. No doubt as time went on they would become dilapidated by the tread of human feet, it was not a matter of surprise to find that in 1645 an order was issued that all the loose brass in the Minster was to be sold. The only existing survivor to this ruthless decree is one to Master John Moore, barrister-at-law, who was buried in the lady chapel in 1547, which was ignominiously fashioned into a weathercock and affixed to the turret which had lately been built on the lantern tower, and which was demolished in 1803. He gave an instance in which the gravestones in the old churchyard of St. Wilfrid's Church, which, Drake says, stood in Blake Street, were used to pave the oven of the house which Dr. Winteringham built now the judges' lodgings, and that (according to Drake) when well-baked bread was removed from the oven "the jacet" was found impressed upon the bottom of the loaf. Lord Burlington, who built the assembly-rooms and the mansion-house in the eighteenth century, turned his attention to the dilapidated condition of the flooring of the Minster, and replaced it with another on dwarf walls, to the detriment of the bases of the columns, though to the comfort of the congregation. His Lordship employed Mr. Kent as architect, and devised "a great mosaic work, thought properest for a Gothic church in which the effigies of marble gravestones of the church are wrought up," and the names and dates of those who rest beneath them, but for the good offices of Mr. Torre, obliterated for ever. It was most sad to scan the long list of ancient worthies who, church or city, discharged their appointed part, and craved that at last their mortal bodies should rest and their names be remembered within the great Minster which they loved so well, and then to trace in the varied bands of stone and Frosterley marble, often studded with the fragments of the metal pins which had affixed the brazen plates and ornaments to their gravestones, the scanty residue of all that had been devised with so much care to do honour to the last resting-place and to the House of God. All, however, has been ruthlessly swept away, and time and dirt have now effaced the elaborate pattern which we can see in Drake, and which was carefully designed to take the place. The damage done by the great fire of 1829 was dealt with, and the few slabs remaining in the north and south aisles were mentioned, with some interesting details connected with them and the families whose dead they commemorate. Amongst them is one to the memory of Jan Young, her son and daughter-in-law. She was the widow of Archbishop Young, who dismantled and stripped the archiepiscopal palace which stood in the Minster Park, which must have been a very stately building with a long arcade, of which only a fragment remains. In the lady chapel is a stone recording the name of George Aislaby, the Registrar of the Spiritual Court at York, who was killed in a duel on January 10, 1674. The duel was fought in a close of land called Penley Croft, outside Monk-Bar. Amongst many other incised stones mentioned by Torre are three connected with the Great Council of the North, established in 1557 by Henry VIII., which was a sort of protection to the Border and which existed until the time of Charles I., by whom it was suppressed. A résumé of the history of the Council's connection with York was given, and the three members whose names are commemorated on the brass were Randolph Hursthouse, Henry Check and Thomas Eyenes. The latter built the stately house still standing at Heslington, where he lived in great luxury with his wife Elizabeth, whose memorial tablet is now on the south wall of the lady chapel. This is one of the brasses which has escaped the ruthless destruction earlier by the Dean.

The next subjects dealt with by the Dean were the tombs raised above the floor, intended originally, he supposed, to represent the bier on which the mortal body had been laid. Of these there were four. One has never had any inscription, one from which the inscription has been erased, and one on which it remains. The first tomb was that of Richard Scrope, a scion of the branch of the family of Massam; the second that of Thomas Scot, of Rotherham, a scion of the family of Baliol; the third is the tomb of the Countess of Cumberland, daughter of the great Cecil, Earl of Salisbury, of which the top slab only remains. She was the wife of Henry, fifth and last Earl of Clifford, whose ancestor as castellan to the Conqueror built Clifford's Tower. The effigies on the tombs were next dealt with and explained, the oldest of which without canopies still existing is the quaint figure of Thomas Haxey, treasurer of York Minster, 1418, and architect of the recasing of the easternmost face of the north-west pier of the great tower, next to which his effigy lies. Three without canopies were modern and were described as worthy of the building in which they are placed. They are to the memory of Dr. Beckwith, Archbishop Harcourt and Archbishop Musgrave. Of the recumbent figures with canopies the earliest is that of Walter de Gray in the south transept, and is a relic of the twelfth century. The others were named by the Dean with interesting historical facts given relating to each. In the north choir aisle there was, he said, the most elegant and touching of these canopied memories, indeed, he believed that he might say that it was unique, for he knew no other like it. It is the monument of Prince William, second son of Edward III. and Queen Philippa, who were married in the Minster. Two canopied tombs have been added during the last few years, well worthy in design and execution to take their places with the best specimens of Mediæval times. In the north-eastern corner of the south transept there is a really beautiful cenotaph to the memory of the late Dean Duncombe. In general outline it is similar to that of Walter Gray, but the treatment is of a rich character, statuettes of saints being introduced with much effect on the canopy, and three of the choir boys, in whom he had taken such kind interest, represented as kneeling at his feet. The monument itself is by the late Mr. Street, the recumbent effigy by Boehm, and is said to be a marvellous likeness of the good Dean after death. Truly he deserves to be commemorated near Walter Gray, for if he built the transept it was the late Dean who accomplished its restoration at an outlay of 20,000*l*. The other modern canopied monument, though differently treated and of much later date in style, is a very beautiful design by Mr. Bodley. The canopy, which is very rich in detail, is composed of clunch, as it is called, a stone procured from Totternhoe, in Bedfordshire, and beneath it the recumbent figure of the late Archbishop Thomson rests arrayed in episcopal vestments, with a favourite dog at the feet. The likeness and expression of the face are excellent, and expressive at once of his strong intellectual character in life and his peace in death.

The Dean also spoke of a succession of six archbishops whose memorials were remarkable for two new methods of treatment, first of the figure itself, and secondly, of the ornamentation accorded to it, which was in the form of entablature at the back, no longer of a canopy over the effigy itself. The memorials are those of Frewin, Matthew Iulton, Richard Sterne, John Sharpe and John Dolben. The entablature behind them was no longer of the Gothic, but rather of the Renaissance school, the design and details being strictly Classic. Another thing to be noticed was the introduction of exuberant epitaphs in Latin, though, in consequence of the fire, not all of them had survived. Particulars were given of the six archbishops, and many other tombs were described, amongst them being those of William, second Earl Strafford, Rockingham, and Sir George Savile. The two monuments on which are emblematical figures were also described. One on the south side of the lady chapel is a draped female figure in marble by Westmacott, holding a cross of wood, and the other on the north side consisting of a somewhat ungainly female form arrayed in a loose garment with a multiplicity of folds, at the base being two small lions. The effigies of kneeling figures and the monuments of upper portions of figures were dealt with at length, and the many beautiful military tablets were briefly and eloquently alluded to. In conclusion, the Dean said:—"Who can contemplate unmoved the tablet to the truly courageous Frederick Vyner; not, indeed, a soldier of the Crown, but a veritable soldier of the Cross, who, to save another life, freely surrendered himself as a hostage in his place, to the

savage brigands of Greece, and fell a victim to their relentless fury and malice? And, finally, who can without emotion pass by the tablet to the late Duke of Clarence? A simple memorial enough. Merely the coronet which has encircled the helmet of the noble knight, with a small cross as a token of the faith in which he rests, hitched upon the wall of the church where he was wont to worship, together with two sprays of bay leaves significant of our regret that his life, so full of promise for the nation at large and so dear to ourselves, was thus early cut off."

THE CURVE IN STREET ARCHITECTURE.*

A GEOMETRICAL definition says that a straight line is the shortest distance between two points. So that any one who makes a road or other surface for traffic between two points usually lays it out between straight lines, or as near an approximation to them as he can get. Where there are many surfaces for traffic within a limited area, as in a town, the advantages of a straight line are increased; saving of time in travel becomes multiplied by the number of those who travel, whether pedestrians, horses or street cars; the system of interwoven lines becomes simpler and the spaces between them more useful and tractable; dimensions, angles and areas are easier to calculate and record, and drainage, sewage and other practical problems are simpler to solve. As an artistic motive in surfaces for traffic when properly treated the value of the straight line has been understooped since the beginning of architecture, and it is as plainly seen in the Hypostyle Hall at Karnak as in the streets of Paris or the avenues of Schönbrunn.

For all that, as a motive for surfaces of traffic the straight line is very much in the minority; cow tracks, country roads and paths in suburban gardens generally revel in every kind of curvature, and, in the Old World, streets follow their example. In every one of these we can trace to a greater or less degree artistic possibilities of a kind not to be found in the straight line. Lines of beauty do, or ought to, move in every park road or garden path that is not straight. A mere street curb is able to express a sweep of line that is living and dignified and a real pleasure to every one who can see it as it is. The really superb effect that can be produced by the foreshortened lines of common macadam is to be seen in any well-laid-out park in Europe, but particularly in France. The lines on the driveways in the Bois de Boulogne, for instance, have a grace and vigour and motion that will be a novel delight to any one who will go and discover them, and the simple borders of box or ivy along the entrance drive or path of a Parisian suburban lot have a grace that would be striking in itself without the laurels and aucubas they enclose. When a river winding through a town has its reaches fortified and accented by stone embankments, the sweep of line and surface of massive masonry is often a thing no less than magnificent, as most of those will agree who have seen the Arno at Pisa, the Tiber at Rome, or the Thames at London. The gentle reader is advised when next he takes a train to mark the superb sweep of the parallel tracts round a curve, and though they are nothing but segments of circles, he will see them foreshortened into ellipses, and acquire what Nero offered riches for—a new source of pleasure. Unfortunately, he will acquire also a new source of pain, for he will learn to feel discomfort when he sees lines on the ground, that should be curves, wrenched into kinks, or badly drawn, or in anyway spoiled or lost altogether.

So the straight line is not by any means the only source of beauty in country roads or city boulevards. It has its practical disadvantages besides, for it is often not for purposes of actual utility by any means the shortest distance between two points. This has been known from time immemorial by all sorts of practical people; from the cow who prefers a spiral track up a hill to a direct track that is not half the length, to the railroad engineer who builds a horseshoe curve in the hollow of a mountain. In fact, when it comes to laying down lines of traffic the straight line is only the shortest when it does not entail a losing struggle with the laws of gravity. What this means needs but a little figuring to show. If it takes a certain force to overcome a certain grade, it would, if other things were equal, take twice as much to overcome a grade of twice the steepness, because the weight has to be raised

* From an article by Mr. H. A. Caparn in the *New York Architectural Record*.

through twice the height. It is found that if a horse can draw 1,000 lbs. on a level he can only draw 970 lbs. on a grade of 1 per cent., 550 lbs. on a grade of 5 per cent., and only 100 lbs. on a grade of 10 per cent. The resistance to the tractive power of a locomotive due to gravity alone is 2 lbs. for every ton of the train on a grade of 1-10th per cent., and 32 lbs. per ton on a grade of 1.6 per cent. Such figures as these will give an idea of the power expended in every street of the town merely to overcome the unceasing resistance of gravity by pedestrians, horses and street cars, all of which can be expressed in foot-pounds of the strength of men and animals and coal. If the power thus used up on streets like Amsterdam Avenue, New York City, could be saved it would be worth millions of dollars annually, and add so much in wealth and energy and comfort to the community to be expended in profitable directions. Apart from the saving of energy, it will often take actually less time to trot or steam at full speed along a roundabout but easy course than to climb on foot or wheels slowly and laboriously up a short but steep one. Besides, buildings along a steep street are more difficult to plan and expensive to build, and the back yards must either remain sloping and lose part of their usefulness or be raised into levelness and practicability by terrace banks or retaining walls, all which means further expense and loss of space. Thus, for practical purposes, for economy of strength of men and animals or power of machinery, and even of time, for convenience and economy of planning of buildings and utilisation of space, the straight line is often anything but the shortest distance between two points.

Somewhere in the earth, ever since men have made structures to house themselves or their dead, or their ideas of a deity, the curved mass of masonry—usually taking the simplest form of a circle or part of one—has found expression, either growing out of practical needs of material or uses, like the piles of the mound-builders, the Indian totes, the amphitheatres, the Coliseums or the Albert Halls, or the circular meeting-places of radiating streets like those in Washington or the Place de l'Etoile in Paris, or made wholly or in part for their own sake, like the Temple of Vesta, the colonnade of St. Peter's or the apse of a Gothic cathedral. Never a building age but has, in one way or another, felt and submitted to the fascination of the line that always changes, that presents successions of innumerable columns or windows, or even mere unbroken surfaces at different angles, each with its own variety of light and shade, yet all in graded order and gaining from the foreshortening of a number of equal things the variety of a series of unequal ones, changing successively in exact proportion. Every pillar in Bernini's colonnade, and every exterior stone in the Castle of St. Angelo has a presentation, an individuality and a distinction that it could not acquire in a structure of rectilinear plan. Never a Mr. Howson Lott who devises a path of superfluous wriggles up to his front door, and aggravates his indirectness by the latest and rigidest kind of cement pavement, but feels strongly, if illogically, the charm of the foreshortened curve, so pleasing to the eye and so exhilarating to travel along. No one of artistic feeling or performance who does not delight in the eternal and indispensable curve of the sky or the cathedral dome, of household utensils or decorative detail, whether of the surface of a vase or the stupendous ellipse of a planet's course. People go out of their way to make curves in anything, from an argument to a garden walk, from the plan of a church to some new distortion of the feminine form divine. And perhaps all this groping after the curve is less mad than methodical, a yearning for something eternal and essential. Is there such a thing as a straight line, after all? The straightest-looking lines are those which are really curved. A column must have an entasis or it appears concave, and a long wall or step must rise in the middle lest it seem to sag, and the Parthenon, exemplar of severe verticalness and horizontality, had not a straight line in it. The parallel beams of the sun at sunset appear to spread towards the zenith and converge to the opposite horizon; the lines of a street, eaves, windows and curbstones rise and fall to their vanishing points whichever way one turns. The plane-appearing superficies of the sea is round, and so is the right line of the horizon. The fact is there is no such thing as a straight line. They are all merely phenomena, apparitions, not realities, tiny segments of vast circumferences serving for our small and temporary uses. The more sides a regular polygon has the nearer it approaches a circle, and when the number of sides becomes infinitely great and their dimensions infinitely small our polygon

becomes a circle. Thus every straight line on the earth every tangent at the end of one of its radii, is but another contribution to its general roundness, and the gigantic part of the sun's light to one of its planets is but an infinitesimal part of an infinite circle of the universe.

Yet with all this instinctive search for the bending line its use in and out of season, building designers seem often loth to use it, particularly on a large scale; or perhaps does not occur to them. There was, for instance, a nob opportunity for a sweep of columns or arches or other architectural motive lost at St. Louis, where the transverse avenue between the principal groups of buildings would naturally be a circle struck from the centre of the great fountain; but the obvious and opportune curve is broken into six straight lines and four angles, two of them re-entering and all more or less difficult and thankless to treat. The bridges of Paris and Rome rise to an angle in the middle instead of the more graceful and convenient curve of those in London. Compare the splendid sweep of the Arno embankment at Pisa with the ugly angles on Franz Josef's Quai at Vienna. How much more restful and pleasing would have been these lines of buildings, curbs and car-track, had they been reduced to one great segment of a circle. A railroad engineer is compelled to make a curve at every change of direction, as a train will not travel along a kink; but the city engineer, or whoever plans new roads or streets, never uses a curve that can be avoided if it is troublesome to lay out on the ground and record in the office. So our towns are disfigured by endless succession of streets meeting at awkward angles in road surface and building line. If we wish to see a street of graceful line that is not straight we must usually go to the Old World where they have grown up everywhere along ancient farm roads or sheep paths. The character of such a street is entirely different from that of a straight one. The side bend round a corner and disappear from view, provoking the never-fading curiosity to discover what is beyond. The façades of the buildings are presented at different angles and on one side to greater advantage than where they are all in the same plane. How much of its charm does the Grand Canal at Venice owe to its windings and how much would some of the palaces lose were they to be marshalled along their watery highway straightened out, until one could see from the railway station to the ducal palace? How much of the fascination do so many country towns of Italy or England owe to the curvature of their streets? Look, for instance, at the Via Serbelloni at Bellagio, where the houses have obviously strung themselves along the track of farm waggons rotted away, maybe, these thousands of years, by which took the easiest route uphill. What a charm do those long-forgotten feet or wheels lend to the irregular course they unthinkingly marked out. Look at the street seen through the ancient gateway of Bologna. The long buried Strada dell' Abbondanza at Pompeii so nearly approaches the superb in the sweep of its lines and the regularity of its massive piers that it is hard to believe that it was not designed and constructed for the effect; such a highway ought to have. They seem to have understood the value of equal spacing and continuous cornices on a curve in England better than on the Continent; they have found the conditions there, and gladly accepted them for a motive. There is the famous example of Regent Circle in London, or the Crescent at Bath, where the resultant effect is very striking in its logic and order. In the West End of London are many curved streets of houses of similar and commonplace design, yet looking very handsome and dignified with their unbroken horizontal lines and repetition of vertical ones. In the same way, and on a very large and complete scale, the circle is used in the Piazza Castello at Milan. These curved streets separate themselves into two classes: the monumental or conscious and deliberate (which is comparatively uncommon), and the accidental or picturesque which is found in almost every town in Europe and many at home. All travellers see, and most travellers admit, that they are more or less, consciously or unconsciously, for the most part, full of charm and artistic suggestion. Yet, though every traveller with half an eye for the picturesque has felt this fascination, though they have been sketched, and painted, and engraved, and oleographed, though irresponsible Cook tourists have snapped them with portable kodaks and serious professionals have photographed them with clunk-box cameras, it does not seem to have occurred to any one in this country at least, to take them for a motive of design, to deliberately and aforethought make something of the same kind where circumstances permit and encourage

RECENT DISCOVERIES IN EGYPT.

A CORRESPONDENT of the *Manchester Guardian* says:—

Dr. Neville and Mr. H. R. Hall, at Deir-el-Bahari, have unearthed fine statues of Usertsen II., of which two will probably be shown at the Egyptian Exploration Fund's exhibition (University College) of the season's work in July next. All these statues are in more or less perfect condition. They also were fortunate enough to find on the platform of the eleventh dynasty temple a sarcophagus in white marble, made for the use of the Princess Kaa of the same period, which for beauty of workmanship and perfection of condition is said to excel even Belzoni's sarcophagus of Seti in the Soane Museum. This will probably be kept for the Cairo Museum. Another find of theirs shows Neb-kheru-ra's wife to have been an Egyptian.

Great importance is attached to the recent discoveries made in the Biban-el-Molouk at Luxor. Mr. T. M. Davis, a rich American, has been in the habit of wintering in Egypt for many years. At first he came as a tourist, but some thirteen years ago he became an enthusiastic Egyptologist, and subsequently undertook important excavations. His most important discovery occurred a month ago, when, in the Valley of the Tombs of the Kings, he found the tomb of a daughter of Amenhotep III., and of the father and mother—Iuaa and Thuaa—of his famous queen Thi.

For the last nine years the Egyptian service of antiquities has been engaged upon some very important works with a view to the partial restoration of the great Temple of Amen at Karnak. The director of the works, M. Legrain, during the course of his researches came upon a pit which had been filled with statues and monuments of all kinds, mostly belonging to the Ptolemaic epoch; thence he has exhumed, up to the present time, eight thousand statues in gilded bronze and more than five hundred in granite, basalt, beryl, limestone, petrified wood, ivory, &c. No less than six hundred of the statues represent Egyptian kings—commencing with Usertsen III. (about 2400 B.C.)—and it is thought this find will elucidate many obscure points of history. Among other objects discovered, apart from statues, are ten sphinxes of granite, alabaster and limestone, images of sacred animals, steles, vases, altars, obelisks and jewels.

ARCHÆOLOGY IN HAMPSHIRE.

AT the twentieth annual meeting of the Hampshire Field Club and Archæological Society, held at the Castle of Winchester, the following annual report was read:—

The committee have, in the first place, to refer to the serious losses the Hampshire Field Club and Archæological Society have sustained during the past year. The late Earl of Northbrook, Lord Lieutenant of the county, was for many years an honoured member of the club, and continued so until his death. For the accustomed two years he served as President, and while holding office entertained the members at his seat at Stratton. His Lordship took an active interest in everything relating to the county, and the objects of the Club, as well as archæological matters generally, occupied no small share of his attention. Mr. J. Blount Thomas, who filled the office of hon. financial secretary, died on July 11 last. Mr. Thomas was associated with the Club from its foundation, and in its earlier years when more time was at his disposal and his health better, he was more active in the duties of his office, and a frequent attendant at the meetings. To the last he took a warm interest in the Club, and the members have to regret the loss of an old friend and a practical scientist of no mean order. On January 15 of the present year a severe loss, in some respects quite irreparable, was occasioned by the sudden death of Mr. T. W. Shore, F.G.S., virtually the founder of the Club, and from the first its genial and accomplished organising secretary. It would be out of place to do more than briefly allude to the loss the Club has thus experienced. To do justice to the life work of Mr. Shore and all that he has been to the Hampshire Field Club and Archæological Society demands a special notice, and this, it is hoped, will appear in due course from the pen of the Rev. G. W. Minns, F.S.A., to accompany the publication by the Club of a memorial volume of Hampshire collectanea from the writings of Mr. Shore. Meanwhile, the committee have decided to enrol Dr. Lewis Erle Shore, Fellow of St. John's College, Cambridge, as a permanent honorary member of the Club, and this meeting will readily accord an appreciative expression of sympathy with the family of the late much

valued and highly respected hon. organising secretary. In the autumn of last year there also passed away one of the oldest members of the Club, Mr. A. H. Skelton, whose wide and thorough acquaintance with numismatology was of immense service. Up to a within a few years back he regularly attended the meetings, when his health failed. He wished to resign his membership, but this the committee would not allow, and up to within a week of his death he was still at his old task of identifying Roman coins. His loss in this particular branch of study will be greatly felt.

The post of honorary treasurer has been vacated by the resignation of Mr. Morris Miles, one of the earliest members, and who has efficiently discharged the duties of the office since the formation of the Club. Those losses and changes, while greater and more numerous than any yet experienced, are necessarily incidental to the Society, which is entering on the twenty-first year of its existence. The committee have given their best attention to the contingencies which have arisen, and some proposals will be submitted for adoption by the annual meeting with a view to facilitate the official duties in future. With the cordial and active co-operation of the local secretaries and the support of literary contributors, it is hoped that the character of the Club will be maintained and the interest and pleasure of the meetings will be undiminished.

It remains only to add that during 1904 nine meetings were held, all of them successfully carried through and well attended. They were as follow:—In Southampton, on April 19; in the Isle of Wight, on April 27; at Ellingham, Fordingbridge and Breamore, on May 19; at Compton, Otterbourne and Owslebury, on June 7; at Longparish, Harewood Forest and Andover, on June 28; at Ringwood, Sopley and Christchurch, on July 19; at Carisbrooke and Parkhurst Forest, on August 31; at Southampton, on September 13, in connection with the Exhibition of Relics of Old Southampton; and at East Tytherley, Broughton and Kings Somborne, on September 20. At the meeting last named the members were kindly entertained at tea by the vicar of Kings Somborne, the Rev. J. H. D. Creighton.

The balance sheet showed receipts amounting to 240*l.* 1*s.* 7*d.*, of which 153*l.* 12*s.* 5*d.* was balance brought forward and 84*l.* 15*s.* represented subscriptions. The balance at the bank and with the secretary was 144*l.* 9*s.* 4*d.*

GLASGOW INSTITUTE OF ARCHITECTS.

THE annual general meeting of this Institute was held on the 18th inst., Mr. John Keppie, president, in the chair. The Secretary read the thirty-seventh annual report, which stated that the number on the honorary roll of members and the number on the ordinary roll was seventy-one. Appreciation is expressed of the new course of study for students of architecture, to be followed jointly in the School of Art and the Technical College, under the general direction in both institutions of M. Eugène Bourdon, which has been inaugurated during the past year. Much and permanent good, it is believed, will thereby result to the coming generation of architects in the city and neighbourhood, and the Institute feels that its thanks are due especially to those of its members on the governing bodies of both the School of Art and Technical College who have devoted much time and thought to the negotiations required to bring about, with such promising results, the joint course now entered upon. It was resolved to give the Institute prizes in future as follows:—3*l.* 3*s.* for the best general work and attendance; 2*l.* 2*s.* for the best work in measuring class, Technical College; 2*l.* 2*s.* for the best work in drawing class of School of Art. The tenth triennial competition for the Alexander Thomson travelling studentship will be held this year, and drawings are to be lodged with the Secretary by December 28, 1905. The report was adopted and the Council for the ensuing year was elected as follows:—Messrs. A. N. Paterson, John Keppie, Horatio K. Bromhead, James Lindsay, T. L. Watson, James M. Moffat, Alexander M'Gibbon, A. Balfour, Charles Gourlay, Thomas Baird, jun., R. D. Sandilands, James K. Hunter, J. M. Crawford, George Bell, Alexander Skirving and David Barclay. The treasurer's accounts, which were submitted and approved of, showed that the funds were in a satisfactory position. A meeting of the newly elected Council followed, at which office-bearers for the year were appointed, viz.:—President, Mr. John Keppie; vice-president, Mr. James M. Monro; auditor, Mr. David Barclay; secretary and treasurer, Mr. C. J. MacLean. The various committees for the year were also appointed.

THE INSTITUTION OF CIVIL ENGINEERS.

At the annual meeting of the Institution of Civil Engineers, Sir Guilford Molesworth, president, in the chair, the result of the ballot for the election of officers was declared as follows:—President, Sir Alexander Binnie; vice-presidents, Dr. Alexander B. W. Kennedy, Mr. W. R. Galbraith, Mr. William Matthews, C.M.G., and Sir Leader Williams; other members of Council, Colonel W. P. Anderson (Ottawa, Canada), Mr. C. Napier Bell (Wellington, New Zealand), Mr. B. Hall Blyth, Mr. C. A. Brereton, Mr. R. Elliott-Cooper, Colonel R. E. B. Crompton, C.B., Mr. W. J. Cudworth, Dr. G. F. Deacon, Dr. F. Elgar, Mr. Maurice Fitzmaurice, C.M.G., Mr. R. A. Hadfield, Mr. G. H. Hill, Mr. C. W. Hodson, C.S.I., Mr. J. C. Inglis, Mr. G. R. Jebb, Sir William Thomas Lewis (Cape Town), Sir Andrew Noble, the Hon. Charles A. Parsons, C.B., Mr. A. Ross, Mr. A. Siemens, Mr. John Strain, Sir John I. Thornycroft, Professor W. C. Unwin and Mr. A. F. Yarrow.

GENERAL.

Sir E. J. Poynter, R.A., has sent a letter to Lord Provost Walker, Aberdeen, expressing in the name of the Prince of Wales, president of the Royal Commission, as well as his own, their appreciation of his Lordship's courtesy in having allowed the valuable portrait of Sir David Stewart, by W. Q. Orchardson, R.A., H.R.S.A., to be exhibited in the British fine art section of the St. Louis Exhibition. Sir E. J. Poynter adds:—"By general consensus of opinion the British art section occupied, in point of excellence, the most prominent place at this exhibition, and was considered by competent judges to be one of the best and most representative displays that has ever been sent out of this country. By your kind co-operation an important international object, as well as a service to art and to the British school in particular, has been effected."

A Carved Reredos in St. Barnabas Church, York, representing Da Vinci's "Last Supper," has been unveiled. It is the work of Herr Peter Rendl, who took the part of St. John in the Passion play at Ober Ammergau.

Sir Alexander Binnie, president of the Institution of Civil Engineers and late chief engineer to the London County Council, has been appointed by the Irish Government to make further investigation and report on the drainage of Lough Neagh and the river Bann. It is pointed out that the appointment of this eminent engineer at the Government's expense does not necessarily commit the Government to make a grant towards the execution of a drainage scheme.

The Council of the City and Guilds of London Institute have conferred the Fellowship of the Institute on Mr. H. Cecil Booth, in recognition of the original and valuable engineering work which he has done since he gained his diploma of Associate of the Institute in 1892.

The Council of the Institution of Civil Engineers have made the following awards for papers read and discussed before the Institution during the past session:—Telford gold medals to Lord Brassey and Mr. C. S. R. Palmer, a George Stephenson gold medal to Mr. Lionel E. Clark, a Watt gold medal to Mr. J. F. C. Snell, Telford premiums to Mr. L. F. Vernon-Harcourt, Mr. R. W. Allen and Mr. William Marriott, a Crompton prize to Mr. A. Wood-Hill, and the Manby premium to Mr. E. D. Pain. The presentation of these awards, together with those for papers which have not been subject to discussion and will be announced later, will take place at the inaugural meeting of next session.

Mr. F. Whitmore, the Essex county architect, has been appointed architect also of the Essex education committee. For the first office the salary is 500*l.* a year, and for the second 250*l.*

The Royal Sanitary Institute announce that a general discussion will be opened on "Housing in Mansions let as Flats" on May 8 by Dr. Louis C. Parkes, M.D., and Mr. W. Rolfe, architect. The chair will be occupied by Sir William Emerson.

The Council of the International Society of Sculptors, Painters and Gravers has elected Professor Alphonse Legros and Mr. Joseph Israels as honorary members and the following as associates:—Messrs. H. Anglada, E. Bourdelle and J. Desbois, Professor Lanteri, Messrs. William Nicholson, Gaston Schnegg and Lucien Schnegg and Prince Paul Troubetzkoy.

Mr. Cuthbert Brodrick, formerly of Leeds and Hu architect of the Leeds town hall, who died at St. Mart Jersey, left property of the value of 7,490*l.* gross and 7,47 net.

A Limited Competition for a new parish church at Epsom is to take place between the following architects:—Mess Temple Moore, Nicholson & Colette, C. H. M. Mileha W. H. Bidlake, Charles Spooner, J. Bannister and J. Hatcha Smith. Each competitor is to receive 20*l.* Mr. Fellow Prynne is the assessor. The cost of the building is not exceed 14,500*l.*

The Extension of Wakefield Cathedral was consecrated on Tuesday. The new work is a memorial of the Bishop of Wakefield, William Walsham How. The plans were prepared by the late J. L. Pearson, R.A., and were carried out under the direction of Mr. F. L. Pearson.

Mr. Kivas Tully, consulting engineer and architect of the Department of Public Works, Ontario Province, died in Toronto on Monday. Mr. Tully was born in Ireland in 1820, and for over fifty years has held Irish and Canadian governmental positions. He was one of the best known engineers of the dominion, and was honorary president of the Society of Architects.

The Edinburgh Architectural Association on Saturday visited Drum House, Gilmerton, which was erected about 1724, and is believed to have been the work of the elder Adam. Mr. Hamilton More Nisbett acted as cicerone.

About £700 will be required for the repair of St. Peter Hungate, Norfolk, and the Chancellor of the Diocese has granted a six months' respite in order to see if the required amount can be raised. The donations already promised received amount to a little over 170*l.*

A Report on the Wedgwood Institute School of Art states that the premises are inadequate and badly arranged, the defects being mainly as follows:—The sanitary arrangements are unsatisfactory, the ventilation is indifferent, the day lighting is poor and the rooms scattered. There is a suitable conservatory in which plants for analytical study can be kept, and as a result there is not that amount of plant-drawing from nature that may be expected in a school where the study of design is of such importance. The committee appear to be alive to the necessity for the removal of these defects, and the question of providing a new school has already been considered.

The City Assessor of Glasgow is preparing for the plebiscite on the question of the opening of museums and art galleries in Glasgow on Sundays. A staff of fifty temporary clerks has been engaged to address the reply postcards, the number of which will be between 140,000 and 150,000. The card says:—"Please state on the annexed reply postcard (marked 'Voting Paper') whether you are in favour of, or object to, the Art Galleries and Museums being open on Sundays. The reply postcard to be detached and posted not later than May 14."

The Villa Farnesina in Rome has been opened to the public for an exhibition of architectural photographs.

The Carnarvon Town Council, at a special meeting on Friday, resolved to guarantee 5,000*l.* towards the establishment of the Welsh National Museum at Carnarvon. A deputation will approach the finance committee of the County Council with the object of securing the co-operation of that body.

Mr. William H. Hunter, chief engineer of the Manchester Ship Canal, has accepted an invitation of the Panama Canal Commissioners to act as one of the international consulting engineers. Mr. Hunter has been connected with the Manchester Ship Canal from its inception. While the canal was in course of construction he was chief assistant to Sir Leader Williams, and he was appointed chief engineer to the company when the contract was completed.

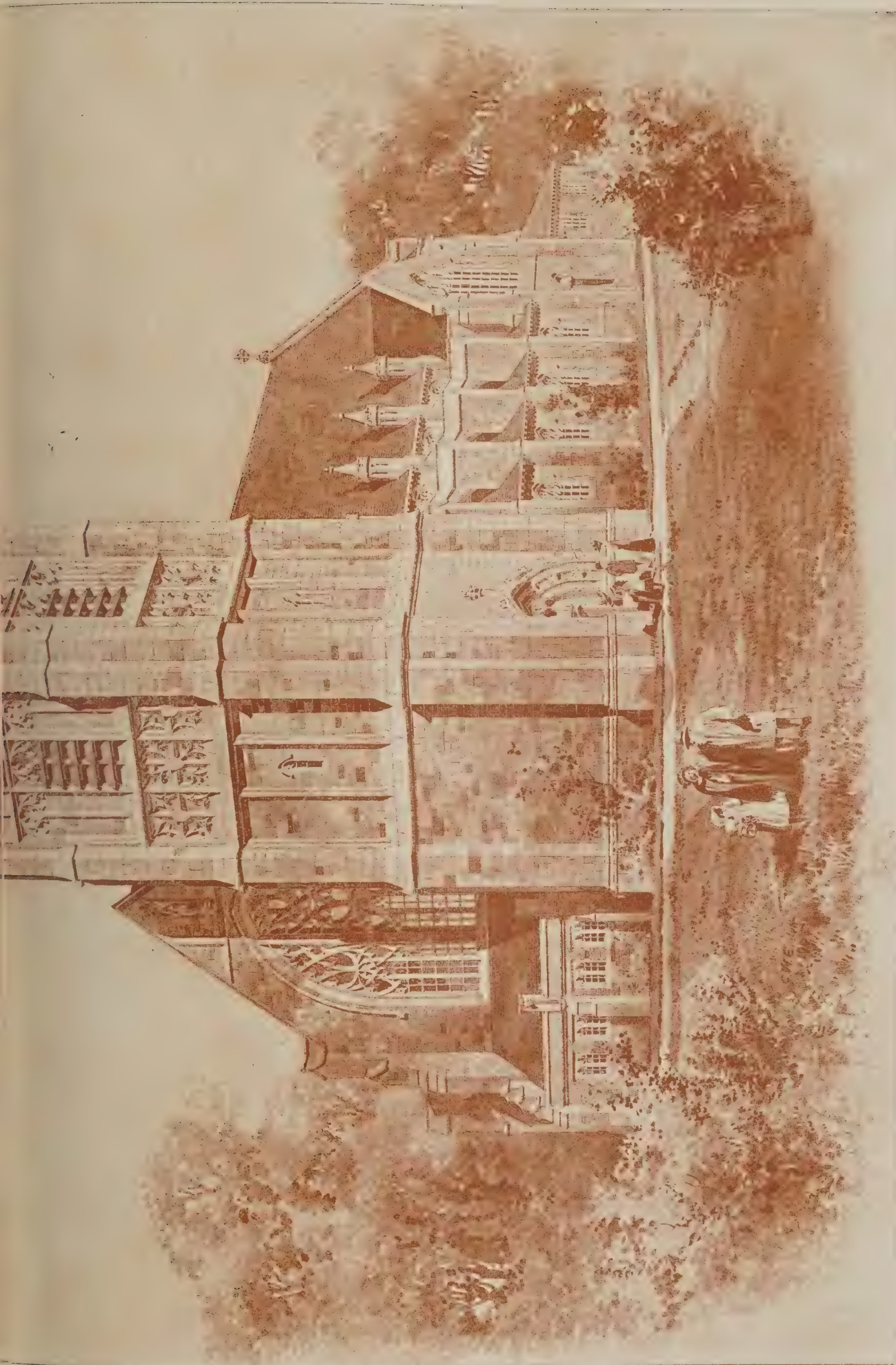
Mr. E. H. Bicknell will attend at the Waterloo town hall on May 3, and on behalf of the Local Government Board hold an inquiry into the proposals of the Waterloo-with-Seaforth Urban District Council to borrow 14,500*l.* for the purpose of improving the sewerage system of the district and 1,546*l.* for works of private street improvement.

A further course of lectures on 'carpentry and joinery' will be commenced at Carpenters' Hall on Thursday, May 11, in connection with the examination to be held at the same place in the second week of July.

The Lancaster Town Council on Wednesday decided to abandon the project for the erection of a market, although the contract was let some time back.

The Architect, April 28th 1905



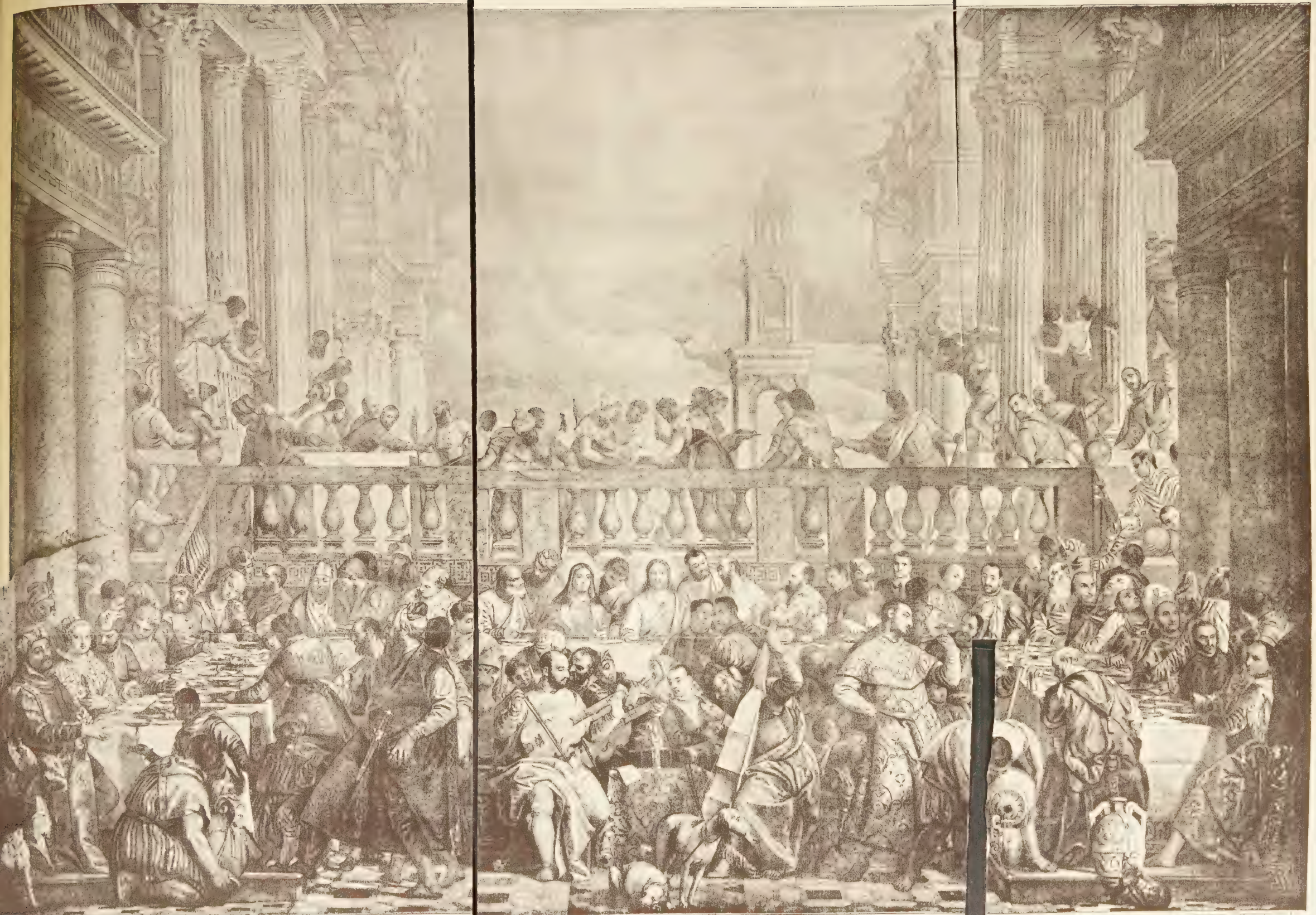


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CHURCH OF S. MARY HIGHWEEK, NEWTON ABBOT.

EDMUND SEDDING, F.R.I.B.A., Architect.





The Marriage at Cana.

FROM THE WALL PAINTING IN THE LOUVRE

BY PAUL VERONESE

The Architect.

THE WEEK.

Council of the Irish County Councils have voted the following resolution:—"That in view of immense importance to the nation of the preservation of all monuments of archæological, historical and architectural interest, we suggest that all persons competent to give information upon the subject, whether members of the Gaelic League or of our various archæological societies, should inform the secretaries of the respective County Councils of the locality of any stones, Druid circles, cromlechs, ogham stones, mounds, forts, menhirs, cranoges, ancient crosses, ruins, churches, castles, or any other structure of antiquarian or historic interest in their respective localities not hitherto scheduled under the Acts for the preservation of ancient monuments, with any information they can supply concerning them, and that the secretaries of the said County Councils be requested to furnish this Council half-yearly with such information. They may obtain on these subjects with a view to its publication, and to the eventual formulation of a national scheme for the preservation, as in foreign countries, of our ancient monuments for the nation." This resolution is likely to have more effect on the preservation of archæological remains than any Government institution. The dislike of the people to official interference is evident when we find they will not surrender antiquities of a small size to the nearest station, although the full value would be paid. A County Council is an institution of a different kind, and we may expect the peasantry will loyally comply with its requests.

In the case of the Kent County Council *v.* Folkestone Corporation decides two points of great importance to contractors and to public authorities, arising upon the construction (1) of the Public Authorities Protection Act, 1893, and (2) of the Locomotives Act, 1898. The facts of the case, and the provisions of the two Acts applicable, are as follows:—The defendants were using one of their roads, and entered into a contract with a contractor for hauling stone. The traction engines used by the contractor damaged roads repaired by the plaintiffs. The contract was for a year from January 1, 1902, to March 31, 1903. The damage was done between January 19 and March 24, 1903, and the widening of the road was complete in the September of that year. The plaintiffs began their action on January 11, 1904. The Public Authorities Protection Act limits the time for bringing an action against a public authority for acts done in pursuance of a public duty to six months. The Locomotives Act of 1898 provides that compensation for damage to a highway shall be begun within six months of the time when the damage has been done, or, when damage is the consequence of a particular contract or work extending over a long period, within six months after the completion of the contract or work. The Court of Appeal held (1) that the Public Authorities Protection Act did not apply. "The damage done to the road," said ROMER, L.J., "was done by certain contractors, and those contractors were not servants or agents of the defendants in doing that damage." It is clear that this is an important limitation of the scope of this Act. The principle would seem to apply to all wrongful acts of contractors employed by public authorities. It is clear from this and other cases that the Courts are not, as we have already pointed out, minded to give an extensive construction to the Locomotives Act, 1898, applied, and that the plaintiffs could recover the damage done during the preceding six months from the beginning of the action. It was

contended that there being a period of less than six months from the conclusion of the work of widening the road to the beginning of the action, the whole damage could be recovered under the alternative period provided by the Act. It was, however, held that the words of the Act, "work extending over a long period," applied only if there was one work, and that in this case the date of the contract for hauling the stone, compared with the date at which the road-widening scheme was complete, showed that the contract for haulage and the widening of the road were separate undertakings.

It is well known that the cities of the United States are advantageous markets for works of art by French artists. During the year the value of such works imported into New York alone was 447,000*l.*, an increase of 13,000*l.* over the year preceding. It has been calculated that France supplied 43 per cent. England, however, comes second with 23 per cent. of the imports. That may appear incredible, but statistics often reveal facts which are unexpected. There might be a larger percentage from this country if some of our sublime officials would condescend to suppose that artists have commercial interests like the leather dressers and tin merchants. In virtue of reciprocity agreements concluded with France, Germany, Italy and Portugal, paintings in oil and water-colours, pastels, pen and ink drawings and statuary can be imported at a lower rate of duty from those countries than from the United Kingdom. Is it not time that Great Britain should be placed on equality with Portugal, although a little trouble might be imposed on our official world or some section of it?

A LANDLORD who lets out rooms in his house is liable for any damage caused to his tenant by the defective state of the roof if he has not taken reasonable care to remedy the defects, and, *a fortiori*, if, after he has had notice that the roof is in a defective state, he has neglected to repair it. This principle was laid down in the case of HARGROVES, ARONSON & Co. *v.* HARTOPP. It was unsuccessfully argued in that case that there was no duty to repair in the absence of a covenant to repair. Lord ALVERSTONE, C.J., held that, though the landlord might not be liable if damage were caused by an accident against which reasonable care could not have provided, he was liable if, owing to his negligence, a part of the premises not demised fell into such disrepair that it damaged the tenants of the part of the premises which was demised. Having regard to the increasing number of premises let as flats at the present day, it is clear that this case lays down a principle of far-reaching importance both to landlords and tenants. It is evident that it applies not only to the roof, but also to staircases and to such other parts of a building as are used in common by various tenants of parts of the building.

Knossos is not exhausted, for apparently if funds were available it would be possible to reveal other surprises besides the Palace of MINOS. According to a telegram from Mr. ARTHUR EVANS, he has met with another ancient building on a hill west of the palace which is also remarkable. He says that "A paved columnar court has appeared leading to spacious pillar hall with six wide doorways. Building extends in every direction, with stone staircase and upper storeys much larger than Royal villa. Interesting finds of seal impressions and inscribed tablets. In one chamber extraordinary natural stone resembling human figure, apparently fetish cult-image. Architecture of great Palace period with signs of partial reoccupation in latest Minoan age." The financial condition of the Cretan Exploration Fund is unfortunately not adapted to meet the expense of exploration on a satisfactory scale. In reply to the treasurer's appeal only 50*l.* has been received, and at least 2,000*l.* will be required.

PAINTING IN THE ROYAL ACADEMY.

WE have heard of late of the manifestation of mysterious spiritual phenomena in this country. The observers might cite the present exhibition as an example. Never before have so many scriptural and allied subjects met the eyes of visitors. Mr. S. GOETZE has attempted the Crucifixion under the title of *He Emptied Himself of His Glory*. He has adopted a cross which differs from that employed for centuries by painters, the weight of the body not being entirely supported by the nails in the hands and feet. That recognition of realism, although not supported by tradition, might be excused. But the awfulness of the sacrifice is diminished when we see some of the Roman guards laughing at one of the MARIES, who appears to be scared. It is to be regretted that the artist has sacrificed unity by combining farce with tragedy, for otherwise both composition and execution are admirable, and the painting would have served for a church. Mr. BYAM SHAW represents CHRIST as standing in front of an Ionic colonnade, which is reached by steps with more rise than those of the Parthenon. The painting is to illustrate CARLYLE'S words, *The Greatest of all Heroes is One*, and standing or kneeling below are figures of CHARLEMAGNE, ST. LOUIS, ST. MARTIN and other warriors, while at both sides are kneeling knights in armour. It is a true decorative work, and ought to be a mural painting. By a coincidence which is probably only accidental, two large pictures in Gallery XI., which are on opposite walls, suggest the difference between the Semitic and the Greek spirit. Mr. HERBERT SCHMALZ represents the *Mount of Temptation* in the wilderness into which CHRIST was led by the Spirit to be tempted. We see "the bordering desert wild" and the "dark shades and rocks environ'd round" which MILTON imagined. The solitary figure seen amidst such surroundings commands sympathy, for He is communing with the Unknown. Mr. FRANK CALDERON'S Greek horsemen do not trouble themselves about mysterious problems. Life is for them a delight while they urge their steeds through the waves on a bright summer morning under the eyes of the chief. The painter has been inspired no doubt by the Panathenaic Procession, but his horses are more than ponies. The connection between suffering and Christianity is displayed with surprising detail in the immense water-colour, *A Dream of the Sorrowful Way*, by Mr. WILMER. Once more the Good Samaritan appears, and the scene is represented by Mr. DOYLE PENROSE with Biblical simplicity. Mr. BERNARD PARTRIDGE'S *Gabriel the Archangel* is well adapted for a church wall, and is curiously symmetrical. The *Finding of Moses*, by Sir L. ALMA-TADEMA, which is, we suppose, the costliest picture in the exhibition, although not of the sermonising class, is nevertheless scriptural. If the artist sought only to express the sense of the words, "She saw the child. . . . And she had compassion on him," he could hardly be more successful. The delight on the face of the princess is almost vivid, and the child conducts himself with the dignity and gravity of a born legislator. Everything else in the picture is of minor importance, but they are shown in a way which, if marvellous in execution, is distracting. The long line of blue flowers in the front demands attention; the grave palanquin-bearers and the maids of honour also assert themselves as if they formed the important parts of the painting. On one side of the Nile we have detail, and the crowds on the opposite bank by contrast appear as indistinguishable as a cloud of dust. The general effect when seen at a distance is that of strata of colour which are not in concord. It is, however, a great work, and for once marble is not prominent. With the exception of the *Moses*, we suppose the majority of visitors will barely glance at the paintings we have mentioned, but they testify that if a demand arose for "High Art," or for wall-decoration of a serious kind, there would be no difficulty in meeting it.

We suppose there is no market for historical pictures, and figure-painters are therefore chary about

attempting them. Mr. EDGAR BUNDY, in *Morning Sedgemoor*, has a picture which illustrates and adds force to MACAULAY'S description. There is no need to suggest that the brave peasants and miners who followed MONMOUTH were asleep at that time, for at dawn in the morning they began their dreary march, but may imagine there was a brief interval of repose. The scene is the prologue of one of the greatest of English tragedies. Mr. JOHN CHARLTON'S *Balaclava Charge of the Light Brigade*, depicts the 17th Lancers' work, and justice is done to the coolness and bravery of the Russian gunners. But is it not time that the CARDIGAN myth should be exploded, for painters appear to think he was all over the field? We hope HENRY is not anticipating history by his two pictures of a contest between a great foreign warship and an English destroyer. In *Betrayed*, the *Moon* we see the vessel, which is strongly lighted, about to receive a torpedo from the destroyer, which is in comparative darkness, while in the *Escape of the Destroyer* the work has been accomplished and the smaller vessel has no longer an enemy. There are some paintings which were inspired by Trafalgar, and there is a scene from the Afghan war. Mr. INNES FRANKLIN'S *The Waning of His Greatness* adds one more to the representations of the interview between WOLSELEY and the nobles. In Mr. GOW'S *Roman Triumph* everything is spick and span—the whitest of horses, the brightest of costumes, the most correct architecture, but it wants the stamp of reality. SWIFT'S estimate of the cost of a triumph suggests that the new dresses and appointments of the circus manager were always obtained. Mr. J. C. DOLLMAN'S *Harvest* may be regarded as historical, for it reveals an everyday scene in our latest war in South Africa. It depicts a farmer's cart filled with wounded soldiers and accompanied by others who insist on limping along the rugged road. The picture is a composition in drab grey, and the artist keeps strictly to truth; but the pathos of the scene strikes the observer at the first glance.

The paintings which seem most in favour are representations of ordinary life, or of the occasional scenes which it is elevated. As the most pleasing of the class, Mr. BRAMLEY'S *Grasmere Rushbearing* should have been hung in a more important room. It is a record of that nature worship which still survives. There is idealising of the children, and they are not pretence to be demure. Although they are singing, the features are not distorted. The old church tower in the background indicates that ecclesiastics may have modified the pagan ceremony. Mr. LORIMER'S *Midsummer Eve Reverence to Roses*, is another picture of the same class, but more difficult to carry out. Whether it is a failure of the artist or one of the May scenes for teaching due to RUSKIN'S influence, we cannot say. A statue of CUPID is in the centre of the circle of roses, and may be the object worshipped. The young women who wear white gowns have joined hands and form a circle about the buds, and bend or kneel in homage. The action is not easy to express, and some of the figures recall the swimming, sprawling and languishing of the fine ladies in the "Vicar of Wakefield." There are also figure women who seem to have gone through the rites.

Fisherfolks are of late recognised as natural picturesque, and year after year they appear before us as if their manners and customs were inexhaustible. Mr. STANHOPE FORBES makes discoveries in one direction, Mr. LANGLEY in another. Mr. J. R. REID appears to imitate Mr. HOOK. Mr. TITCOMB shows a girl listening to the address of *The Pilot*, who is accompanied by an altar-boy who carries a processional cross. A forest of masts adds to the effect. This subject worth painting, while many others on the walls are too commonplace for appearance in cheap publications. As there is shade as well as light we suppose there must be sin, however the pilots may labour. Hon. JOHN COLLIER will no doubt in time have found

gallery of crime. *The Cheat* is a bridge party of four. One of the two ladies has sacrificed honour for victory, but as both seem to be capable of wrong, it is impossible to say who is the culprit. If there are problem plays, problem pictures may be necessary, and Mr. COLLIER is an adept in their preparation. What a contrast offered between such scenes as Mr. COLLIER paints, and which hereafter may serve as evidence of the decadence of a class in our time, and the rustic scenes of LA THANGUE observes, and which the sun seems to illuminate with unusual brilliancy. This year has brought subjects from Italy, a land that is well adapted for his pencil, but there is nothing to surpass *Sussex Orchard*, two figures filling a cart, although apples from their greenness would scare a school-boy. Why does not Mr. MACBETH turn his attention to English subjects? *The Flowers in Alsace*, a stall in an old building attended by two girls, is the most charming of the smaller pictures. There is beauty in every line, and the colours are varied and brilliant. His *Nightingale's Song*—a girl listening to the bird at a window—is a masterpiece of light and shade, which asserts itself among some of the principal pictures in Gallery III. Mr. BARTLETT is again successful in representing Irish peasants in his *Waiting for the Island Boat*, co. Donegal. Since BURTON abandoned Ireland after the collapse of young Ireland no artist has been so careful as Mr. BARTLETT in recognition of racial types. His northern men and women differ from those in his western scenes. It is the reverse of the late Mr. NICOL, who, as a caricaturist, created a conventional type to which he was faithful.

Portraits this year are abundant. The foremost for subject and treatment must be awarded to the *Portrait of Her Majesty*, by Mr. LUKE FILDES. It suggests a wealthy nation. The dress appears to be entirely of cloth of gold. A similar material appears as a background by accident on the table on which the QUEEN's hand rests, and is again suggested by the drapery of the room. The jewels are countless. But all these are only subordinate accessories, which do not detract from the interest which belongs to the royal lady. The artist has triumphed by compelling the richest robes to yield to dignity, grace and beauty. *His Majesty the King*, by Mr. HAROLD SPEED, is a commission of the War Office. His MAJESTY is in field marshal's uniform, with the cloak of the Order of the Garter, which falls at some length on the floor. The right hand holds an ormolu while the left holds the cloak. The artist's capital should be proud of the work. Our KING does not pose, and in this case we see an unaffected, serious English gentleman gorgeously robed. Another field marshal is introduced in the portrait of the *German Emperor*, who holds his bâton of command, as if it were a symbol of authority which he had resolved to exercise. Is it Englishmen or Germans who have caused the countenance to assume a grim look? In these days it is dangerous to name an interpreter of a monarch, and Mr. A. S. may have felt it his duty to give a warning to all who gaze on his portrait.

We hope Mr. HERKOMER's *Communal Sitting of the Members of Landsberg, Bavaria*, will not excite a mania among our local boards to have their full-length figures situated in life-size proportions. If so the auditors would see the cost is not payable out of the rates. An artist some years ago presented a similar panoramic view of Bavarian "public men." The picture may be an ordinary portraiture what stage landscapes are to be seen in the gallery, but there can be no question of the vigour shown by every figure. The principal figures at which the members are seated is placed in front of the windows, two of which are open, and the opposite houses are visible. The mayor alone is standing, all the others are seated, but there is a "free and easy" air about the group as well as the individuals, which is suggestive of a liberty than is usually accredited to German councils. Another large portrait is *The Marlborough*

Family, by Mr. SARGENT. It may be a symbol, for the American lady and her eldest son are the principal figures, while the duke and the younger son are subservient to them. In other words, English family pride has to succumb to American dollars. The painter might be trusted to express the supremacy of his own country. But American artists, if any of them visit the exhibition are likely to prefer Mr. SARGENT's *The Lady Helen Vincent*, which is comparable with GAINSBOROUGH's *Mrs. Graham* in the Edinburgh gallery, and more especially the *M. Léon Delafosse*, which is the most interesting of the artist's works. The portrait of *Howard Colls, Esq.*, proves that neither Mr. ORCHARDSON's eye nor hand has suffered by his late illness. Mr. COPE's portrait of *The Late Sir William Vernon Harcourt* presents the statesman in his robes of Chancellor of the Exchequer. But in those days he had gained his highest success, he was vigorous, and his expression was more buoyant than is shown. Mr. W. ONSLOW FORD does justice to the benevolent, intellectual and self-sacrificing *Rev. Stopford A. Brooke*. Another excellent portrait is *Sir John French*, by Mr. EDMUND BROCK. A remarkable group is *Cubbing with the York and Ainsty: Children of the Master, Lycett Green, Esq.*, the only work in the exhibition by the late C. W. FURSE. Although it is hung on the second line it becomes the most effective picture on the wall. This may be partly owing to the crowding of the figures, for they are closer than is safe with ponies. But, as a mass, they become more impressive to a spectator than if they were kept a little apart. The adoption of so curious a model as we see in the *Blue-bow* of Mr. SHANNON is inexplicable. From every point of view the face appears blackened. He is far more successful with the faces of *Lady Dickson Poynder and her Daughter*, but the hands are characterless.

There are several attractive landscapes. *Moonrise on the Ouse*, by Sir E. WATERLOW, is one of his most successful paintings. It may be compared with Mr. EAST's *Autumn in the Valley of the Ouse*, for the two give us the beauty of the district at different periods. Mr. DAVID MURRAY is varied this year, and he even attempts a Scottish water mill-race outside a town; but the selection of *Swedes* for his diploma work suggests that he believes his power is strongest when it keeps close to the ground. Mr. LEADER, besides one of his familiar South coast scenes of silver sand and blue flowers, has given a view of the Thames and a Cornish cliff scene, *The Incoming Tide*, which, from the care taken with the rocks, recalls the manner of the late Mr. BRETT. The President, in his *Surrey Chalk Pit*, has a characteristic figure-painter's landscape. The elements have all to be definite, but there must be no distance or need for aerial perspective. His ability in landscape has served him in the *Cup of Tantalus*, a pleasing group at an antique fountain, for the trees and the light passing through them on the steps are well rendered. Mr. LESLIE this year has a view of *Bushey Park*, without a single figure. It is needless to remark that the trees all appear in the green he invented, and which is his peculiar property.

The Water-Colour Room contains drawings which are superior to those to be seen in the special exhibitions. Several members of both societies will be found among the contributors. It would appear as if the Royal Academy could become the representative of the most national form of art by the adoption of a less exclusive system of tactics.

LORD GRIMTHORPE.

THERE was a time when Lord GRIMTHORPE was regarded as the most bitter enemy of English architects, but of late years he could read their journals without finding in them a word from an architect against himself. He was the type of a pugnacious JOHN BULL, and circumstances increased his natural tendency to take a part in rows. There could be no doubt of his hard hitting, and when in a fighting humour he cared little whether those he attacked were

strong or weak, and he was as pitiless with men who were supposed to be his friends as with his enemies. Those who met him at the opening of the WHISTLER Exhibition probably imagined he was there with the intention to give the final blow to the artist's reputation, but the old contentiousness had at length subsided.

He was born in 1816, and was the eldest son of EDMUND BECKETT, who in that year assumed the name of DENISON. Having been called to the Bar in 1841, after a time he selected Parliamentary committee-rooms as the scene of his labours. He could not have had much practice in ordinary Courts during the four years which elapsed after his call, and when questions arose over the effect of a new clause in a private Bill he usually declined to give an opinion, and suggested that the difficulty should be submitted to a specialist. His Cambridge training in mathematics and his aptitude for mechanics enabled him to take more interest in engineering subjects than the ordinary junior counsel. But the leaders in Parliamentary committee-rooms were powerful and opposed to additions to their ranks. Not until 1854 was Mr. DENISON appointed Queen's Counsel. Then his energy was able to display itself. It was easy for a stranger to see from his manner whether he was on the same side as the witness or on the opposite side. He kept his point rigidly before him, and no matter what a witness might urge by detailing a theory, he appeared to slight it and treated it as an evasion. One of the principal engineers for gas-works while under cross-examination appealed to the crowd of experts in the room, and piteously asked whether they did not understand what he was explaining. Mr. DENISON remarked, "I have to understand you, not those gentlemen, so let us go back to the question I put to you an hour and a half ago. I then asked, &c.," and the torture was renewed. He was as ready to show his sternness to the committee as to a clerk of a Parliamentary agent. Only with HORE SCOTT did he appear to be reverential. A man with such qualifications was invaluable, and he could command any price he pleased for his advocacy. His services were secured in advance in order to deprive the opposite parties of his skill. We suppose he considered it was monotonous to be always conquering civil engineers and surveyors. It would be a change to have an occasional tussle with architects. They were not, however, often seen in committee-rooms, and had to be reached in another way. Unless we are mistaken, he began to challenge them in the lectures on Church Building which were delivered for the benefit of the fund for rebuilding St. George's, Doncaster. At the desire of the committee they were printed, and they were so outspoken a second edition was quickly demanded. Besides the architects, he invented another opponent in Mr. RUSKIN, and some of Mr. DENISON's friends complained about what he said concerning upholstery, flower-pots, daylight candles, crosses, lock-up chancels of the "posture and imposture churches." It was characteristic of the author that he could see no reason why they should complain. The volume of "Lectures on Church Building," now that the squabbles it inspired are ended, is of interest as an example of how a strong man without feelings endeavoured to arrive at conclusions by his logic alone, or in other words, to prove his case. He goes through antiquity in order to discover that the geometrical style is the most eligible for Doncaster Church, but as transmuted by the lecturer's advice. There were incurable mistakes in spite of his co-operation, "because the architect takes for granted that he can divine the effect of construction which he has never seen before in stone, or even on paper, drawn as they will really look." Mr. DENISON drew one conclusion from his experience at St. George's which he thus expressed:—"I advise everybody further to stipulate that he shall be well and truly furnished with a copy not only of all the drawings and specifications, but of every bill of quantities, or other paper

which is supplied to or laid before the builders to them in preparing their tenders."

In the "Book on Building" the same design to amend the ways of architects is revealed. It cannot be said they have suffered by his efforts. A writer like Mr. DENISON was treated as a performer. His hitting amused the public, and the more exact he became the more his performance was enjoyed. But he was not satisfied with being a censor, resolved to demonstrate what he could do as an architect and builder, and the cathedral at St. Albans will be enduring evidence of his presumption and expenditure.

He was more successful with bells, clocks and "Big Ben" is his second attempt, but whether he is responsible for the failure of the first bell cannot be determined. He loved bell-ringing, and his musicality may be attributed to the practice. Some clockmakers still accept his formulæ, although he once said his great escapement was denounced as an imposture, and at least nineteen out of twenty clockmakers would condemn in five minutes every one of the best made on his plan. As for locks they afforded an argument to his Lordship even in later years.

All the subjects we have mentioned were insufficient to monopolise his restless activity. Acting as a legislator for church building, it was only a step for him to become the overseer of the practices in the Church. He therefore resolved to become Chancellor of York as well as Vicar-General. Few would have dared to compete with him for the office, and even the Archbishop ventured to interfere with his procedure. His endeavour was to keep the Church within a groove which he defined and, whatever inconvenience, he succeeded. He was always ready to demonstrate that he was a militant official.

For nearly fifty years he was a constant visitor. There was no need for him to sign a letter in a paper or to put his name on the title-page of a book. His style was too personal not to be recognised. He made no pretence to be rhetorical or formal. He expressed admiration for FERGUSSON'S "Handbook" because of its distinctness, precision, economy of words and absence of sentence-making. In a measure he described the characteristics of his own writings in his speeches. When addressing a committee there was exordium in his speech; he put the subject before the members with deliberation and apparent conviction. He seemed to be full of information, but was obliged to restrict himself out of consideration for the committee. His books and letters correspond with his speech. He sought after plainness and never sacrificed fact for phrase-making. The result was that when he attacked anyone his blows wounded like a bludgeon. From his character we may suppose his bitterness and intolerance gave him pleasure in exercising it. Whether the world is any better by his long and successful career, or, in other words, whether he deserves to be numbered among English worthies for his services is a question difficult to answer. All the Bishop of ALBANS could say of him was that he restored the cathedral (we all know how) and wrote a tract.

MARTIN MACDERMOTT.

WHEN this Journal was started one of the contributors from whom much was anticipated was MARTIN MACDERMOTT, an Irish architect. He possessed not only of varied professional experience but he could also claim to be a practised journalist. Mr. MACDERMOTT was, however, unable to enrich the *Architect* with many articles. Those who knew his ability often expressed surprise that so able a writer of poetry as well as prose seemed to be indifferent to literary fame. His most important work was a translation of VIOLET-LE-DUC'S "History of Military Architecture." The true explanation was perhaps that he was without the influences which were best adapted

inspire him. MARTIN MACDERMOTT to all appearances was an English citizen, but in his heart he felt the pangs of exile. He had staked his life for the independence of Ireland, for when he died at Cotham, Bristol, on April 26, he was almost the last survivor of the great movement in Ireland which was brought prematurely to a close by a fiasco in 1848.

The Young Ireland Party are now associated with the affair in the cabbage garden at Ballingarry as if it were their crowning exploit. But the aims of the enthusiasts who were the founders of the party were directed towards the victories of peace as well as of war. They sought for the emancipation of the Irish intellect, and men who cared little for politics became Young Irelanders in the hope that archæology, literature, art and science might be advanced. MARTIN MACDERMOTT was one of the earliest to take part in the new movement. He became a contributor to the *Nation*, which was the organ of the party, and was one of that inner council which embraced many of the ablest men in Ireland.

Unfortunately, the time was not favourable to the constitution of an "Academe still and contemplative in living art." The terrible famine of 1847 was enough to return the reason of sensitive men. Then came the continental revolutions. France was supposed to have opened a new era, and posed for a brief time as the protector of oppressed nationalities. Ireland was believed to have the first claim on French aid. Many men were overcome by their emotions. MARTIN MACDERMOTT was not backward when the crisis appeared to be imminent. But something else was needed besides warlike articles and poems. If there was to be a revolution in Ireland it was necessary to obtain money, arms and officers from abroad. MARTIN MACDERMOTT was selected as one of the three confidential agents who were to undertake the treasonable mission. He went to Paris, with what success was never publicly revealed to him. The Government were not ignorant of what was being done abroad, and the few scenes remaining to be acted before the curtain fell on the drama of independence were hurried. When, after the fiasco, there were trials for high treason, and it was proposed to obtain on behalf of the prisoners the testimony of LAMARTINE, the ex-President wrote to say he was prepared to attend and swear that neither directly or indirectly did the Irish agents demand aid for an insurrection. But in his "History of the Revolution of 1848" he asserted that he had refused to attend to their claim to raise a civil war in England, for he did not consider all weapons were fair to fight with against a rival but friendly power. There could be no question of the interview, and it was supposed by the representatives that, although LAMARTINE said his lips were sealed, his silence conveyed hope, and it was taken for granted that France would not only speak out, but was to defend the flag of freedom against swords and bayonettes. It was not the first time Irish revolutionaries were deceived.

The efforts of the Young Irelanders were made to end in ridicule. MARTIN MACDERMOTT for a time remained in Paris, and acted as correspondent of the *Nation* when it was revived. But his political aspirations were at an end. He resumed the practice of his art. He obtained the appointment of chief architect to the Office of Works of the Khedive, and remained in Egypt for some years. When he came to England he appeared as if he did not care much about commissions. They came to him, but he was not satisfied whenever he found that his designs had to be altered for the sake of economy. Among his works were some of the stations of the Metropolitan Extension lines. He was interested in some patents, especially in a coal-working machine. He well earned the repose which followed his retirement from the Metropolis. In his latter days he must have thought of the noble band of which he was the sole survivor. A few years back he wrote:—

When I think of those friends of mine in the long-buried past—nearly all of whom are silent now since long years—I seem to be walking in a world to which I do not rightfully belong. As I think of them, I think of the young, the bright, the hopeful, the happy; and what alliance can an age of exile claim with such qualifications? Yet it is still a pleasure to recall such men to one's memory. Are there any like them now? Standing apart and alone, I do not know, but I hope there may be, for these were men worthy of all honour. As I think of them I recall a joyous company—a "band of brothers"—sometimes gathered round a pleasant table; sometimes wandering through the Wicklow glens and by the dark mountain lochs in sight of the blue waters of Dublin Bay; sometimes, too, penned together within the gloomy courtyard of Newgate Prison; but always, so long as I knew them, knitted together by the twin bands of brotherly love and love of country.

In the early days of the *Nation* it seemed to be incumbent on every Irishman to make attempts at rhyming. Some were successful, and many thousands of the national ballads and songs have been circulated. The verses of MARTIN MACDERMOTT were never collected, but in one of the anthologies he edited he introduced a few of his own. We append a few verses in which he expresses the effect made upon himself by the troubles of 1847, when Ireland was decimated by famine:—

"I must be very old," I keep
Repeating o'er and o'er;
And yet, by the old Bible-page
(Where our good father marked my age)
My years are twenty-four.
What, twenty-four! Life's sunny prime!
Life's early Age of Gold!
When thought is warm, when hopes are bright,
And hearts still stirred with young delight—
Ah, no! *my* heart is cold.
I must be very, very old—
A very old, old man!
They say my hairs are thick and brown—
I *feel* them thin and grey;
They say my cheek—though pale—still bears
No furrowed trace of tears or cares—
I care not what they say.
Does my step totter? No, I pace
Erect and firm, and bold!
What then? Deep underneath the lid
Of my strong heart the worm is hid—
The worm that's keen and cold.
Ah me! I must be very old—
A very old, old man!
For why? The glad sun's genial rays
Fail to make my heart glad;
And strangely as a thing foregone
Striketh youth's soaring joyous tone,
Upon my soul so sad.
I love the night-time more than day—
The night with stars so cold;
And better quiet thought than mirth,
Though it were round a Christmas hearth,
Where tales of love are told.
In sooth, I must be very old—
A very old, old man!
I know not now (I am so old)
How long it is ago,
But, sure, it must be very long
Since I beheld a nation, strong
In hope and valour grow.
Her voice was loud, her bearing proud
And glorious to behold!
And now where is she? What is she?
A beggar upon bended knee,
A slave that's bought and sold.
Indeed I must be very old—
A very old, old man!

As he was born in Dublin in 1823 MARTIN MACDERMOTT could be considered a very old man when he died. By some critics he was supposed to have acted unwisely before he reached his third decade, but there can be no doubt he set aside his own interest in the hope of serving others. He almost succeeded in becoming an historical character, but his failure was fortunate for himself and for his country.

ROYAL INSTITUTE OF BRITISH ARCHITECTS.

THE annual general meeting of the Institute was held on Monday last, when the report of the Council was presented. It announced that the losses by death have been as follows:—Fellows: William Henry Arber, Walter Aston, James Barnet, Francis William Bedford, Thomas Blashill, James William Brooks, Francis Edward Caws, Richard Knill Freeman, Arthur Green, George Fowler Jones, Frank Manoah Kent, Robert Kerr, John Norton, Arthur Edward Perkins, Ellis Herbert Pritchett, William Alfred Royle, George Hurst Stanger, Frederick William Tasker, James Thomson, Frederick S. Waller, John Thomas Wimperis. Associates: Charles Bennett Arding, Percy William Barrett, Norman Michael Brown, Charles John Ferguson, Percy Christian Gibbs, Edward Baldwin John Knox, John Mossop, Samuel Joseph Nicholl, Charles Pertwee, Ernest Simm, Henry Ernest Stelfox, Samuel John Thacker, Thomas Edward Thickpenny, Arthur Charles Wissenden. Hon. Associates: James Lewis Thomas. Hon. Corr. Members: L. C. Pedro d'Avila, Professor Fenger.

The following tabular statement shows the present subscribing membership of the Institute, compared with that at the corresponding periods of the last two years:—

Year.	Fellows.	Associates.	Hon. Associates.	Total.
1903	627	1,117	43	1,787
1904	644	1,142	43	1,829
1905	677	1,182	45	1,904

During the year 57 fellows have been elected, 65 associates' 1 honorary fellow and 3 honorary associates.

The progressive examinations were held in June and November 1904. The preliminary was held in London, Belfast, Birmingham, Bristol, Cardiff, Exeter, Glasgow, Leeds, Liverpool, Manchester, Newcastle-on-Tyne and York; the intermediate in London, Belfast, Bristol, Glasgow, Leeds, Manchester and Newcastle-on-Tyne. The Council desire to record their thanks for the valuable services rendered by the hon. secretaries and examination committees of the various allied societies. The final and special examinations were held in London.

The registration committee appointed last session, and constituted as described in the last annual report, began their labours too late in the session for any effective result, as the Council elections in May very considerably changed the *personnel* of the committee. The new committee early in the present session appointed a sub-committee which has met monthly, holding morning and afternoon sittings. A Bill for the enrolment of qualified architects prepared by the sub-committee with the assistance of counsel has been considered by the general registration committee, who have referred it back to the sub-committee for emendation. The registration committee hope to submit it for the adoption of the Institute at an early general meeting.

It was mentioned in last year's annual report that the Council had under their consideration the proposals of a committee on architectural education consisting of members and non-members of the Institute which they had appointed. The Council have approved of these proposals, and have established a Board of Architectural Education with a mandate to prepare a scheme for the co-ordination of architectural education throughout the country, and to secure, if possible, its adoption in the various schools. Of this committee Sir Aston Webb, R.A., is chairman, Mr. Basil Champneys vice-chairman, Mr. John Slater and Mr. Reginald Blomfield, A.R.A., hon. secretaries. It consists of "members," who are all architects, and "advisory members," who are representatives appointed by universities and other educational bodies. The first portion of the task has been accomplished by the Board, which is now laying the scheme before the teaching centres of the country with a view to its adoption. The scheme, admirably put before the Institute in a sessional paper read by Mr. Reginald Blomfield on February 20, has been printed in the Journal.

A memorial setting forth the disadvantages to the community of municipal officials being entrusted with the design and execution of architectural works was sent in November last to all the county councils, municipal councils and district councils of the United Kingdom. The Council, although aware of the improbability of the principles stated in the memorial being at once adopted by municipal bodies, yet entertain the hope that the prominence with which this important question was brought before them will have considerable influence for good.

The Council have appointed a committee, consisting of a sub-committee of the practice committee, the chairman and

hon. secretary of the science committee, the hon. secretary of the art committee and Mr. Lacy W. Ridge, to consult and report to them on all matters connected with the London Building Acts (Amendment) Bill now being promoted by Parliament by the London County Council. The Council adopting the recommendation of the committee, decide to oppose the Bill in Parliament. A petition was deposited and Mr. Pembroke Stevens, K.C., and Mr. H. Court Munroe retained as counsel. The committee drafted detailed criticism of the Bill as instruction to counsel who Bill should reach the committee stage in Parliament. At second reading, however, the London County Council dropped the greater portion of the Bill, retaining only the clause relating to the prevention of fire. The new Bill received will have the committee's attention. The hearty thanks of the Institute are due to the members of this committee for the self-sacrificing way in which they have carried on their arduous and continuous labours. The judgment of the House of Lords in the case of *Colls v. Home and Colonial Stores* induced the joint committee of the Institute and the Surveyors' Institution to drop Part of the Easement of Light Bill which dealt with this subject and also the only other clause relating to a change in law, *i.e.* Part V., headed "Right to Light passing through Streets," and the Councils of the two bodies have approved the omission. The Bill as now about to be introduced into Parliament by Mr. J. Fletcher Moulton, K.C., M.P., is a Bill of Procedure, providing a simple machinery for the settlement of disputes on the lines of that already organised in regard to party-wall cases.

Until last session the Council had strictly observed the principle of limiting their advice on professional matters to such cases as were not of a purely legal character. Having, however, considered that it might be advantageous to members if this limitation were modified, the Council have constituted a Board of Professional Defence to consider cases of broad professional interest, to give advice, subject to the approval of the Council, to take counsel's opinion on any point, and if necessary and desirable to support the architect's case, financially or otherwise, in court of law. Up to the present time the cases that have come before the Board have not been, in their opinion, of such a nature as to warrant positive action on their part.

A Bill making it penal for any unauthorised person to use the title or distinctive letters of a chartered institution was introduced last Session in Parliament, but dropped. It is again before the House this Session. Nine chartered bodies, including the Royal Institute, are promoting the Bill.

In accordance with the recommendation of the art committee mentioned in their last annual report, the Council have been in communication with the Royal Commission on London Traffic, urging that the views of expert architects be considered on the laying-out of street improvements. It being too late for evidence to be taken, the Commission have promised that the Council's request shall be borne in mind in the event of any definite scheme for the improvement of London streets being contemplated.

It was mentioned in the last annual report that the views of the Institute regarding the London County Council laws as to the deposition of plans with respect to building had been communicated to the Local Government Board, the London County Council and the London borough councils. The Council, acting on the recommendation of the practice committee, have issued invitations to the borough councils who expressed themselves as being in sympathy with the Institute to join the practice committee in a deputation to the London County Council. The Surveyors' Institution has also been invited to send representatives.

On the suggestion of the President, the Council have appointed a small committee to recommend steps which the ignorance of the general public in architectural matters may be somewhat mitigated. The committee have now issued their report.

The Council have had an album prepared containing photogravures of the interesting collection of the portraits of past Presidents. Blank plates have been left for the insertion of future portraits. The price of the album is two guineas.

The Council, at the invitation of His Majesty's Government, suggested the names of seven architects for the proposed extension of the British Museum. Mr. J. J. B. A.R.S.A., was the architect selected.

At the request of the Minister for Foreign Affairs the Council would advise him as to two architects who

James he might, in response to invitation, submit to the Dutch Government as fitting persons to be invited to prepare designs in an international competition for the Carnegie Foundation—"The Palace of Peace"—at The Hague, and as a third who could serve on the international jury, the Council nominated the president, Mr. John Belcher, A.R.A., and Sir Aston Webb, R.A., to represent Great Britain in the competition, and Mr. T. E. Collcutt, vice-president, to serve on the international jury. The Council have since arranged through the Genootschap "Architectura et Amicitia" at Amsterdam that the Carnegie Foundation Commission have decided to throw the competition open to all architects, and at the same time specially inviting representative architects from the various countries to compete.

The balance of income over expenditure is 1,680%, the best on record, which the Council venture to think is a proof of the continued financial prosperity of the Institute. The Council have this year invested the sum of 1,500% in the purchase of Cape of Good Hope Three and a Half per cent. stock, and 1,000% in the purchase of Great Northern Railway Four per Cent. Preference stock. The total invested capital of the Institute now amounts to 18,000%.

The art standing committee report with regard to the present wood pediments and dome on the centre part of Somerset House, facing the river, the committee felt that no action should be taken, and consequently forwarded a resolution to H.M. Office of Works that it was desirable to place the present wood pediments and drum of the dome in Portland stone, carrying out the existing design. There are no apparent structural difficulties in the way of this being done, and it was considered that a more permanent material would harmonise with the monumental character of the buildings. Beyond a formal acknowledgment of the committee's letter no reply has been made by H.M. Office of Works, and it is felt that this matter is of such public importance as to warrant a further letter being sent to the Office of Works.

The committee forwarded to all the metropolitan borough councils a communication respecting the abuse of advertisements on buildings with a view to enlisting their support and sympathy, and were gratified to have responses from ten metropolitan borough councils, expressing their sympathy with the objects in view, and a resolution was therefore sent to the London County Council drawing attention to the abuse of many buildings in prominent London streets by being disfigured with advertisements which were practically of a permanent character, and suggesting that the London County Council should obtain powers to prevent the disfigurement of streets and buildings with advertisements.

With respect to the Royal Commission on London Affairs the committee suggested that in all future schemes for public improvements for London streets the Institute should be consulted at an early stage with respect to their architectural aspect and development, and it is satisfactory to note that the Royal Commission, in acknowledging the receipt of the suggestion, stated that in future works of this character the Institute would be consulted in the initial stages. Had this been done in the matter of the alignment of the north frontage of the Strand Improvement Scheme it is probable that the view from the west of St. Clement's Church would have been preserved. By the proposed dilapidation half of the west front of the church will be hidden by the new north frontage of the Strand, and it is only to be regretted that the advice of the Institute in this matter was not asked.

The literature standing committee state that the extra grant of 25% again received by the Council has enabled the committee to extend the loan collection by the purchase of many much-needed works in duplicate. These increased facilities have been much appreciated by the students who use the library. The committee desire also gratefully to acknowledge the increase by the Council of the yearly grant to the library. The amount of the total grant is now, therefore, 150%.

The practice standing committee report that the question of members of the Institute advertising in newspapers, as practised in some cases in the provinces, was referred by the Council to the committee, who recommended the Council to take means to prevent or induce its members to discontinue this practice, which they considered derogatory and damaging to the status of the architectural profession. The question of members of the Institute describing themselves as "valuers" and "estate agents" in newspaper advertisements elsewhere was also referred to the committee, who reported to the Council that in their opinion nothing further

than the description "architect" or "architect and surveyor" was consistent with the dignity of the profession.

The Council referred to the committee a request by the Institute of Builders that provisions should be made in building contracts by which the charges of county and urban authorities in these matters should be ascertained by architects previous to the making of contracts, and the liability removed from the shoulders of the contractors. The committee, however, recommended to the Council that the suggestion should not be adopted.

The science standing committee say they have been engaged on standardising the specification and tests for Portland cement, the chairman has attended the meetings of the joint standard committee, and the standard has been fixed and is now published. The committee are now considering the tests that can be put in specifications when only small quantities of cement are required. The committee are inquiring into the present method of applying Dr. Angus Smith's solution and other preparations for protecting iron.

SOCIETY OF ENGINEERS.

A PAPER on "The Parade Extension Works at Bridlington" was read by Mr. Ernest R. Matthews at the meeting of the Society on Monday.

The new works, now in course of completion, and designed by Mr. Matthews, provided for an extension 40 feet seaward and 212 feet northward of the old parade, and included the construction of a low sea wall. The big sea wall was 355 feet in length, with foundations and backing of Portland cement concrete, six to one. The new wall projecting seaward naturally had a greater section than the old wall. The concrete foundations were carried well down into the boulder clay, being 4 feet 8 inches in depth and 15 feet 6 inches in width. The wall was 29 feet 6 inches above clay level. An important point to be noted was that all face joints in the sea wall were pointed up with Portland cement. There was no apron at the base, and when an apron at the foot of a wall was necessary he favoured the stepped form as being the only effective one. The most suitable stone with which to face a sea wall was granite, but the cost usually prohibited its use. The form of slope best calculated to resist the action of waves was a steep slope of two in one with heavy pitching. At Bridlington the beds of all stones were roughly dressed and vertical joints were finely picked, as they increased the power of resistance in comparison with smooth beds and smooth vertical joints. The difficulty with the low sea wall, 455 feet long and 21 feet 7 inches above foundation bottom, was to make it sufficiently strong to resist the action of the sea, and a heavy type of dowel had to be employed, with special methods of fixing. In constructing steps the author had followed what he believed to be the best plan and had set them within the line of the wall. A concrete arch, springing from a concrete retaining wall, had been put in at the back of the low sea wall, a practice which was to be recommended. At the back of the low sea wall were a number of terraces rising in tiers, connected by flights of steps and divided by the retaining walls, which had a total length of nearly half a mile. Some of the retaining walls have been constructed on the principle that the thickness of wall at the base should be one-third of the height, but in a majority of instances the section had been increased. A striking instance of the phenomenon of clay expansion occurred during the building of one of the retaining walls. The sea walls were designed upon the principle that the thickness of walls at the base equals half the height. The cement specification was practically the standard, and it was interesting to note the result of experiments made to ascertain the relative strength of briquettes in which the cement was mixed with fresh water and then compared with those mixed with salt water. It was found that while the use of salt water in the seven-days' test increased the tensile strength of the briquette, a depreciation in strength took place subsequently, while with fresh water there was the usual increase of strength with age.

Sir Douglas Fox & Partners, the consulting engineers to the Rhodesia Railways, Ltd., have heard from Sir Charles Metcalfe that the bridge at the Victoria Falls, which was linked up on April 1, will be completely rivetted, painted and finished by the middle of June. Railway trucks are already being taken across the bridge with permanent-way material for the line northwards.

NOTES AND COMMENTS.

THE National Gallery in Edinburgh was visited by 61,156 people during the past year. In addition there were 4,096 who paid for admission. The friends of the late J. THORBURN ROSS have presented his oil-painting, *The Bass Rock*, and another gift is *Schule Scailea*, by Sir GEORGE HARVEY, a former president of the Scottish Academy. There were 16,724 visitors to the Scottish National Portrait Gallery, besides 1,189 who paid. The following portraits were given or bequeathed:—Principal W. CUNNINGHAM, by Sir J. WATSON GORDON; Professor SYME, the surgeon, by G. RICHMOND, R.A.; Sir NOEL PATON, R.S.A. (marble bust), D. O. HILL, R.S.A. (marble bust), HERBERT SPENCER, by H. VON HERKOMER, R.A.; Sir CHARLES NAPIER, by G. JONES, R.A.; SAMUEL SMILES, LL.D., by Sir G. REID. Portraits have been purchased of Sir HEW DALRYMPLE, Prince CHARLES EDWARD STUART, the Duchess of ALBANY, Cardinal YORK, JOHN CLERK, Lord ELGIN, JOHN PHILLIP, R.A., Sir WALTER SCOTT, Sir PETER YOUNG, Sir WILLIAM CHAMBERS, architect. The following portrait-statues have been placed in niches:—GEORGE BUCHANAN, JOHN, Duke of ARGYLL, the poet BARBOUR, Cardinal BEATON and ADAM SMITH. The expenditure on the institutions in charge of the Board of Manufactures has been 10,297*l.* during the year.

A DECISION which was given a few weeks ago in the Supreme Court of the United States would appear to be fatal to all decrees of trade unions which fix the hours of working. It was laid down that "the general right to make a contract in relation to his business is part of the liberty of the individual, protected by the Fourteenth Amendment to the Federal Constitution. Under that provision no State can deprive any person of his life, liberty or property without due process of law. The right to purchase or sell labour is part of the liberty protected by this amendment, unless there are circumstances which exclude the right." The words sound well, but we doubt whether the judges anticipated that they would have any influence for good on workmen in general. An individual may occasionally hazard his employment if not his life by standing in opposition to "trade organisation," but he is regarded as a leper and is soon wearied of the unequal war.

ARTISTS about whom people have become oblivious occasionally obtain an opportunity of resuscitation. The latest instance is that of FRANCIS LEMUEL ABBOTT. He had a reputation in North-Eastern England as a portraitist, and had the honour to have Lord NELSON for a subject more than once. He exhibited in the Royal Academy, and several of his portraits were engraved. Over-anxiety about doing his work well and domestic trouble deranged his brain, and he died in 1803 in his forty-third year. Among his sitters was WILLIAM COWPER, and as last week there was an eulogising of the poet in East Dereham, and as relics of him were exhibited, including the portrait, ABBOTT's name could not be forgotten. In writing to his friend HAYLEY, he refers to what was for so retiring an invalid nothing less than an operation. In doggerel verse he says:—"ABBOTT is painting me so true, that (trust me) you would stare, and hardly know at the first view, if I were here or there;" and he adds, "I have sat twice; and the few who have seen his copy of me are much struck with the resemblance. He is a sober, quiet man, which, considering that I must have him a week longer as an inmate, is a great comfort to me." There is no letter expressive of the poet's opinion on the portrait, but one says that his dog wagged his tail on seeing it. He may have preferred the drawing in crayons by ROMNEY, to whom he addressed a sonnet. COWPER, when ABBOTT visited him, was engaged on his translation of HOMER, and he is represented seated at his desk holding a pen, his other hand resting on a volume of the

Greek poet. Towards the end of the year we may have a NELSON celebration, and the Royal Academy would be wise if in the Winter Exhibition some of the portraits of the hero which ABBOTT painted appeared on the walls. Although he was not an Associate, he deserves to be recalled to the attention of amateurs.

THE question of differences between drains and sewers is far too subtle to be determined by ordinary magistrates. Surveyors and lawyers do not always agree on the subject, and it is too much to expect private gentlemen should be more capable of coming to a conclusion. Portsmouth this week has been exhibiting the difficulties which such cases present. In case the Corporation repaired a drain which served five houses, and apportioned the cost among the owners. Some paid, others contended that by the Public Health Act of 1875, a drain was defined as a drain for one house; if more than one house was drained became a sewer, and was vested in the local sanitary authority, who should maintain it. The representatives of the Property Owners' Association argued that several houses drained into the pipe, it was therefore a sewer, and the prosecution were not, by the service of notices, entitled to recover the cost of the work of repairing the drain. The magistrates decided in favour of the Corporation. Another case followed in which a similar claim was made. The borough engineer admitted that the work he had executed was in connection with a public drain or sewer. The Corporation expressed willingness to abandon the claim for the houses, but not for the sixth. Judgment was given for the defendants, but they were refused costs. Evidently there were irregularities in the claims, but as justice differs the officials of the Corporation may be excused; they cannot determine between drains and sewers.

THE Manchester Society of Architects have for some reason remonstrated against a practice which is becoming common among officials of the Corporation. It appears that when plans are submitted by an architect for approval, any objection to the passing of such plans is communicated, not only to the architect, but to the owner of the building as well. The Council of the Society suggests that the officials who deal with plans should communicate with the architect only, at such time as the plans may be finally passed. Under the present method of procedure the client of an architect often receives a short notification simply stating that the plans have not been approved, and this creates in his mind an unnecessary feeling of alarm that the architect has not done his duty properly, whereas an objection may be one easily overcome at an interview between the architect and the Corporation officials. Copies of the letter were sent to the chairmen of the improvement and buildings committee and the paving, sewerage and highways committee. The former committee are considering the matter; the latter say they will continue the practice to communicate only with the professional (architects or others) who may have sent in plans for the committee's approval. Manchester is not the place where the practice exists, and as it has no adequate tag there should be no difficulty in abolishing it.

ILLUSTRATIONS.

ROYAL LONDON FRIENDLY SOCIETY, FINSBURY SQUARE.

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CATHEDRAL SERIES.—ST. ASAPH: NAVE FROM CHANCEL.

THE ROYAL ACADEMY.

the close of the banquet at the Royal Academy on Saturday the President delivered the customary address. Sir E. J. Poynter said:—I shall endeavour to draw your attention with as brief a reference to the action and affairs of the Royal Academy during the year as is possible in the time which I have at my disposal. The interest of the public in our Academy lies in our elections, our summer and winter exhibitions and schools. You need not fear that I intend to enlarge on all these subjects. But our recent winter exhibition calls for more than a passing notice, in that it formed a memorial exhibition of our late member, G. F. Watts, included a large selection of his works not already in the galleries. It is, I think, universally acknowledged that Watts stands in the front rank of the greatest English painters—to my mind he is in some respects the first of all in the higher sense, the severe beauty of the epic and of the great painters of the Renaissance, was a constant aim: or beauty in its other mood, the playful mood of the "Midsummer Night's Dream." In this sense beauty pervades all his work, while his portraits contain no temporary, fleeting or accidental characteristics, have the deep penetration of Titian and Rembrandt, who have the souls of men through their eyes. The theme on which, but that I should try your patience, I could not enlarge. To do justice to Watts's art demands a more or an article, and what I have said is very inadequate. The Academy mourns his loss in the same sense as the great public—as an artist of exalted aims holding up the great traditions of art. As a member Watts retired ten years ago, and he was always too absorbed in his work to take much part in the affairs of the Academy. Personally he felt that if an artist is to fulfil his mission to the world he must shun all distractions either of amusement or business, and he steadily avoided all those influences so alien to the work of the artist when he becomes a public man. Temperate in his living to an extraordinary degree, he preserved a somewhat frail body with such prudence that his power for strenuous work never failed him to the extreme limit of his long life of eighty-seven years. In this he was aided by the loving attention of a wife who may be said to have taken the part of Love in his own great allegory, the greatest and most touching, perhaps, that was ever painted, the allegory of Love and Death, and by her devotion have kept the grim figure at bay for some twenty years. It has occurred to me that in view of the importance of the collection of the pictures of this great artist which he gave to the nation, and which are preserved in the Tate Gallery, that his memory should be perpetuated by a statue responding to the statue of Millais, which His Majesty the Prince of Wales did so much to encourage. His Royal Highness the Prince of Wales has given his approval to this proposal, and has consented to preside over a committee for the purpose which it will be my duty to organise as soon as I have the leisure to do so. I cannot refrain from at least alluding to other losses which the Academy has sustained during the past year, and they have been many. Two of our oldest members—Henry le Jeune, who had not exhibited here for many years, and Frederick Odell, the celebrated painter of Oriental scenes—have departed from among us. Prinsep, brought up in the same house with Watts in his young days, and early associated with Millais, Rossetti and Burne-Jones, reflected in his work some of the best qualities of all these great painters. He was my own intimate and fellow student under the same master in Paris, and was welcomed everywhere among artists for his keen wit combined with a hearty geniality; he was a favourite with his colleagues, and loyal to the best interests of the Academy. Colin Hunter and Boughton were both artists of distinction and originality in their separate lines; and, finally, an early death has carried off Charles Furse, that brilliant painter who within the last three years had made great strides in his art, and whose loss at the opening of the last period of his career and within the first year of his election into this Academy has been deeply felt. His last and best work, now hanging in this exhibition, gave promise of further high development, and that by which he came into prominent notice two years ago—"The Return from the Ride"—we have fortunately secured for the nation out of the funds of the Chantrey Bequest. A festive occasion like the present is not suitable for any such controversial matter as the Chantrey Inquiry of last year; if I allude to it, it is only because I should wish to express in the name of those members of the Academy who attended the sense of the unfailing attention and courtesy which

Lord Crewe, the chairman of the inquiry—whom we hoped to have seen here to-night, but who at the last moment was unable to come—showed throughout the whole conduct of the inquiry.

I have already alluded to the St. Louis Exhibition, and the high place which British art took in that vast display. The work connected with such an exhibition is enormous, and the members of the Academy and representatives of the various art societies who formed the fine art committee will not forget the numerous and prolonged sittings during the summer before last when all the details were elaborated. I take this opportunity of thanking in the name of the committee those liberal gentlemen who consented to part with their works of art for the long period—some twelve months from first to last—during which they were needed. We are honoured by the presence of Colonel Watson, Chief Commissioner to the Royal Commission, who has just returned from St. Louis. Colonel Watson has been on the spot the whole time, and has been of the greatest assistance to us in forwarding the interests of the Art Section. And in this connection I cannot pass over the services of our honorary secretary, Mr. Isidore Spielmann, who for more than two years has given his energetic services to the cause. An important event in the world of art has been the opening at Aberdeen, in a handsome building, of a gallery of historical sculpture, due chiefly, I believe, to the exertions and liberality of Mr. James Murray, a townsman, also one of our guests to-night. Three of the members of the Academy paid a special visit to Aberdeen for the opening ceremony, and report in high terms on the completeness of the collection, on its admirable housing and its value for educational purposes. Coming to another matter, I cannot pass over without mention the great liberality of those gentlemen and one lady who contributed large sums towards the purchase of the so-called "Ariosto," by Titian, now in the National Gallery. But for these generous donors—Lady Wantage, Lord Iveagh, Lord Burton, Mr. Astor, Mr. Pierpont Morgan and Mr. Alfred Beit, and, I may add, the Chancellor of the Exchequer, who made up the deficit from the public purse—this celebrated picture would now certainly be reposing in a famous private collection at Boston. I will not weary you with going into further details of events, but one point personal to myself I may perhaps be allowed to refer to—my position as director of the National Gallery, which came to an end on December 31 last. I will only say that it was a great grief to me when the time came that I had to leave the work with which I had been associated for nearly eleven years, and to part from the pictures and the galleries under my charge, which I loved to the point of almost feeling that they were my own property, but everything must come to an end and so must this speech. I thank you for the kind attention which you have given to my words.

AMERICAN BANKS.

A SPECIAL number of the *Architectural Review* (Bates & Guild Company, Boston) has been published which is devoted to banks. Many photographs and plans of American examples of all varieties are given. From an article on the "Planning of Bank Buildings," by Mr. Philip Sawyer, we take the following:—In considering the general plan of any of these institutions, the widest difference is observed in the point of view of the officers, some feeling that the tendency toward allowing the public to come in contact to a greater or less extent with the whole body of clerks is a relic of the old conditions where most of the bank's business transactions were personal and individual; that this is a thing of the past, and that it is now desirable that the public do business with as few officers or clerks as possible. From these ideas it follows that the banking-room should be of comparatively restricted size, the great body of workers being placed in other rooms disposed in convenient communication with it, and this plan has, besides the safety which results from separating the public entirely from the men keeping the accounts and writing the correspondence, the advantage of making the smaller banking-room less expensive, or of enabling a better show to be made with a limited amount of money. It is open to the criticism that, from the public point of view, the display of the working force is lost; the banking-room is comparatively unimpressive, however, and in one New York Trust Company at least, where the actual work of the institution is done on other floors, the public banking-room, in which the business is transacted for the most part by only half a

dozen individuals, presents an appearance which is at times lonesome.

Another point of view requires the banking-room to be as large as possible, even though the public is admitted to only a small portion of it and comes in direct contact with only the same few persons; that a gallery or point of vantage be provided from which visitors may see every clerk in the institution; that the long lines of bookkeepers' tables may make their impression upon him, and that he may overlook the various departments and hear the hum of all the parts of the great machine.

When an architect has built three banks he may feel that he has really obtained a grip on the subject, and he tackles his fourth with the idea that he can tell the banker what he should have, but when he has built a dozen he approaches the next one in a humble spirit, and is not surprised to see his well-studied arrangement turned upside down by the objection that, "This is a right-hand bank; the tellers go on the right of the entrance; they always have and they always will;" or, "It is all very well to have the receiving tellers near the main entrance, but we do not want the paying tellers near the entrance at all; they must be in the back of the room as far away as possible;" or, "You have provided no cage for the D. and H. Railroad; it will have to be placed in connection with the general bookkeeper, and must have a widow to the money clerk and another upon the public space."

It sometimes seems that no other type of institution transacting approximately the same character of business varies so much in its methods as do the banks, each of which has, presumably, worked out its own system in accordance with the pressure of its individual requirements and needs.

In all these institutions the vault is of great importance, even though it is simply a strong box carrying temporarily the securities and cash needed in each day's business, and giving over each night to a neighbouring vault of greater strength its contents. But usually it protects, year in and year out, sufficient value to make its contents interesting to cracksmen, and to the banker and public as well. Ten per cent. of the cost of the building frequently goes into the vault, the bank and safe deposit requirements being combined for the greater economy of construction and protection.

In considering such a vault, we find its width to depend upon the number of its aisles, each lined upon either side with tiers of boxes; its length to depend upon the combined requirements of the safe deposit receptacles and the space made necessary by the business of the bank. Infrequently, the interior of such a vault is two storeys in height, the intermediate floor being constructed of light open gratings, the tiers of steel boxes and the metal lining giving one the impression of being in the engine-room of a liner.

The usual type of vault has, however, but a single aisle, 4 feet wide, with boxes 2 feet deep upon either side of it. If, now, the door to the safe deposit space is in one end of this vault, the door to the bank's space in the other, and the two compartments are separated simply by a light steel partition with an emergency gate, the danger of a lock-out is averted and the protection of the vault simplified. Although it is by no means invariably done, a vault should be protected, no matter how thick its construction proper, by a casing of concrete, and, if this concrete contains in addition a fence of steel gaul-rods, set close together in a double row, staggered and run through a number of heavy timbers, a high degree of protection is provided, since it will require some hours of heart-breaking work with the cold chisel before an electric arc can be used to attack the vault itself.

The watchman in making his rounds should be obliged to pass behind the vault and to look under it and over it. To accomplish his passage he should be required to reach a watchman's clock-station at the furthest angle, and if, as is usual, the vault is supported upon a tier of beams, open between and lit by incandescent lights at the far end, he can readily look between them. His passageway is usually depressed or stepped down in order that he may do this, and mirrors are placed at an angle overhead that he may without difficulty see above. One New York bank has in the outside of its granite base a bronze escutcheon which, being unlocked and lifted, gives a view, pierced diagonally through a dozen feet of masonry, of the combination of the vault, and the outside watchman in passing is able to see from the exterior whether the vault in the basement is safe.

One is often desired to place a vault where it will be seen by the passing public, and this is supposed to give a

high degree of protection in itself. The president of a New York institution told me recently, however, of having been locked out of his bank vault. It was in the rear banking-room, the front of which was glass, and he went directly upon the level of an up-town street, unquented at night. It took a good many hours, needless to open the vault, and he told me that during his (which occurred one Sunday evening) he was amazed to see the crowds stream by, paying no attention whatever to the door of the vault, and the brilliant light in the rear of a dark room. He held me ready to explain at any instant the lawfulness of the proceeding, but no one asked an explanation, although the work was of a sufficiently suspicious character to make the president himself feel apologetic.

We have also the electric protection, which we afford to be without, and our only quarrel with it is with the unnecessarily hideous doors, akin to the cheapest furniture, with which the beautiful vaultwork is covered.

In discussing the relative merits of systems of protection, a New York expert once said that, when the first company for electric protection was organised in New York, vault makers were much antagonised, and both claimed that the others' work was useless. The expert added, however, "We have all shaken down now; we have the best vault that we can afford; we secure electric protection; we hire a trustworthy watchman, and the man has a yellow dog, and," said the old man, "when said and done, I am not sure the yellow dog isn't the end of the combination."

But it is really the smaller country banks which have the most need of protection, since they carry at times sufficient cash to make them very inviting, and yet cannot afford heavy, expensive vaults constructed for the larger institutions. Several curious devices have been put upon the market to supply their needs. One, I remember, consisted of a cylindrical cash receptacle, the interior of which revolves upon an axis, something after the manner of the patented safes. This is operated by a pedal, and once closed, cannot be reopened except by keys carried by the other officers. This engine is supposed to be operated by the business at the beginning of the day. Whenever the teller finds himself covered, he throws up his hands, butts his head on the pedal and is thereafter powerless to handle the cash. I have never met this apparatus in practice.

A more interesting suggestion is to lay an underground conduit from the village bank in, say, two different directions—one wire to an alarm-gong in the office of the hotel and one to the house of the cashier or president. In the event of a day attack the teller has some chance to protect himself without sacrificing his life.

It is interesting to know that there is a season for closing little banks and a fixed routine for doing it. In November we were told, "Look at the papers, you will see the country banks popping all over the Middle West." One does not see at once just why this should be, but it is quite simple. During the summer window open, people are out at all times of night and the vault is altogether too public. In the winter it is too cold there usually is snow upon the ground, which is a disadvantage. In the spring there is comparatively little money in the banks. There are left, therefore, those nights in autumn when it is cold enough to keep people indoors, not yet cold enough to snow, and when the banks are in their plethoric condition.

I have not mentioned what is perhaps the greatest protection of all—membership in the American Bankers' Association.

As this issue shows, there has been a wonderful increase in the number of individual banks built during the last few years. The time is past when the greatest advantage could be secured by building a high building, and there has been bred a distaste among many bankers for getting into the real estate business. They feel that the expensive as the lower buildings are in the larger cities, the bank is better off without the care of an office building, and the result is an interesting reversion to the type of building which we started. Moreover, we are becoming more critical. We desire the improvements which are to be obtained only by building to meet in each case the individual requirements, and we are finding that the conveniences of arrangement now attained in the new buildings tend to such prompt efficiency and economy in the running of the bank as to facilitate to a considerable degree the transaction of business.

Moreover, the decisions made necessary by the rebuilding of the bank officers (in specifying the requirements for their new quarters) to study from every aspect their methods of transacting business, to observe newer institutions, and it enables them to look at their whole system from a broader and more progressive point of view, and to give rise to their improvement many points heretofore taken for granted.

Proper light can be provided for the workers, ventilation tends to keep them in a condition of health and efficiency is introduced, and room economised in a thousand ways which only modern construction and modern furniture and conveniences have made possible. Books are no longer carried laboriously to a book-vault at night, at the expense of time and wear and tear to their bindings, placed under the desks upon which they lie by day, and put into steel compartments upon roller shelves protected by steel doors, the whole lined with asbestos. But this again presupposes the modern building, with not only a steel roof construction, but marble or tile floors, and bronze steel throughout.

Cash and securities are no longer handled unnecessarily. Money is distributed in classified compartments with the tellers' or cashiers' counters in an omnibus which just fits the space. At night the responsible officer of this receptacle, sees it wheeled from his cage and put in his own compartment in the bank vault—the work of five minutes.

In many banks nowadays the midday meal is cooked, served and eaten by the officers and clerks in rooms provided for this purpose, and some sort of room for exercise and recreation placed in connection with the clerk's locker and toilet-rooms.

I have said nothing of design, and certainly the illustrations show a great deal of it, but I think we may all agree that in a bank building, more than elsewhere, one should value durability, dignity and simplicity. It should look its character—that of a business house in which the elements of security and solidity are emphasised. Necessarily a comparatively low building if it houses the bank alone, it should hold its own in scale and dignity with buildings on either side of it four or five times its height. It must be in style permanently acceptable, since it is built not for this year or the next, but for a long period of life.

THE PYRAMID AND THE SPHINX.

SEARCH for the exit of the King's Chamber in the Great Pyramid has, says a correspondent of the *Manchester Guardian*, just terminated successfully. The structure was first found in the early days of archaeological research by Colonel Howard Vyse between 1836 and 1838. Steps were taken to keep the passage open, and it was not obstructed again by the thick drift of sand. Through rediscovery the temperature within the Great Pyramid, present scarcely more tolerable than a furnace, will be sensibly reduced, and the vast interior will be better ventilated.

Mr. Covington and his party, to whom the success of the search is due, then turned to the exploration of the Queen's Chamber, the outlet of which was found by Weyland Dickson in 1872, only to become likewise closed up by sand in course of time. Acting upon the suggestion of Professor Flinders Petrie to confine the search particularly within the eighty-fifth course, Mr. Covington, though still far from attaining the object of his labours, encountered a roughly worked stone embedded in the hardened debris adjoining the King's Chamber. It was a triangular-shaped stone, broken into half pieces, measuring together 16 inches by 16 inches by 11 inches, and bevelled on two sides. A tenth part of a circle of 18 inches diameter is carved on the dressed surface. It is conjectured that the stone was let into the Pyramid casing to be used for astronomical purposes. The discovery is chiefly interesting on account of this being the first known instance since that recorded by Herodotus of any character-bearing stones found in the Pyramids.

The scheme for clearing the bases of the Sphinx from sand in which they are buried is beginning to assume a definite shape. The committee already formed is to meet a few days to discuss ways and means. It is thought that the Prisons Department will provide 200 labourers from among the male inmates of prison establishments. The workmen will receive a small wage from the excavation committee. By carrying the trench from the paws of

the Sphinx in a south-easterly direction, instead of due east, neither cultivation nor personal property will be molested, and the cost will therefore be enormously lessened.

IRISH SURVEYORS' INSTITUTION.

THE annual general meeting of the Irish branch of the Surveyors' Institution was held on the 27th ult. Mr. Thomas Courtney Townshend presided.

The report dealt largely with the position of agents in connection with the operation of the Land Act of 1903, and while commenting with satisfaction on its development to an extent beyond the most sanguine anticipation of the many parties vitally interested in its successful working, by the completion of purchase agreements representing an area and rental of vast magnitude, yet the committee view with apprehension the serious position brought about by the probable delay of several years before the purchase money of such estates can be distributed, owing to the Treasury regulation limiting the advances to five millions a year. This partial block in the working of the Act is also detrimental to every other interest involved in the transfer of land in Ireland, and the Institution desires to press upon the Government the absolute necessity for increasing the funds available for the purposes of the Land Purchase Act. The report concluded with a reference to the great value the Institution continues to prove to its members in providing a basis for common action, and affording representation to a profession which would otherwise be without the necessary elements of union.

The Chairman, in moving the adoption of the annual report and accounts, briefly made reference to the successful work of the committee during the year in regard to matters closely affecting the interests of members, arising out of the administration of the recent Land Act, and made grateful acknowledgment of the kind manner in which claims of land agents for remuneration for negotiating sales of estates and compensation for loss of employment have been met by the great majority of the Irish landlords.

The adoption of the report was seconded by Mr. Robert McClure and was unanimously carried.

The results of the recent professional examinations held in Trinity College, Dublin, qualifying for admission to the Institution, were then announced, the successful candidates being as follows:—Associateship examination, Charles Knox Fowler; students' examination, Charles J. Duggan and Creighton C. Dunlop. The results of two other candidates who took the English course in the surveying section will not, however, be made known until next month.

Mr. Frederick A. B. Turner, Gorey, was unanimously elected chairman for the ensuing year, and Mr. Robert Sanders vice-chairman.

EDINBURGH ARCHITECTURAL ASSOCIATION.

THE annual general meeting in connection with the Edinburgh Architectural Association took place on Wednesday in last week. Mr. Harold O. Tarbolton, the president, presided. A vote of thanks was awarded to Colonel More Nisbett for permission to visit Drum House, Gilmerton, and a similar compliment was paid to Mr. Hamilton More Nisbett for acting as leader on the occasion of the visit. Reports by the conveners of the various committees having been given in, office-bearers were appointed for the ensuing season. The following officials were elected:—President, Mr. H. O. Tarbolton; past president, Mr. A. Hunter Crawford; honorary secretary, Mr. Colin B. Cownie; and honorary treasurer, Mr. Glassford Walker. Prizes in the associates' section were presented as follows:—Design for a country house—1, Allan K. Robertson; 2, W. G. Walker Todd; and 3, A. Wilson. Design for a screen wall, with side porticos—William Wands. Design for a font and font cover—G. Craston Blechynden. Entrance lodge and gateway for country house (apprentices' competition)—1, D. J. Chisholm; and 2, J. Craston Blechynden.

The President then delivered his valedictory address. Speaking of the position of municipal bodies with regard to public works, he said that as that kind of work involved grave interests of an artistic, practical and financial nature, it was essential that the services of only properly trained and experienced architects should be retained. Architectural work should not be placed in the hands of engineers and surveyors, and the work of the official architect should

be restricted to structures of secondary importance, all buildings of a monumental character being entrusted to independent architects, selected in such a way as might seem best to the local authority concerned. With regard to assessors in public competitions, Mr. Tarbolton said that the difficulty lay in the haziness which surrounded the position of an assessor. His duties were certainly prescribed, but there was no recognised rule as to the terms of his employment. He had no stated fees, and the large accounts which were frequently sent in by assessors had naturally frightened many who would willingly seek their assistance. Some clear definition of the obligations of assessorship was wanted. He thought the difficulties might be obviated if the Institute were to appoint a competition committee drawn from its own body and the various allied societies throughout the country. The duty of such a committee would be to examine competitive drawings and to give awards upon the same. This would encourage promoters of competitions to make these bodies their referees. He recommended the appointment of either three or five assessors instead of one, in which case the award would not only be more final, but would remove the tendency to play up to the idiosyncrasies of a single assessor, whose predilections for certain types of architecture might be well known. Referring to the question of monumental sculpture, he said that in countries where sculpture thrived more happily than in our own, statues were seldom placed in the open. They were placed upon the sides of places of moderate size, and when so disposed as to get value from background, whether of stone or of vegetation, they gained vastly in effect. The statues in Edinburgh were invariably placed in an unfortunate position, as if merely dividing the lines of tramcar or other traffic. Alluding next to the ownership of architects' drawings, Mr. Tarbolton said that that was a matter of great importance. He took it that all architects were agreed that unless a special agreement had been arrived at, the client paid for a concrete result, and that the drawings prepared were only the customary means employed by architects for illustrating their ideas for the benefit of the workmen. As such the client had no more right to them than he had to the architect's office materials. He could hardly find anything quite analogous in other professions. The question recurred again and again in the Courts, and it still awaited some final settlement. He did not hesitate to admit the right of a client to the possession of any plans of a pictorial or sketchy nature prepared primarily for the client's benefit, but he did strongly dispute his right to demand the mechanical apparatus set in motion to give certain tangible results.

The President was cordially thanked for his address.

THE BRITISH SCHOOL AT ROME.

UP to the present time, says the correspondent of the *Morning Post*, the British School has had two directors, Mr. G. McNeil Rushforth and Mr. H. Stuart Jones, each of whom has held office for the term of two years, or rather seasons, for the archæological season here is of about six months' duration. Both of these gentlemen are scholars of taste and erudition, and it has not been their fault, but rather that of the school's financial condition, if their institution lags far behind the other archæological establishments of Rome. In the first place, Roman residents hold the view that two years are far too short a period for an appointment of this kind. Professor Petersen, who has just retired, and his colleague Professor Hülsen, of the German Institute, have spent not two but twenty years studying Roman archæology on the spot. Monsignor Duchesne, of the French School, has himself become one of the regular institutions of Rome, and his great reputation, built up by years of patient labour, casts lustre upon his country's archæological school and French scholarship. Mr. Richard Norton, of the American School, has also been some eight years at his present post, so that the British School is unique in having adopted the principle of a biennial directorate, which, in point of fact, means only twelve complete months spent among the ruins of antiquity. It naturally follows that, whereas the other three directors make Rome their home and settle down here, the British director regards himself as a bird of passage, a diplomatist of archæology, who is in Italy one year and in Oxford the next. A further result of this system is that it is less easy for him than for his colleagues to gain the friendship and acquaintance of prominent

Italians, and thus to obtain an insight into the present of the country whose past he is studying, without archæology, like history, must naturally remain a letter instead of being a real thing. It was not merely by studying archives but by mixing with the people that Gregorovius was able to make Mediæval Rome live for his readers. It was because Curtius knew from personal experience the blue bays and bare mountains of Greece those who lived and moved in her towns and villages, he threw new light upon her ancient history. The reason such lectures as those of Dr. Dörpfeld at Athens are so luminous and so fascinating.

The reason for the biennial directorship is, of course, to be found in the lack of funds. If it takes seven years to become an attorney, it requires no less time to develop a really competent archæologist, for there is no shorter so complicated a subject, which requires, too, taste as learning, and should, whenever possible, involve the study of lucid and agreeable exposition—a gift common perhaps, in France and Italy than in some other countries. But we cannot expect men over thirty, possibly more probably engaged in teaching work, to settle down for a long period in Rome for the exiguous salary of 2000*l.* an apartment, which are all that the director of the British School receives. Archæology is not a lucrative profession, at least of all in England, where learning is apt to be remunerated much as it was at Rome in the time of Julius Cæsar, and where there are few, if any, openings to an archæologist, who has long expatriated himself. Therefore, the director happens to be provided with external equipment of private means, which even Archæology took into account in his views of human affairs, he will be likely to remain long in the Palazzo Odescalchi at Rome, year when he could be making more by lecturing to his graduates at home.

But the lack of funds does not affect the directorship; it also cripples the library. The British School is of course young, and libraries cannot be improvised by a stroke of the pen if that pen have not a good bank balance behind it. But for purposes of study the library of the school is absolutely inadequate. It does, indeed, possess many of the classical texts, but its dimensions are not as large as those of some private collections, and for students of the Middle Ages it is absolutely useless. The patriotic student is apt to be somewhat humiliated when at a lecture at the school all the books and illustrations have to be lent to him; recently happened—by the courtesy of the German Institute. Indeed, if it were not for the unfailing kindness of that admirable establishment the British student would have to seek in the Vittorio Emanuele Library for the mental nutriment which his own school cannot supply, the 50*l.* a year spent on the library, reasonably be expected to supply.

But in spite of its two volumes of "papers," its occasional lectures and the success of Mr. Stuart Jones in obtaining leave to catalogue the ancient sculptures in the municipal museums, the British School is so handicapped by want of funds that it naturally compares unfavorably with its older and wealthier rivals. The American School, with its 10,000*dols.* a year, the French with its 1,540*l.* and its expenditure of 240*l.* a year for its library alone, the German Institute with its share of a still larger sum granted by the Reichstag for the branches in Rome and Athens are, of course, in a far better position than the British School with a total income of 2000*l.* all told. Under these circumstances it is thought by some that unless the income of the British School at Rome could be raised—and that cannot well be done by subscription, which are not likely to increase—it would be better that it should come to an end and that its funds should be devoted to the use of the school at Athens, which is none the less well off, though it has a Government grant at present of 500*l.* a year. The Athens School has, of course, the great advantage of being able to make excavations in addition to the superior interest of Greek over Roman archæology. But Mr. Stuart Jones lately drew attention to a fact, unknown to many Italians, that there is nothing in the Italian law to prevent excavations being made by foreigners in the country, provided that leave be obtained from the Government. As the Herculaneum question has shown, however, it is not easy to get such permission, and Italian susceptibilities are very easily offended and national pride aroused. Sites, indeed, there is no lack; Magna Græcia is all virgin soil, and much of the Campagna still retains secrets.

The preservation of the Roman School is not, it may

d, solely an archaeological question. These institutions add very considerably, if conducted on a suitable site, to national prestige—witness the increased esteem in which the United States are held in Greece since the large excavations at Corinth were undertaken by the American School. Our own school at Athens, under the guidance of the present admirable director, Mr. Bosanquet, has become as well as a scientific centre, second only to the Louvre, where Greeks meet Englishmen, and all persons of culture and intelligence are made welcome and interested in the work of the school. Such, under favourable conditions, might, on a lesser scale, be the position of the school at home. But that is largely a question of finance.

THE MANCHESTER INFIRMARY.

DIFFICULTY has been created between the Manchester Corporation and the Infirmary Board concerning the surrender of the site of the existing building in Piccadilly. At the beginning of March the sub-committee referred to the Board complaining that the latter body "do not appear to give any consideration to the needs of the Corporation in respect to the building operations which are now in contemplation." In reply the Board forwarded to the sub-committee on March 27 the following memorandum:—

The Board of Management of the Manchester Royal Infirmary desire the special infirmary site committee of the Corporation to be fully informed of their proceedings in relation to expediting delivery of the Piccadilly site, and therefore submit for its information the following record, showing how constantly that object has been kept in view. The instructions to architects competing it was notified "the Board desired to complete 300 beds as soon as possible." In the report of the building committee recommending the plans to the Board, and adopted June 20, 1904, the Board were recommended to let the foundations separately, so as to complete the work at an earlier date.

At the meeting of the building committee, August 4, 1904, Sir James Hoy suggested that the committee should consult "the architects as to whether the contract might be let as to allow of a portion of the building, say, for 300 beds, being erected in order that vacant possession might be obtained by the Corporation one or two years before the completion of the structure in its entirety," when it was resolved, "That a copy of Sir James Hoy's letter be forwarded to the architects for their consideration and report, the chairman undertaking to write and impress the importance which the committee attach to expediting the release of the present site at the earliest possible moment in view of the financial question and of the undertaking entered into by the Corporation."

The architects attended the committee, when this correspondence was read and discussed, as recorded in the following memorandum:—"The architects expressed the opinion that the completion of the new infirmary would be expedited by proceeding with the whole of the buildings rather than by sections, and Mr. Hall stated that in his opinion the buildings may be completed in about three and a half years, or at all events in four years, from the date of commencing the foundations."

At the meeting of the building committee on November 15, 1904, the chairman submitted a memorandum as to the possibility of expediting the removal of the infirmary from the Piccadilly site, and remarks thereon by the architects.

On February 14, 1905, the chairman of the building committee called upon the city architect and explained the steps the infirmary was taking, and intimated that the building committee would gladly consider any practical suggestion he might be able to make for expediting the occupation of the new hospital.

On March 6 a special committee considered a suggestion for building a temporary hospital of 300 beds, and after careful consideration decided that such course was not compatible with the interests of the infirmary.

Appended to the memorandum are the letters which passed between the chairman of the building committee (Mr. Hopkinson) and the architects at various dates. The last letter was from Messrs. Hull & Brooke on November 4. It stated that while it would be possible to occupy the hospital before the teaching block was completed, they saw no reason why this block should not be completed at the same time as the others. They were of opinion that it would cause grave inconvenience not to have the administration building

erected. As to the nurses' home, it would be very costly to provide temporary accommodation by dividing up wards into cubicles and sitting-rooms, and other temporary accommodation would, if provided on the site, interfere with the carrying out of the rest of the works. "As a matter of fact," they added, "the quickest way to do a big hospital is to get your administration buildings all done before you complete your wards. We do not think that the postponement of the completion of these two blocks (administration and teaching) would expedite the completion of the rest of the hospital by six months or anything like it."

The sub-committee of the Corporation on April 20 instructed the town clerk to address the following letter to the board of management:—"Your letter of the 27th ult. and its enclosure have been submitted to and fully considered by the special committee of the Corporation *re* Royal Infirmary. They do not, however, find that the memorandum enclosed in your letter affords a sufficient answer to the statements contained in my letter of March 7 last. It is true that the memorandum shows that the board of the Royal Infirmary are acting under the advice of their architects, with the result that all idea of providing 300 beds in the first instance has been abandoned. The committee learn from the city architect that information is from time to time afforded to him as regards the progress of the works, but these communications cannot be regarded as affecting the attitude of the Corporation in reference to the matters referred to in this correspondence."

USHER HALL, EDINBURGH.

THE report of Sir Aston Webb, R.A., who was asked by the Town Council of Edinburgh to report on the acoustics and general arrangements of the Usher Hall as designed by the city architect, is now in the hands of the committee, who will consider the matter at an early meeting. It is understood that Sir Aston Webb condemns the proposal to have the hall surmounted by a dome, and generally he considers the hall too long for its width. He makes a suggestion that the hall should be oval in shape—a proposal which would, if adopted, mean the abandonment of the advantage of utilising the present foundations. It is unlikely, says the *Scotsman*, that the committee will seriously consider this suggestion, which Sir Aston Webb himself advances as one that the circumstances may render impracticable. With the removal of the dome the plans will require to undergo radical alteration, and the façade would be changed to something like the original design. The plan at present under discussion involves the entire demolition of the present Synod Hall down to the foundations. It is the view of some members of the committee that that would be the better plan to adopt, as, in their opinion, any adaptation of the present hall, however economical it might prove financially, would not in the end prove satisfactory.

W. ETTY, R.A., AND YORK MINSTER.

AFTER the fire in York Minster, when the works of reparation were about to be undertaken, some of the people who had known and loved the Minster from their childhood were alarmed by the threatened emendation. An opposition, conservative in the better sense of the term, was started among the subscribers, which daily grew in strength, and much irritation was caused. The subscribers complained justly of breach of faith, insisted on the purpose for which the fund was raised, namely, restoration, not mutilation, reminding the Dean and Chapter of their original declaration, "that they would not depart from a model more excellent and beautiful than anything they could substitute in its place."

Among the most zealous of these subscribers, says the *Yorkshire Herald*, was Etty. To his "surprise and consternation," finding himself an unwilling partner and contributor to a crime in his opinion second only to that of the "wretch who fired" the Minster, he vigorously bestirred himself and arrayed available friends in opposition to the scheme. He penned indignant protests for the newspapers, York and London, private expostulations—giving amicable forewarning of possible ill consequences to himself—with Smirke, son of an old friend, prosaic son of the imaginative illustrator of "Don Quixote" and the "Arabian Nights."

This opposition silenced the projectors for the time; but

as we shall see it was renewed later, for in 1830 the defeated party brought the subject up again, and a meeting was called for December 28. "A Mr. Vernon Harcourt, 'residential canon,' man of family and influence, relative of the then Archbishop, was the moving spirit of destruction."

Etty, we read, was "heart and soul" in the cause of opposition. "He set on his friend Sydney Taylor, editor of the *Herald*, to fire off 'great guns' against the destroyers; wrote renewed remonstrances to the infatuated dilettanti, repeated letters in the *Morning Herald* and in the Yorkshire papers."

To him "the finest choir in Europe," he bursts forth in one of those (to the *Yorkshire Gazette*, December 18, 1830), "with all its majestic accompaniments, was laid in ashes; we thought the measure of our calamity was full. We were mistaken, heavier doom hangs over us. That gorgeous screen—the admiration of all who beheld it, that noble screen, which escaped the fire as by miracle—is destined to be torn from the foundations on which it has stood for three centuries—broken up and mutilated it must of necessity be—is to be placed where it must, from the situation of the windows, be mostly in shadow, and some of it entirely lost."

"This is not all. That noble choir, of which this noble screen forms the gate—and, like the 'Beautiful Gate' of the Temple of Jerusalem is the opening only to greater beauty, greater splendour—that noble choir is destined to be curtailed and cramped in its lengthened (? length) and its grand proportions—leading from the gate to the distant steps, from the steps to the altar; then the light and elegant altar-screen; another graceful withdrawing space behind—the 'Chapelle of our Ladye'—and, towering above all, at the end the east window, like a splendid mass of diamonds, rubies, sapphires and emeralds, forming altogether a *coup d'œil* unequalled in the world. I am proud to say I have seen many of the finest cathedrals in Europe; I never saw one equal to it. All this is to be 'improved'—the cant phraseology of the day—that is, spoiled by tasteless, unfeeling innovators. All the feeling of auld lang syne brought down to the steam, gas and 'iron age' of the nineteenth century. God forbid the vile attempt, and save our noble building from ruin. Were I, Mr. Editor, to offer to repaint the cartoons of Raphael or the 'Last Judgment' of Michel Angelo should I not be justly regarded by the world of art as a madman, an imbecile or a most presumptuous coxcomb? Certainly I should. The case is a parallel one. York Minster is as perfect in its kind, and even more so, than the works in question are of the same epoch, the fifteenth century; has the same sacred antiquity to make all but vandals venerate and hallow it."

"We learn, too, that in a letter to the *Leeds Intelligencer* his opinion as an artist is given as coolly as his great love and enthusiasm will allow. Why, why, the proposed alterations by nineteenth-century amateurs on the work of artists of the fifteenth is 'as a matter of taste' a blunder. The mutilation—from the intricacy and elaborate ornament of the screen, necessarily involved by its removal, notwithstanding what may be said to the contrary—would be the least part of the injury to our cathedral. The fatal blow to its grandeur would be in the choir, that 'mighty heart' of our temple. Imagine 20 or 30 feet cut off its majestic length. Grandeur and magnificence arise not only from a just proportion of parts to each other, but also not a little from length and magnitude. 'The long-drawn aisle' Milton alludes to as an image of grandeur, which he knew how to appreciate. The advocates for the measure tell you the choir will not be shortened. What is lost at the west end is to be taken off the 'Ladye Chapelle.' Believe them not. The length of the choir is from the present organ screen to the grand east window. Any diminution of that noble length would be a diminution to the eye. . . . All who recollect the Divine place as it was before the fatal blow by the cunning and cowardly assassin—who thus robbed the place of millions—must have been forcibly struck with the grand and noble proportions these arrangements of distance and effect had on the mind, and consequently the heart, lifting up the imagination and feelings to Him who made us. Cut off the space proposed you throw back the altar 20 feet at least under the east window. The altar, or rather the light transparent altar screen, now forms, as it should, a prominent and delightful medium between the choir and that splendid mass of light and glory. Put the altar under the window, and the matchless beauty of these parts is destroyed and unilluminated. The Arab proverb says, 'Under the camp it is dark.' Under that splendid window the beauties of the altar, which I and all must have admired, will be eclipsed instead of

assisted and illumined. In short, the whole harmony and grandeur of the choir will be overthrown."

"Pause, then, my friends and countrymen, ere you give your sanction to this deed. 'Let well alone.' The choir was pleased, we were pleased, as it was of old. The centuries are not to be despised."

Gilchrist says:—"But for the Yorkshire painter's love of Gothic art, his persevering efforts to animate and sustain local and even a wider feeling against the vandals, it is probable the lover of antiquity would have mourned the most interesting remnants of Mediæval art remaining to an English church."

"He was warmly seconded in London by Sydney and Cottenham, in York by his friend John Brook and adherents of auld lang syne. In the end a crowd of Minster's real friends rallied round the standard of faith, amongst them great names and families—Cholmondeleys, the Yarboroughs, Lord Feversham, Duncombes, the Wynns, Fairfax, &c. If the choir persisted in they agree to demand back their wrongly appropriated subscriptions and so cripple the innovation."

At a meeting on the question on December 28 both sides claimed a victory. Then we read that an appeal was made to the Archbishop and also the king (William IV). Eventually the Dean and Chapter gave way, and the choir's friends saved the screen."

TESSERÆ.

Gothic Geometrical Planning.

MANY architects scout the idea of proportion in buildings altogether. They say that it is useless to design the building on paper according to strict geometrical rules, as the foreshortening in perspective and the differences of planes will destroy the proportions in execution; but, on the contrary, we know that Greek and Roman buildings are equally satisfactory in drawing and in construction. There is no good architecture without good proportion, for without proper proportion architecture is no architecture. All the best buildings of the Gothic period, such as St. Chapelle, Amiens, and the cathedral of Lausanne, were designed on certain principles of proportion, and this can be proved by measurement. This fact has attracted the attention of many eminent architects and writers on architecture. The first to draw attention to it was Cæsar Cesariano, the translator of "Vitruvius," who proved clearly that Milan Cathedral was designed on the lines of a combination of squares and triangles. This idea was developed by Kerrich in a paper in the nineteenth volume of "Archæologia," who applied the form of the *vesica piscis* to many ancient examples of great success; to the plans of Bath Abbey Church, Exeter, Lincoln, Hereford, and other cathedrals and churches. Hawkins, in his book on "Gothic Architecture," published in 1813, recapitulated the evidence in favour of the system of proportion. Professor Cockerell, in a paper read at the Winchester meeting of the Archæological Institute, showed that the *vesica* gave William of Wykeham the guiding principle for the plans of his chapels, but he found that the equilateral triangle did not apply to the sections of all the chapels. The Lincoln volume of the same Institute there is a paper by Mr. Penrose on the "Proportions of Lincoln Cathedral," which he proves to have been originally designed on a system of squares called *pariquadrats*. But Viollet-le-Duc in his essay shows conclusively that trials of various forms characterise generally the buildings of successive periods. In the round arches of the rectangle was used; in Early Pointed, what he terms the Egyptian one, in which a perpendicular line drawn from the apex equals $2\frac{1}{2}$ parts to 4 parts of the base; in later periods the equilateral triangle together with the Egyptian. He applies his system to many of the churches he had opportunity of measuring when engaged in work of restoration. In the church of St. Sernin at Toulouse—a noble Romanesque edifice with double ambulatory the interior of which strikes everyone who enters it on account of its fine proportions—he found that on dividing the ground line into 20 parts 5 of them gave the half width of the nave, 2 the thickness of the pier, 4 the width of the inner aisle, 2 the thickness of the second pier, 4 the width of the outer aisle, 2 the thickness of the wall and 1 the projection of the buttress. An Egyptian triangle, springing from the outer base line, gives the springing of the vault of the nave and the abacus of the arches of the aisle, and

lateral triangle opening from the centre of piers of the meets this in the centre of the arch and gives the of the nave arches. In the Ste Chapelle he shows two equilaterals give the slope of the arch over the ways, that another, based on the window sill, gives the ring of the groining, and that others govern the entire position internally and externally. He applies the principle to Amiens, Notre-Dame de Paris and es cathedrals, which latter he asserts was designed the lines of rectangles, and that this proportion here adduced from Romanesque tradition, which ed for a longer period in that part than elsewhere in

The West Front of Wells Cathedral.

arded in the right spirit, we shall wonder at the astible resources of the artist in delineating the is and opposite characters of his multifarious com- on, in which no two are to be found alike, and in each hich we find the appropriate idea, and the fulness of ment which sustains the *dramatis personæ* through- with an untiring energy of impersonation in costume, of and action which excites our warmest admiration. ave the sanctity of the monk, the meekness and ction of the supreme Pontiff; the archbishop; the energy of the bishop in the act of benediction; the ent abbot; the devoted anchorite; the haughty and ing king; the stark conqueror fiercely justifying his ation; the placid and impassible confessor administer- is good old laws; the lusty, but hapless "Ironside"; atrepid Harold encased in mail; the king, defender of faith, treading upon the fallen Pagan; the comely, ut prince and lover; the devout nun; the majestic n benefactress, who retired from the pomps and ies of the world; the lovely bride of Henry I., "the maid of Brabant," the theme of the troubadour; the red evangelist, or the malignant sprite; each and all vering a racy energy of conception which the informed may envy. And though sometimes pushed almost to ature, the better to explain the person in keeping with grossness of that day, these works contain beyond all t lessons to the artists of our times which ought not to elined.

Christian Art in Italy.

arly Christian art dates its origin from the Catacombs. re in secrecy and silence the pious feelings of the hippers found their appropriate expressions in forms, though they were, yet containing in them the germs future, surprising in its luxuriance and magnificence. on as they discarded the models of Byzantine art they n to advance gradually, yet surely. Each artist added a new excellence to the old standard, and the Christian ngs of great men soon manifested themselves in pious munificent encouragement of the skill of artists. A rkable unity in art prevailed until the close of the nth century, when linear perspective began to be rstood, and a more elaborate system of colour had been duced. Masaccio had by that time given a roundness relief to his forms, hitherto unattempted. Anatomy generally studied, others had introduced the landscape had learnt to represent the inanimate objects of nature e perfectly, until at last Christian art, being now strong igh to stand alone, undertook the important struggle its antagonistic principle, that of Pagan feeling and nement. To the Umbrian and Bolognese schools we t look for those who maintained the former in all its ty and purity; to the Florentine school, with all its derful genius and power, for those who undermined its dations by introducing a taste for Classical subjects. s was in a great measure owing to the state of learning he time, the style of education, the profligacy of the les and the ignorance of the lower orders. Against e evils the monk Savonarola waged a desperate war. great eloquence, his deep views, his profound learning delicate refinement of taste gave him an almost ounded influence with all classes. He was precisely man to head a popular movement, and certain of his aliarities to call forth a bitter opposition. He did effect eat revolution in the tastes and habits of the people, consequently in art, both directly and indirectly. In ice, indeed, art maintained a comparative purity until sixteenth century, although the enthusiasm for Classical jects was almost too much for the Christian poetry ch had lain in the hearts of the people, and Venice sted the inroads of naturalism longer than other parts Italy, it may be from the loftiness and spirit of devotion

joined to a strong feeling of patriotism and a love of the marvellous which animated the nobility, and thus helped to retain the purely Christian element to a much later period than any of the other schools.

Painting in Ancient Rome.

In the early-history of Rome few works of painting are at all alluded to. The first native artist of Rome whose name is recorded was Fabius, surnamed Pictor, who lived about 300 years B.C. Pacuvius is mentioned as a skilful painter, whose accomplishments as a man of science and a poet not only obtained esteem for himself, but went far to gain reputation for the art he practised. He was followed by Turpilius, a Roman knight, and, according to Pliny's account, a good painter, remarkable for the peculiarity of painting with his left hand. Near the age of Augustus, who was the first that enriched Rome with any considerable collection of pictures and had them publicly exhibited, there was a Roman painter of the name of Arelius, and after him Ludius, a painter of landscapes and seaports, who was much employed to ornament the town and country houses of the wealthy Roman citizens with trelliswork. Amulus painted among other things for Nero a gigantic portrait of that emperor, 120 feet high. It was done upon cloth, from the difficulty of preparing plaster of sufficient extent of surface, which circumstance is supposed to have given rise to the practice of painting on canvas. Historians mention Marcus Aurelius, and Labeo, the proconsul of Narbonne, as having sought amusement in painting. To these may be added Pinus and Priscus, which sums up the scanty catalogue of the native painters of ancient Rome. There cannot be said to have been any Roman style of painting, as nearly all the works done in Rome were the productions of Greek artists, who flocked to Rome after the conquest of Greece and its colonies in Sicily. The number of these was perhaps one powerful means of paralysing any talent for painting that might have sprung up among the native Romans. With regard to the specimens of ancient art that have reached our day, it may be remarked that of movable pictures, such as the finer works of the Greeks are recorded to have been, no vestige has ever come to light, and probably never can. This circumstance may be regretted but cannot be wondered at. As to the paintings and ornamental decorations that have been discovered at Herculaneum and Pompeii, it would be unjust to receive them as specimens of the ancient state of the art, as they appear to be mere copies by house-painters of existing basso-relievos. Many of them, however, display great ease and accuracy of outline as well as fine colouring, which, at the time of their being first brought to light, was as fresh as if only a few years had elapsed since they had been painted.

Bishops and Cathedrals.

It is almost needless to observe that the several portions of our cathedrals are popularly and very conveniently attributed to the bishops during whose respective episcopates they were erected. This is scrimp justice to the contemporary deans and priors, with their capitial brethren; still it has this advantage, that it invests what would else be dry architectural history with something of the interest of a personal narrative. And this interest is indeed one of those things which give so much pleasure to the ecclesiologist in his study, that he who first opened to us the full relish with which we follow out our architectural problem through all its branches of date, style, person and the rest, might well claim the reward offered so many ages ago, and never yet adjudged for the discovery of a new pleasure. For instance, it is something to know that "the nine altars" of Durham was commenced just as the cathedral of Salisbury was hastening to a completion; but it is fuller of interest to know that the same Bishop Poore who founded Salisbury, being translated to Durham, pursued at the other end of the kingdom his architectural tastes. We sigh to see both Salisbury and Durham destroyed by the ruthless hand of the same Wyatt. But there is something of an epic interest in the fact that what one bishop, first of Salisbury and then of Durham, perfected, another bishop, first of Salisbury and then of Durham, injured beyond all hope; as if Daines Barrington, the munificent, for so he truly was, must everywhere by some fatal necessity be the destroyer of the works of the no less munificent Richard Poore. There is also some pleasure in finding the same kind of work pursued by the same prelate in different places. Bishop Alnwick inserted the west door and window at Norwich. When we find the west windows at Lincoln and some surrounding work assigned to the same person, we seem to

see him rejoicing in his work, and sympathise with him in his self-complacency as he repeats it. One of the most exquisite fabrics in the kingdom, and one of most originality in the design, is the clerestory of the choir at Norwich. This is attributed to Bishop Goldwell; but Goldwell was Dean of Salisbury when Beauchamp, a much greater man, was bishop of that see. Beauchamp, as Archdeacon of Suffolk, had previously had a stall in Norwich Cathedral, and he had there built a chapel. Moreover, Beauchamp's reputation as an architect was so great that he was employed by Edward IV. in the rebuilding of St. George's Chapel at Windsor; and we may attribute the design of that other great work at Norwich to him, under the influence of his former contemporary at Salisbury, and thus associate the most singular part of the cathedral of Norwich with one of the greatest names in our architectural history.

GENERAL.

Mr. Percy E. Newberry has been commissioned to write a volume on the royal tomb of Yua and Thua, the parents of Queen Teie, the wife of Amenhotep III. and mother of the "heretic king" Akhenaten. The tomb was found by Mr. Theodore Davis on February 12 last.

Sir Charles Cameron, the medical officer of Dublin, when lecturing in Manchester on Friday last, advocated the general use of asphalt in foundations. He said that the Corporation of Dublin erected eighty-four tenements upon an ancient dumping-ground. He suggested covering the whole area to be built upon, together with the yards of the tenements, with a thin layer of asphalt. That was fourteen years ago, but not a single case of enteric fever or diphtheria had occurred, though there had been cases of the kind in the immediate neighbourhood. If asphalt was too costly, dry sand, free from clay, and common coal-tar, would be found almost equally effective.

Several Scottish Painters have works in the Salon, including Messrs. Black, Downie, Henderson, Kay, Middleton, Newbery, Adamson, Affleck, Bruce, Edinburgh; Michie, Allan, Meldrum.

A Greek Coin in silver—Delphoi, Phocis; (Amphiktyonic Council, B.C. 346): AR weight 189.5 grs.—was sold at Messrs. Sothebys on Tuesday for 239*l*. It bore a bust of Demeter and a figure of Apollo.

The National Society of French Architects have arranged that the subject of the competition this year will be "A Daily Newspaper Office." All French architects between eighteen and twenty-six years of age are eligible to compete.

The Italian Government have ordered a competition among the medallists of the country for the new gold, silver and bronze coinage. The prizes range from 1,000 to 4,000 lire.

Alexander Tondeur, the German sculptor, died on the 22nd ult., in his seventy-sixth year. One of his works is the colossal statue of Wilhelm I. in Dessau.

The Manchester Society of Architects have elected the following Council:—President, J. H. Woodhouse; vice-presidents, C. H. Heathcote and J. W. Beaumont; hon. secretary and treasurer, Paul Ogden, assistant hon. secretary, George Brown; members of Council—Fellows: John Ely, J. B. Gass, E. Hewitt, Jesse Horsfall, A. H. Mills, J. D. Mould, Isaac Taylor, G. H. Willoughby, P. S. Worthington; Associates: Godfrey Colles, J. H. Gibbons, A. E. Corbett.

The Glasgow Corporation sub-committee on art galleries have selected from the Glasgow Fine-Art Institute Exhibition three pictures to be purchased by the Corporation, viz., "Breadwinners" (300*l*.) by Robert McGregor; "Glen Falloch" (60*l*.) by Wm. Young; and "Orpheus" (125*l*.) by the late W. Fulton Brown.

Adolf von Menzel's oil-painting, "The Market Place in Verona," has been purchased for the Royal Gallery in Dresden.

Mr. William Henry Alexander, of the Manor House, Shipton, Hants, the donor of the building of the National Portrait Gallery, died last week at Weymouth in his seventy-third year. His outlay was 80,000*l*.

Professor Hull, the geologist, will preside at a meeting in the town hall, Kensington, on the 11th inst., which is to be held in order to protest against the demolition of the building now used as a public library, and which was formerly the vestry hall.

A Bridge is to be constructed across the St. Lawrence at Montreal at a cost of 7,000,000 dols. The Canadian Government have given the contract to an American company.

Hexham Abbey is to be restored. A resolution passed at the Easter Vestry requesting the committee to undertake the rebuilding of the nave without delay.

Mr. Henry Price has presented to Wrexham, of which he is a native, a replica of the statue of the late Queen Victoria, which he executed for the Military Academy, Woolwich.

The Halifax Council propose to lay a line of six miles long and 18 inches in diameter, from a reservoir at Brighouse at an estimated cost of 22,000*l*.

Mr. J. H. Martindale, architect, Carlisle, has been appointed cathedral surveyor at Carlisle, in succession to the late Mr. Ormiston. The appointment of diocesan surveyor also held by Mr. Ormiston, is in the hands of the deans, who have not yet filled the vacancy.

A Meeting of Welshmen has been held in Liverpool at which it was resolved to make efforts to secure the donation of the Welsh National Museum for Wales with the walls of the ancient castle of Carnarvon, being strong opinion that such a location would most fully meet the objects sought to be served by such an institution, and would also be in full accord with the national sentiment.

Mr. Walter Aston, of Macclesfield, architect, who died on January 29, aged forty-four, left estate of the gross value of 5,429*l*. 16*s*. 4*d*.

The Education Committee at Rochester have decided to admit to the public elementary schools for the future children under five years of age, owing to the enormous cost of building schools.

The Liverpool Water Committee have decided unanimously to recommend the City Council not to appeal against the decision of the High Court in reference to the sum to be paid by the Corporation for the Rivington estate, owned by Mr. W. H. Lever.

The Archaeological Congress which was held this year in Athens will assemble in 1907 at Cairo. The Egyptian Government have approved of the arrangements.

A Nelson Centenary Exhibition is open at the United Service Institution. Any profit arising will be devoted to the promotion of the naval and military arts and sciences and for the enlargement and improvement of the museum.

The Royal Society of Painters in Water-Colours have elected Mr. Alfred Parsons, A.R.A., and Mr. W. J. W. Wright as members.

Mr. William Watt, a Scotsman, has been appointed director of science and art in the Düsseldorf Institution.

Mr. C. J. Holmes, Slade Professor, delivered on Wednesday the first of a series of lectures on "Colour" at his residence in University Galleries, Oxford.

The Chantrey Trustees have purchased the water-colour drawing of "A Python and a Peacock" by Mr. E. Alexander. Mr. Bundy's "Morning of Sedgemoor," Mr. Cadell's "St. Agnes," Mr. Compton's "Autumn in North," Mr. Aumonier's "Black Mountains," and Mr. Speed's "Toledo."

Mr. T. P. Worthington, architect and civil engineer, at Fleetwood on Tuesday. The pier and several buildings in Blackpool were designed by him.

The Oswestry Rural District Council have instructed Messrs. R. E. W. Berrington & Son, civil engineers, Wolverhampton and Westminster, to prepare plans and estimates for the water supply of the districts of Gobowen, Whittington and Hengoed. They are also instructed to prepare a separate scheme for the water supply of the village of Selattyn.

The Claims for property required by the improvement and finance committee of the City of London during the past year amounted to 31,977*l*. The claims were settled for 23,282*l*.

Dr. P. W. G. Nunn, medical officer of health for Bournemouth, in his annual report suggests that greater attention should be paid to the planting of pine trees in the town to make up for those destroyed where buildings are erected. He recognises that the Town Council has entirely failed to recognise the importance of the planting of pine trees.

The Architect, May 5th 1905.





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CATHEDRAL SERIES, No. 524.—ST. ASAPH: NAVE, FROM CHANCEL.

The Architect, May 5th 1905





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ASSEMBLY HALL, COUNTY SESSIONS HOUSE, PRESTON
HENRY LITTLER, Architect.

The Architect, May 5th 1905





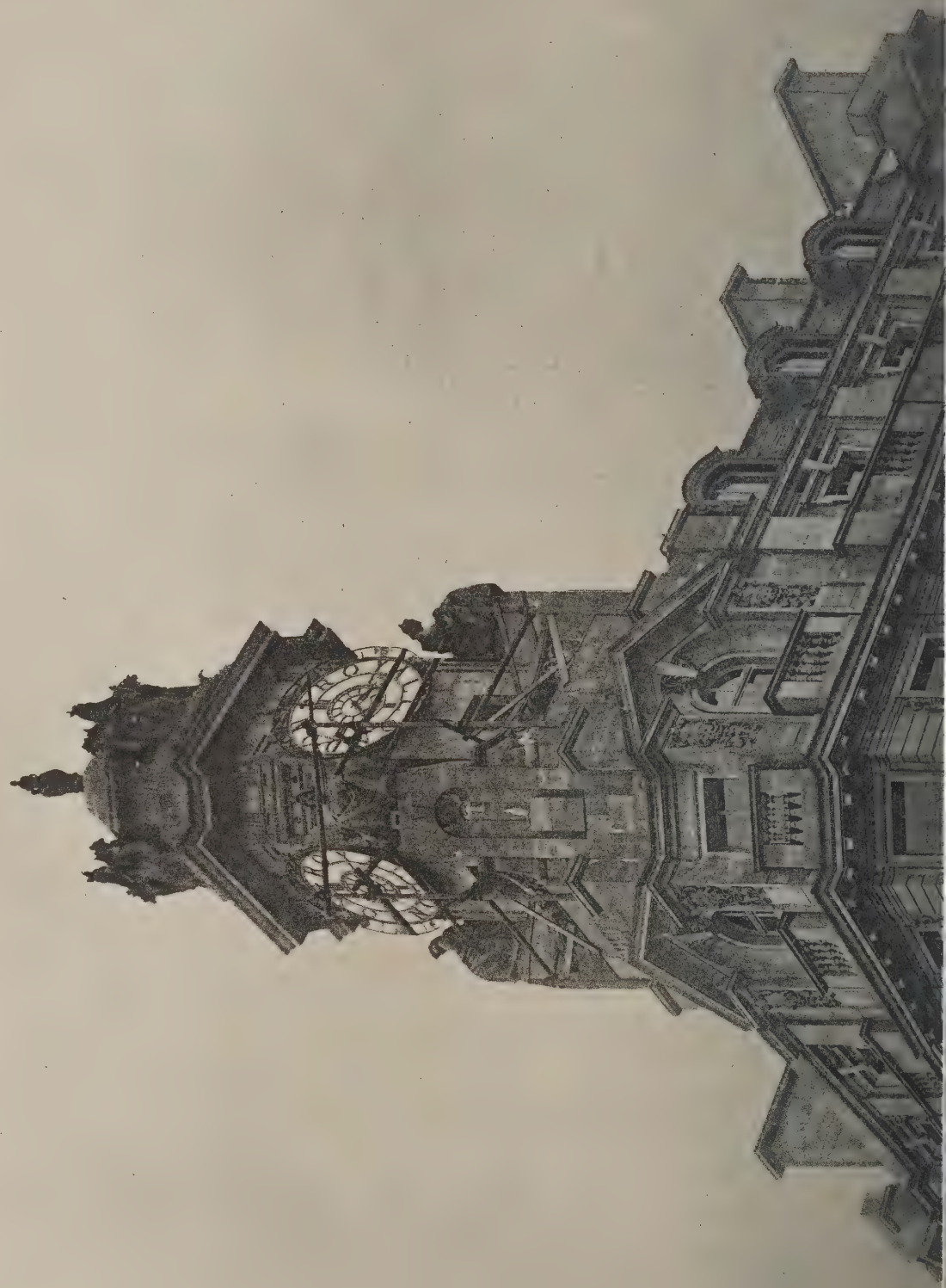
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Messrs. GILBERT & CONSTANDUROS, Architects.

The Architect, May 5th 1905





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ROYAL LONDON FRIENDLY SOCIETY, FINSBURY SQUARE, E.C.

JOHN BELCHER, A.R.A., Architect.

The Architect.

THE WEEK.

THE Court of Appeal have adopted a decision by a county court judge which, although right in law, appears to be hard on a sufferer. A bricklayer in Birmingham while going to the builder's office for his wages was told by the foreman to assist some men who were moving an iron girder. He injured his hand, and in consequence was obliged to ask for compensation. He was told he could receive 15s. 11d. per week, or one-half of his usual earnings. The money was paid for about three months, and then it was said he was able to resume his ordinary work. Afterwards he was obliged to enter a hospital, where two of his fingers were amputated. At his request the secretary of the union applied by letter for compensation for the man. The county court judge held that the demands for compensation were not good, and, what was more important, that there was no case, as the accident did not arise out of and in the course of the man's employment, for he was a bricklayer, which did not comprise moving girders. The Master of the Rolls said:—The question was one of fact, and the finding was in accordance with the evidence given by the injured workman himself, who stated that it was no part of his duty to move girders. Therefore the finding that the accident did not arise out of the man's employment must be affirmed, and the appeal failed. This is one of the cases which compel workmen to believe that the Act was not drawn up in their interest. A foreman omnipotent in a builder's yard, and there is generally a desire to make everything tidy before the premises are used on a Saturday. A man who under such circumstances would decline to help in moving a girder could expect that his services would be long retained.

REFRIGERATION has now become an important industry, and was the subject of an address by Sir CHARLES PETRIE, the president of the Cold Storage and Ice Association, on Monday. He advocated the selection of sites for the stores which would be near the anchorage vessels, in order that the goods could be hoisted into rooms and the expense of handling and cartage would be diminished. As to the kind of buildings which are best adapted for the business, there is a difference of opinion among experts. Some believe they should be underground, but Sir CHARLES PETRIE considered underground stores could not be free from the disadvantages of damp, foul air, &c. The by-laws condemned the use of brick walls and a slate roof, but it was of no consequence in a practical sense if other materials were adopted so long as insulation was secured. He said that charcoal, carefully and firmly packed, was one of the best of the insulating materials; next was waste cotton. In America pumice stone was now largely used with good results. In New Zealand, as there are large supplies, pumice is preferred. Charcoal and silicate are sometimes combined, or charcoal and ice. The Germans use bricks made of granulated ice and some binding material. Ammonia compression is now the almost universal system of generating cold, but whether cold air should be circulated by what is known as the "direct expansion system" in brine tanks, or the "fan and trunk system," known as the "refrigerator system," is a disputable question.

WE suppose contractors are dubious about the action of the Brighton Corporation, for otherwise the action brought against that body by Messrs. PEDRETTE & Co. would be difficult to understand. Having entered a contract for the construction of the foundation and other work at the generating station it was necessary to give security. For that purpose 6,000*l.* were lodged with a bank and the necessary guarantee was obtained. The work was completed in

November 1902, but no release was given by the Corporation. Accordingly the deposit yielded only 1½ per cent., and it was claimed that 5 per cent. could be obtained. Messrs. PEDRETTE brought their action for the release of the bond and for damages arising out of the loss of interest. Apparently the Corporation were ignorant of the arrangements between the contractors and their bankers until an application was made in November 1903 for release, but it was easy for them to plead that they were still entitled to hold the bond as security against any latent defects that might appear in the works. Mr. Justice BUCKLEY considered the Corporation were, by the contract deed, entitled to keep the bond as security for latent defects, and therefore dismissed the action with costs. It is possible the contractors were unreasonable in their way of seeking the release of their money, but is it fair to keep so large a sum for an indefinite period in the expectation that some "latent" defect will arise? Unless the Brighton Corporation change their system of dealing they must expect that contractors in their tenders will assume that latent defects may also arise in measuring work or in interpretation of deeds.

Is it prejudice which prevents Scottish builders from using English bond? Whatever may be the cause, it will be dangerous to adopt any other arrangement, if the permission is given on the understanding that English bond is to be adopted. A case relating to the subject has come under the notice of the Arbroath Dean of Guild Court. The erection of a brick wall 9 inches thick was sanctioned on the condition that it should be built in English bond, and that there should be a header and stretcher course turn about. The burgh surveyor found that the wall had been built, but not in accordance with that condition, the wall having three courses stretcher to one course header. The builder assumed the responsibility for the departure. His explanation was that it was impossible to build in English bond without going beyond the bond, and he had built the wall in English garden wall bond. The surveyor said it was the first time he had heard of the impossibility of adopting English bond. One of the bailies said it was time that builders should learn they were not to disobey the orders of the Court. After some discussion it was decided to treat the case as a first offence and overlook the contravention; but in future the provisions of a new Act will be enforced, by which, in addition to a penalty of 50*l.*, the building or other work can be ordered to be taken down.

DURING some time negotiations have been in progress respecting the preservation of the abbey buildings in Arbroath. The Town Council on one side were eager to retain their authority, while all expenses would be borne by the Treasury. At length the matter has been arranged. At the meeting of the Council there was submitted for consideration a minute of agreement between the Council and the Commissioners of H.M. Office of Works. It proposed that the Commissioners should be the guardians of the buildings under the provisions of the Ancient Monuments Protection Acts, 1882 and 1900, the Commissioners undertaking the preservation and maintenance of the buildings, and the Town Council remaining liable for the upkeep and repair of the roadway and pavements leading through the Abbey Pond, and for the maintenance of the Abbey House, which is to be retained by the town, except the portion known as the Abbot's Kitchen. The agreement was approved. The burgh surveyor is to make a sketch of the part of the Abbot's House which is to be handed over to the Office of Works. It was stated that there was a portion of the basement of the Abbot's House believed to be built up, and as the Council thought it might be desirable that some investigation should be made into the accuracy of this statement, it was agreed that Mr. OLDRIEVE, of the Board of Works, should be communicated with on the subject.

ARCHITECTURE AT THE ROYAL ACADEMY. II.

PEOPLE are becoming alarmed about municipal expenditure, but in the majority of cases substantial value was received, and, what is more, still exists. If they would remember that the money required cannot be obtained without a public investigation before a representative of the Local Government Board, at which objections can be raised, they would realise that there is always sufficient deliberation before municipal works are commenced. If the expenditure seems large it is owing to the neglect of former years and the resolution of the present generation to no longer endure discomforts which were accepted by their predecessors. Hence it is that so many designs for municipal offices are to be seen in the Architectural Room, all of which owe their existence to the shortcomings of the existing buildings.

The "Public Offices, Assembly Hall and Library, Ilkley," by Mr. W. BAKEWELL, will be a desirable addition to a town which many strangers visit. We do not always approve of the principle of combining accommodation of different sorts under one roof, for generally land has to be sacrificed, and the loss exceeds any gain which may be obtained. In this case the buildings appear to cover a large area, and we suppose local requirements made it necessary to combine the assembly hall with the public offices. The buildings are well balanced, and people will soon become acquainted with the different departments. The "Design for Free Library, Whitehaven," by Messrs. ASHLEY & NEWMAN, is a square block well adapted for its use. The "Public Library, Glasgow," by Mr. T. GIBBON, is remarkable for the entrance, which would be suited to a larger building. "The Town Hall and Law Courts, Hull," at once impresses the spectator by its extent. That may have been the intention of Messrs. RUSSELL & COOPER, for they have avoided variety, or any other quality that would diminish the effect of the Classic pile. "The City of Manchester new Fire and Police Station," by Messrs. WOODHOUSE, WILLOUGHBY & LANGHAM, suggests the importance of the service to which it is devoted. There are many storeys with a great number of rooms and there is a tower which dominates the high building. Messrs. SHEPPARD & BURKINSHAW have a design for the "New Public Baths and Extension of Town Hall, Chelsea," forming a very large group, and with the requisite tower. Another design for the same work is by Mr. LEONARD STOKES. This is a case in which the two services might have been separated. In his design for the "Library, Town Hall and other Public Buildings, Eltham," Mr. MAURICE ADAMS endeavours to evade the difficulty by avoiding uniformity, and his treatment is therefore more logical. In the "Municipal Buildings, South Shields," by Mr. ERNEST E. FETCH, the tower seems to be an unnecessary feature. Economists could raise no objection to Mr. A. E. DIXON's "Design for Pontypridd Town Hall," for it is probably the simplest building of its class in the room. "The Grand Staircase, Municipal Buildings, Walsall," by Mr. GIBSON, is one of the best examples of treatment of the Renaissance in the exhibition. It certainly is grandiose, and well adapted for use on ceremonial occasions. The treatment of the angles by brackets is successful. The "Proposed Memorial Laboratory in a Country Town," by Messrs. SILCOCK & REAY, has nothing which suggests its purpose except a figure in a niche, and it might well be used for a residence. The "Design for Picture and Sculpture Gallery," by Mr. J. B. FULTON, suggests the latter purpose by figures in niches, for no paintings are visible. It is a good Classic example. The "Barry Municipal Buildings," by Messrs. HUTCHINSON & PAYNE, is Classic, but symmetry has not been respected. The "Public Library, Harrogate," by Mr. H. T. HARE, shows the entrance, and suggests a treatment of ashlar which will give dignity to the building. Mr. A. R. MAYSTON shows "The Interior of the

Assembly Room in the Town Hall, Sutton Coldfield. There is a curved roof to aid acoustics, but such roofs are only to be seen at night, when the plainness of walls would not be observed or would be disregarded. Whatever may be the utility of the colonies they have not brought much gain to architects in England. The competitions lately announced in South Africa have passed to local practitioners. Mr. T. E. MARRAS's design for "Town Hall, Public Buildings and Municipal Offices, Durban," forms an admirable group, but it would, however, have been improved if the dome were raised or enlarged. Another design for the building is by Messrs. MITCHELL, RAINE & PAYNE. In this case instead of a dome there is a tower. Payers who are not on the Council may object to the Council Chamber in the Town Hall, Deptford, by Messrs. LANCHESTER & RICKARDS; it is certainly richly executed, and is comparable to the chambers seen in some of the Belgian halles. The same architect shows another Council chamber—viz. that at Cardiff, which is differently planned, but also costly. The arrangements for lighting increase the effect of the woodwork. The "Central Reference Library, Bristol," by Mr. H. PERCY ADAMS, will be an ornament to the city. Sculpture has been advantageously introduced over the windows. His design for the "Open Chapel at the King's Sanatorium" is novel. The other design for the Bristol building by Mr. M. KNOTT & COLLINS.

Church work has inspired many of the designs. Messrs. MURRAY & SEDDON's "Painted Decorations, Christ Church, Bristol," is pleasing in that part which suggests the ornament of the Loggia of the Vatican, but another part which seems intended to represent a Gothic church is less satisfactory. Mr. W. J. TAPPER has two designs of the "Church of St. Erkenwald, Southend," a severe Gothic building. The "Tower, Church of the Ascension, Balham Hill," by Mr. T. E. LIDIARD, appears in the drawing too prominent for the building. Mr. CHARLES BLOMFIELD's "Rood Screen, St. Mary's Prior Church," is a fine design showing beautiful work as well as a rood. We published Mr. SEDDING's design of a church at Newton Abbot a fortnight ago, and it is one of the successes of the year. The "Church of the Birch," by Mr. EDGAR WOOD could easily be executed in concrete. Mr. PONTING's "Christ Church, Shaw," shows an interior with a reredos and a timber roof, but although the piers may not interfere with the view of the worshippers in the aisles, they are too slight for architectural effect. CATTERALL's "New Chapel, &c., at the Ormerod Works," is well grouped, but it is hung too high for the exhibition it deserves. Mr. F. K. OLIPHANT's "Rood Chancel Screen, St. Mary's Church, Houghton," has been already illustrated in *The Architect*, and the drawing has the advantage of colour, and is the more expressive. The design for "St. Martin's Church, Cicester," by Mr. G. H. FELLOWES PRYNNE, shows a proportioned Gothic building with grey wall and a roof. "St. Chad, Longsdon," by Mr. GERALD HARRISON, is another satisfactory church; the tower, with its short steeple, is well adapted for a country church. The interior of "St. Wilfrid's, Harrogate," by Mr. J. MOORE, shows a fine groined roof; the piers are not too massive, and the chancel is dignified. NICHOLSON & CORLETTE's design for the "Lichfield Cathedral" was deservedly admired. The proportions are massive, and would form a landmark seen from the Mersey; but evidently it was intended that the windows and other details should show Gothic delicacy. The design asserts itself amid the drawings near it. The design for a domed church by Mr. LIONEL W. GRACE, shows a massive structure suggestive of the endurance of the faith, and would be well if some ecclesiastical body were to build it. The "Memorial Baptistery in Buckley Church," by Messrs. DOUGLAS & MINSHULL, is perfect in its details, and has the advantage of decoration in

The educational buildings are important. Mr. F. M. JENKINSON in his design for "University College School, Hampstead," has a curved plan for part of the frontage; brick is used and sculpture is introduced into the details. Mr. ARNOLD MITCHELL in his design arranges a school in three blocks instead of one, with a result that is very successful. The "Grammar School, Lincoln," by Mr. LEONARD STOKES, is an attractive building with large windows and an appearance of being dated with former times by the simplicity of the arrangement. "St. Michael's Theological College, Llandaff," by Mr. F. R. KEMPSON, shows a chapel and residences fully combined. The "Proposed Grammar School, Lincoln," by Mr. C. F. A. VOYSEY, would be likely to command the suffrages of schoolboys, for the white buildings around the large lawn appear more suggestive of a holiday resort than a place of restraint and occasional punishment. In the "Medical School, University College Hospital," the Italian style has been adopted by Mr. P. WATERHOUSE, but economy is to be respected. The "Liverpool Cotton Exchange," by Messrs. MATEAR & SIMON, will be a worthy addition to the architecture of that city. It is Italian, and carried out in a manner that is almost perfect. In the projecting colonnade the Tuscan order has been used, and in the main building Ionic. Sculpture has been introduced in positions where it becomes telling. "New Shipping Offices" in Cockspur Street, by Mr. J. TANNER, jun., received attention from all passers-by while it was being erected. Among the noticeable features are the large columns which appear to support the building. The building indicates the transformation which is now in progress, for a few years ago the Cockspur Street buildings were characterised by absence of ornament. "The Royal London Friendly Society's new buildings, Southampton Row," by Messrs. BRADSHAW & ASSHALL, is a massive building, we might almost say a palace, and would serve as a symbol for security. There is a difference in treatment between the façades, which denotes enterprise to erect such a building. In "Wesleyan Church Buildings, Bolton," the architects have adopted Gothic as the style. Their new "Stock Exchange, Manchester," is adapted for an excellent model for a bank, for burglars would find the ground floor rather difficult to enter.

As usual, the majority of the drawings are representations of houses. While a certain style prevails, whether it is in fashion, it is difficult to attain novelty. HALSEY RICARDO has the courage to use green glazes with cream dressings and green pilasters in "House, Addison Road." The arrangement is original in the design. In "Proposed Shops in a Provincial Town," Mr. MIDDLETON SHALLCROSS recognises that the building will be subtle, and provides several sign-boards, a more sensible arrangement than planning a building for one occupier, with the result that architectural features have to be justified by announcements. The "Gate Lodge, Holly House, Skibbereen," by Mr. R. S. BALFOUR, will be a novelty in Munster on account of its tiled roof supporting columns. There is also original treatment in his "House overlooking Poole Harbour, Dorset." Mr. S. K. GREENSLADE, having to deal with a narrow site, has arranged his "House at Caversham, Oxford," around it, forming a picturesque group that is bound to be often imitated. Mr. E. GUY DAWBER has a rare opportunity in dealing with the site of the "Cottages, Sandon," for they seem to adjoin a large green. "Solom's Court, Surrey," by him, is a small and picturesque house. Another large country house is Mr. G. C. HORSLEY's "Framewood," the details being made prominent features. "Whitehall Mansions, Charing Cross," is in the Germanesque style, and Messrs. TREADWELL & MARTIN have made a mistake. "Maesycrugian Manor," by Mr. A. MITCHELL, features a long, low terrace. One of the most important mansions is Messrs. DOUGLAS & MINSHULL's "Llandshaw Hall," in which they have departed from

the half-timbered system. Mr. ERNEST NEWTON has three characteristic country houses. The "Villa near Brussels," by Mr. R. FRANK ATKINSON, makes no concession to local peculiarities, but is as English as if it were to be erected in Surrey.

SCHILLER AND ART.

IN 1859 the Germans celebrated the centenary of the birth of FRIEDERICH SCHILLER. The people at that time did not differ much from those who were the contemporaries of the poet. Germany was still a geographical expression rather than a country, for the small kingdoms, principalities and dukedoms corresponded with those with which he was acquainted. SCHILLER was essentially the poet of aspiration. He believed the Golden Age was yet to come, and the desires which he expressed in the eighteenth century were similar to those of the people in 1859. It was impossible then to realise that in about a dozen years the longed-for unity would be attained, and, like the majority of things in this world would bring disappointment with it. The people of 1905 are more sober than those of 1859, and there seems a special fitness in their commemorating the death of FRIEDERICH SCHILLER. They are to be excused if, while they think on him with regret, they are dissatisfied for having been led astray by his poetry. The Golden Age has not yet come to Germany, and unless people are deceived by contemporary signs there are many sorrows awaiting the Fatherland. SCHILLER, as their idealist, must therefore suffer in popular esteem, and the celebrations this week were in many cases inspired by a sense of duty rather than by impulse. The poet derived from KANT the belief in the necessity of the play-impulse in whatever relates to art in its widest sense. But judging by the descriptions we have received from Germany the "Schillerfeier" has not been marked by many indications of delight. It might be supposed that the people had discovered that the feet of the idol were of clay.

It is not advantageous that so remarkable a revolution in German thought should arise. As Madame DE STAËL declared after meeting with the poet, "SCHILLER n'avait dans son âme que de généreuses pensées." She seems to have been more struck with his morality than with his genius. His conscience, she says, was his muse, and his writings corresponded with his soul. It is beautiful, she continues, when we find innocence united with genius and candour with force. He was the best friend, the best husband, the best father she had met, and she was struck by his enthusiasm for art. Virtue is unconquerable, and it must be hoped that the power by which SCHILLER was inspired was no *ignis fatuus* which was intended to lead men astray. His poetry and other writings have not ceased to exercise an influence on the younger generation of Germans. If afterwards they become indifferent to them the cause is to be found in the circumstances of our time, which are unfavourable towards aspirations after an ideal.

It is not our task to determine what are the qualities in SCHILLER's writings which disqualify them from serving the purposes which the author contemplated. We propose to restrict ourselves to a brief consideration of the effects which were produced by that enthusiasm for the fine arts which impressed Madame DE STAËL. In this case especially it is impossible to escape one of those comparisons with GOETHE which it has been the fate of SCHILLER to be always sustaining. Everyone has heard of the first occasion when GOETHE entered SCHILLER's house. The elder poet had not approved of the class of writing which was represented by SCHILLER's "Robbers," and in consequence he had a prejudice against the author as a man who was dangerous to society. But after a lecture they walked out together. GOETHE, who at the time was full of natural history, began explaining his views on the subject and went into SCHILLER's room to

continue the conversation. GOETHE was an evolutionist long before DARWIN, and he showed how by simple metamorphoses a plant could assume remarkable forms. SCHILLER's reply was, "That is an idea not an experience." At that time among the followers of KANT the word "idea" had a special significance. But GOETHE was not a follower of KANT. The truth was SCHILLER believed that whatever was beautiful must come from inspiration, while GOETHE thought that experience was the source of all knowledge.

GOETHE was a proficient in some branches of art. He could draw and paint, was a collector, and he even superintended the erection of a public building in order that his knowledge of architecture might gain precision. He investigated the history as well as the principles of art. We have articles by him on building, sculpture, ornament, and his very numerous reviews of books on art display almost encyclopædic knowledge. He translated the biography of BENVENUTO CELLINI in order to prepare himself for his travels in Italy, and one of his first acts on arriving in the south was to go in quest of a copy of PALLADIO's works, which he considered to be indispensable, as architecture was the basis of Renaissance art.

With SCHILLER we see no signs of similar self-education in art. His ideas were certainly exalted, but they were never subjected to the practical tests to which GOETHE submitted himself. The poem of "The Artists" is undoubtedly very noble; indeed, GOETHE could not have composed it, and in several of his writings we find ideas about the supremacy of art which probably the world will never be able to realise. In fact, the faith of SCHILLER in all that art can accomplish as a political agent must have amazed the statesmen of his country. Born in 1759, he was in his thirtieth year when the French Revolution broke out. He had suffered at the hands of the Duke of WÜRTTEMBERG, and he was liable to imprisonment for life because he ran away to Mannheim, in order to have one of his plays acted. He was therefore ready to sympathise with those who wished to create a new Europe in which tyrannical kings and grand dukes would cease to exercise their despotism. It was not long before many terrible excesses were exhibited in France, and SCHILLER sought by means of his writings to persuade Frenchmen about the advantages of moderation, or, in other words, to let themselves be guided by æsthetics. It was as vain a proposal as trying to extinguish a conflagration with eau de Cologne, but some of the French revolutionaries realised the goodwill of the writer, and out of gratitude SCHILLER was included among the men to whom France and Liberty were indebted.

SCHILLER acknowledged that he was mainly following out the principles of KANT, a statement which would have overcome the equanimity of the Königsberg philosopher if it came to his knowledge. The first conclusion is no less surprising, for SCHILLER maintains that as beauty leads to freedom, therefore all hereditary bondsmen must go through an æsthetic course. The statesmen, he said, corresponded with the artist who elaborates a shapeless mass to his own design. There was, however, a difference, for instead of sacrificing the material he must preserve its distinctive and personal nature. The Greeks were proposed as models, because in their public life they presented all the attraction of art as well as the dignity of wisdom without any sacrifice of their native character. But to attain a resemblance to such a state of things the age must first recover itself from its debasement and return to simplicity and truth. With SCHILLER art signified everything that was noble, and in reading what he says we are sometimes in doubt whether he is addressing the student of fine art or the patriots who were endeavouring to raise up an oppressed nation. The same principles are applied to politics and to art. It may be because the Germans have at last realised how vast is the difference between a fine painting or

statue and a system of government that they were no longer able to appreciate SCHILLER's like fathers.

SCHILLER could not ignore the melancholy fact in many ages when art was in an advanced state there was little or no liberty. If in the days of PERICLES art was at its highest, the great works seemed to be an indication of the approaching time when Athens would bow to the ruler of Macedon. In republican Rome art had few lovers. The emperors patronised it as an auxiliary. Florence also could associate its art with the government of the MEDICIS. SCHILLER's opinion was, however, not to be subdued by any experience which history recorded. He considered that art could realise the importance of art then they could demand it and uphold it. The French Revolution would appear to have taken the hint, for what was the aim of DAVID and those who assumed Roman manners, and, as they thought, Roman manners and customs? It was an attempt to realise the ideal State imagined by SCHILLER, and which was to be founded on art rather than on selfishness?

It was not extraordinary that SCHILLER should have appeared up as a law-giver, or that he should propose the creation of beauty as the one thing necessary. Although he was brought up in comparative seclusion, his first play, "The Robbers," is a protest against the system of his time. His "Fiesco," his "Don Carlos," his "Wallenstein," his "Maria Stuart," his "Jehovah," his "Arc," his "William Tell," his "Demetrius," all represent States in which things were out of joint, and his historical works, "The Thirty Years War" and "The Revolt of the Netherlands," belong to the same category. Throughout the whole of the works, as GOETHE said, the idea of freedom was paramount, and was carried to excess. Although he was not considered a politician, and, indeed, there was no room for one in the States in which he lived, yet in his solitary moments he must often have bestowed attention on public affairs, and he was therefore glad to be able to give a more impracticable, theory of government. All he said on the subject had the effect in Germany of increasing the number of his enemies.

His incursions into the domain of politics naturally did not affect his poetic powers. Some of his best works were afterwards composed. At the time of his death he seemed competent to undertake work of equal merit. He believed, as we have said, in art, or, in other words, that the poet was born not made, but he spared no labour in his efforts to increase his innate power by the severest study. Hence it was not surprising that GOETHE was so struck by the progress of SCHILLER. When they met after a week's absence he found the young poet had advanced in several ways, and that his progress was not temporary but continued throughout his life.

THE SOCIETY OF ARCHITECTS.

WITH a view of enabling some of the provincial architects to meet together, it is proposed to send visits to Chester and Liverpool on June 2 and 3. The arrangements for the convenience and pleasure of the members are being undertaken by the president, Mr. Thomas, who is desirous of meeting as many members as possible on this occasion. Before, however, going into detail, it will be necessary to know approximately what support the proposal will receive from the members. The itinerary will be roughly as follows:—Friday, June 1: Arrive Chester, lunch together, and afterwards visit the principal buildings, &c.; proceed to Liverpool in the evening. Saturday, June 2: Liverpool, see principal buildings, and leave for London, &c., in the evening. Members are invited to bring ladies, and will be permitted to invite friends to join the party. It is requested that members will inform the secretary not later than May 15 of their intention to join the party, and the probable number of friends they will bring. The final arrangements can only be made if at least a few members signify their intention of taking part.

WHITGIFT'S HOSPITAL, CROYDON.

THE Whitgift Hospital at Croydon was visited on Saturday, April 1, by members of the Upper Norwood Athenæum, under the guidance of Mr. Jonathan Downes, it being the third winter meeting of the Society. A number of the members and their friends assembled in the quadrangle of Archbishop Whitgift's noble foundation, which has been attacked by Philistines from within and without, and has only recently undergone a violent assault from the enemy, which had been frustrated, at all events for the time, by the vigorous defence of men of light and leading, taste and culture. *Gaudeamus igitur*, and we trust that with on æsthetic and utilitarian grounds these unseemly attacks may cease. The party were met at the Hospital by Alfred Jones, B.A., the warden, a gentleman whose ripe scholarship is only surpassed by his zeal for the foundation and the welfare of the poor folk committed to his charge. He entered at length upon the history of the Hospital, its architecture, its ancient bell. He showed the visitors the charters, including Whitgift's Deed of Gift, the antique silver vessel, the mazer bowls of wood and silver, the books of accounts, the woodwork—

Carved with figures strange and sweet
All made out of the carver's brain,

stained-glass windows, the chapel and its oaken seats and the portraits. So much is there to be seen and described that it is customary for Mr. Jones to ask his visitors to stay a fortnight while he tells them all about this wonderful place. He was the guest of the members at tea at the Greyhound, and after Mr. Downes had introduced the subject, Mr. Jones added to the fund of information already imparted, receiving, with the leader of the day, the hearty thanks of all present. Mr. Frank E. Spiers, the chairman, presided, and among the visitors were Messrs. Munro,

Whitgift at once set about to remedy. The historian Mosheim thus sums up Whitgift's character:—"He was disinterested, consistent, single-minded, liberal and discerning above most men. His great natural blemish was hastiness of temper. This, however, he corrected by a spirit so thoroughly considerate and forgiving that his friends rather apprehended from him undue lenity. When principle was at stake he would make no compromise. In secular politics he did not interfere, usually retiring from the council board when it was unoccupied by ecclesiastical affairs." In the latter connection it may be remarked that he was offered the post of Lord Chancellor in 1587, but consistently refused it. He died in 1604.

Such was the prelate whose primacy marked the new type of English bishop; the days when an Anselm and a Becket were compelled to withstand the king were over, and henceforth the duties of the successors of the apostles were confined to the spiritual and such of the temporal as did not partake of a political nature. That those duties were political in a truer sense was emphasised in the case of Whitgift, who, in founding his Hospital at Croydon, pierced the heart of the problem, how to combine the spiritual with the temporal welfare of men. It was no new problem, and it was solved in no new way. For ages past the Church had been the nation's benefactor, and in ages to come she would fulfil the same office. While Whitgift crystallised the method by his foundation of this Hospital, temporarily under a cloud in these artificial times, future ages will revert to it as the most satisfactory solution of the problem of the aged poor.

Whitgift commenced the building of his Hospital in 1596, and intended it for the aged poor and infirm of Croydon and Lambeth, with which he was immediately connected through the archiepiscopal palaces in those places. Stow, writing in 1600, says:—"This year the most



WHITGIFT HOSPITAL.



WHITGIFT HOSPITAL—HETHER GATEWAY.

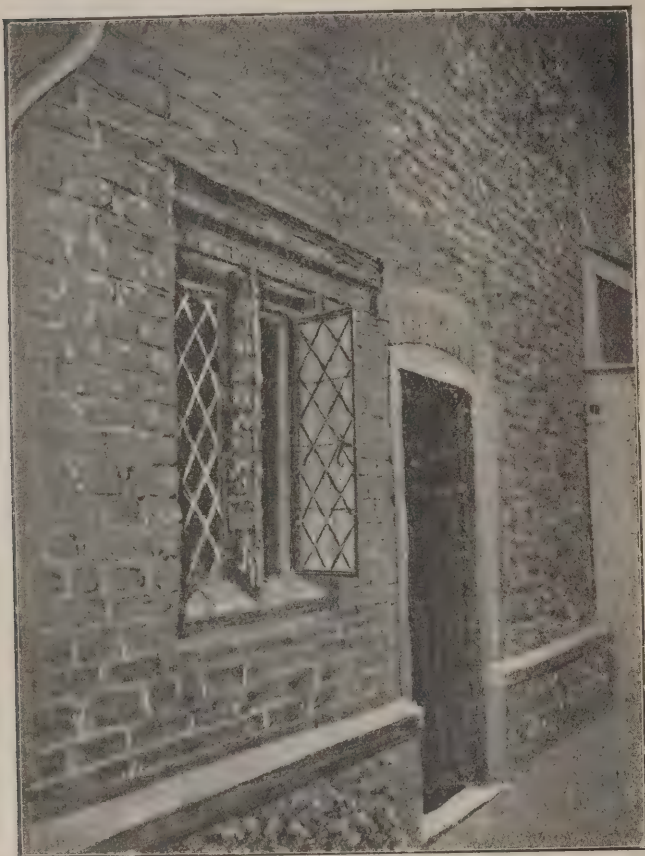
n, Davis, Clarke and Frost. Mr. Downes read the following paper:—

Notwithstanding the spirit of mere utilitarianism which has sprung up in modern days, there still remain in our country many of the ancient charitable foundations known as hospitals, of which the one under consideration is the most interesting example. Last year our Society selected one of the most important, the Hospital of the Holy Trinity, Winchester; and on former occasions Abbot's Hospital at Guildford, the College at Cobham, Kent, and the St. Mary's Hospital at East Grinstead and several others have been visited. St. Mary's Hospital at Chichester, St. Andrew's Hospital at Sandwich and a similar foundation at Canterbury are also interesting examples of this kind of mediæval institution.

John Whitgift was born in 1530 at Great Grimsby, Lincolnshire, and became Master of Trinity in Cambridge. He was appointed Dean of Lincoln in 1573, and transferred to the Bishopric of Worcester in 1576, advancing to the Archbishopric of Canterbury in 1583, in which high position he succeeded Archbishop Grindal, whose lenient attitude towards the existence of abuses which the stronger

reverend father, John Whitgift, Archbishop of Canterbury, did finish that notable and memorable monument of our time, to wit, his Hospital of the Holy Trinity in Croydon, in the county of Surrey, by him there founded and builded of stone and brick, for the relief and sustentation of certain poor people. As also a fair school-house for the increase of literature, together with a large dwelling for the use of the schoolmaster." The inmates of the Hospital, known as "brethren and sisters," selected the warden from their own body, and he, together with the schoolmaster and the "auncienteste brother, so he be able to goe and walke abroad, or ells the next in auncientye that is able," formed the "clavigers" who each held one key of the three locks of the treasure chest. The building was completed in 1599, and is an interesting example of Elizabethan work, marking the decline of Gothic and leading up to the revival of Classical styles. Throughout it is of red brick with stone facings, except in the case of one of the kitchen windows, where moulded bricks are used. The arms of Whitgift are placed over the entrance, together with the motto of the Hospital, "Qui dat pauperi non indigebit." We enter at the west end of the quadrangle and come upon a beautifully

turfed courtyard; at the opposite or east end is another entrance, which led to the now confiscated gardens and fields of the Hospital, but now terminates in a meagre backyard. Within this gateway a flight of wooden stairs leads to the great or audience chamber; a quaintly worded inscribed intimation is given to "rub well thy shoon before these ancient stairs ye tread." In the north-east angle is the kitchen; next to it the common hall; on the southern side of the gateway, or "hether gate house," are the warden's rooms, and the chapel is in the south-east angle. The movable treasures (long may they remain unmoved) of the Hospital are many and varied in character, but all in harmony with the quaint old-world taste of our forefathers. There is the bell, older than the Hospital itself, and probably dating from 1414, which was placed in position in



WHITGIFT HOSPITAL: AN UNRESTORED WINDOW.

1612, and was outside the building so late as 1795. It came from Lincoln Cathedral. The common hall on the ground floor retains the original chimney-piece and andirons, the oaken table is dated 1614, the stained-glass medallions in the windows are charged with the arms of Whitgift impaling those of the See of Canterbury, the royal crown of Queen Elizabeth, the arms of another archbishop bearing a shamrock leaf impaled with the pallium, the royal standard of Queen Elizabeth, and the arms of Edward Aylworth, 1598, who "was at the charge of the casements and the glazing of the halle, and it cost him 3*l.* 4*s.* 2½*d.*, and he gave at his death *vi. tie ragg gowns.*"

WINDOWS IN STANFORD CHURCH.

AT a recent excursion of the Architectural and Archaeological Society of Northampton and Oakham, Stanford Church was visited, when Mr. C. A. Markham read the following paper:—

The church of St. Nicholas is singularly uniform. The tower is original except the parapet and pinnacles, which are debased in character. In the corners are squinches, which show that the architect originally intended to build a spire. The windows in the chancel are of the plainest Decorated type. The clerestory is also Decorated, though probably a later addition. The striking effect of the interior is due chiefly to the absence of seats throughout the aisles and a great part of the nave, and to the slenderness of the pillars, rising with continuous mouldings into pointed arches, which are surrounded by a hood of roll-moulding.

The organ came from the royal Palace of Whitehall having been sold by Cromwell. In the south aisle there is an excellent piscina and an original sepulchral recessed with much beauty, with its mutilated recumbent figure. There is also a monument for the late Baroness Bray Thornycroft; one for the Hon. R. Otway Cave, by Thomas Maccott; and another by Kessell, for the Hon. Thos. Otway Cave. The communion plate consists of a cup and cover made in 1604 of elegant design, a silver paten of 1637, a large silver gilt alms dish of 1674 given by the Rev. Edgell Wyatt-Edgell, and a silver flagon of 1712, given by Sir Thomas and Dame Mary Cave.

But the glory of Stanford Church is its stained glass, which a large amount still remains of the Decorated, perpendicular and Cinque Cento styles. The earliest piece of glass is certainly that in the east window of the chancel, which appears to have been made about 1340. In the head of the most tracery light is a Royal head—similar to the head on the coins of the first two Edwards. The tracery lights of the next row each contained a figure, but all are lost. The next row of three lights contain three figures, the central being a representation of the Divine Christ seated with a mound or globe at His feet; and on either side the figure of a bishop in mass vestments. The lowest row, being the lowest of the tracery lights, consists of five openings, each containing a shield of arms. The first is charged with the Royal arms of England—gules, three lions passant guardant, in pale, or with a label of five points, azure. These arms were borne by Edward II. whilst he was King of Wales. The second shield has the Royal arms of France—azure, semée of fleur-de-lis, or, being probably those of Queen Isabella, the consort of Edward II. On the third shield are again the Royal arms of England, without the label, being the arms of Edward II. On the fourth shield are the same arms, but differenced with a label of three points, being those of Thomas of Brotherton, Earl of Northampton, elder half-brother of the king. Much of the lower part of the window has been closed by masonry, and the tracery which remains is of a later date, some being of the fourteenth period taken from other windows. In the head of the first light from the north is a shield displaying a red cross on a white field, the arms of Lord Wake—or, two bars gules, in chief three torteaux—who was doubly connected with the family. In the head of the next light is a shield with the arms of Warren, probably for John Plantagenet, Earl of Surrey—checky, or and azure. In the centre is a representation of the Blessed Virgin with the infant Christ on her lap. The next light is the shield of Humphrey, Earl of Hereford and Essex—azure, a bend argent, between two cottises six lions rampant or. The last light contains fragments of a shield which may be that of Gilbert de Clare, Earl of Hereford and Gloucester. The original arrangement of the glass in the lower lights of this window cannot be determined.

The next glass in order of date is in the second window of the chancel now remaining open, which is supposed to be somewhat later than 1340. The second window on the west, on the north side, has the heads of two figures in the lower lights filled with the spires of canopies of a bold and lofty character. The canopies themselves have gone, but the figure of a bishop in the east window of the north aisle appears to have come from this window. The remainder of the design of this window cannot be traced. The heads of the lower lights of both the north and south windows are filled with portions of glass from other windows intermixed. Each portion consists of a narrow border and groundwork of white glass ornamented with blue and red. In this glass there are two canopies in the second window on the west, on the north side of the chancel, which appear to have been taken from other parts of the church. The figure under one canopy is St. Margaret; the other figure is unknown. Both canopies are designed to carry high and are dissimilar to the flat-topped canopies which belonged to the other chancel windows. The rest of the stained glass is contained in the windows of the aisles, and varies in date from about 1340 to 1370. The glass, however, in the church is so much alike that it was probably executed under the same superintendence and perhaps by the same artist. The east window of the south aisle contains the latest and most pleasing specimen of Decorated glass in the church. The colouring and tracery of the head of the window is excellently adapted. In the larger lights are represented a figure carrying a cross in its hands, two angels swinging censers, the Crucifixion, and a figure carrying a cross.

Blessed Virgin and St. John the Evangelist. The figures are rendered conspicuous by being coloured lighter on the grounds on which they are placed. The heads of the lower lights have grotesque and royal heads. The stained heads are those of middle-aged females and of old and youthful males; and from the character of the drawing and execution show the date of the glass. The window of the north aisle is very like that in the south aisle. In the upper tracery lights is represented Christ the Judge of the world surrounded by angels, some of whom bear instruments of the Passion, while others summon with their trumpets the dead who are rising from their graves. Below is the Crucifixion, with the attendant figures of the Virgin Mary and St. John the Evangelist. The lower lights are the spires of four canopies. The two canopies below are not in their original positions. The one on the left is the figure of a bishop, and under the other St. Peter teaching the Virgin to read. Two other windows are worthy of note—the first window from the east in the north aisle and the second window from the east in the south aisle. In the principal light of the window on the north is St. Michael in armour, which was perhaps copied from some earlier form. In the two lower principal tracery lights are figures of angels swinging censers, and in the smaller lights birds and fishes. In the north aisle below the rich colouring is confined to the principal tracery lights, in which are represented an Agnus Dei, the figure of St. John and another mutilated emblem. The smaller tracery lights are filled with diaper patterns. The tracery of Perpendicular and Cinque Cento glass are all in quantity and are scattered over many of the windows. In the east window is a fine Cinque Cento group of kneeling figures, members of the Cave family. This window may be distinguished from the earlier glass by its greater clearness and brilliancy and its more highly finished execution. Many of the specimens of heraldry in the windows are of the sixteenth century. Altogether the stained glass in this church possesses great interest and ranks amongst the finest in the country.

CHURCH BUILDING SOCIETY.

THE annual meeting of the Incorporated Church Building Society was held on the 4th inst. at the Church of St. Albans, the Bishop of St. Albans presiding. The annual report stated that the income of the Society for 1904 was £74,000, against £59,187 in 1903. This increase was almost entirely due to the sum received from legacies. The donations increased from 614% to 640%, but the annual subscriptions fell from 592% to 571%. There had been a steady decrease for some years in the receipts from "parochial and other collections," but in 1904 there was a decrease. The number of parishes contributing had not diminished, in many cases the amount sent had been considerably increased. The past history of the Society showed that it had been instrumental in aiding in the erection of no less than 1,379 additional new churches, and in assisting in rebuilding, enlarging or otherwise improving the accommodation of 3,799 other churches or consecrated chapels-of-ease. By means more than two million additional seats have been provided, by far the greater part of which are for the free use of the parishioners according to law. The actual amount of money entrusted to the Society and used in giving grants towards the objects named has reached £861,000.

The Chairman said it was a Society which had deserved the support of the Church public, and he did not think that the Church public quite realised the debt under which it lay to the Society. In the first place, he would like to point out the extreme value of the opinions which they were able to obtain from the consulting architects of the Society on the various plans which were from time to time submitted to them for criticism. There was no organisation in England which had command of such architectural talent as that which was at the disposal of the Incorporated Church Building Society, and it must be a matter of great satisfaction to any one connected with or interested in church building that the plans submitted to the Society were investigated and examined by thoroughly competent and able men, and that the reports given upon those plans were of such a character as to be most helpful to all the people concerned in the building of churches. It was not merely in reference to the plans, but in reference to the moral support given, that the Society was so very helpful.

Mr. C. Hodgson Fowler, in moving the adoption of the report, explained the duties of the committee of architects

and laid stress on the amount of good work which they had accomplished, not only in regard to the erection of new churches, but also, what was perhaps not so well known, in reference to the preservation and renovation of old churches. He also alluded to the necessity of proper and adequate insurance of all church buildings, pointing out the desirability of insuring separately, so far as possible, the different portions of the structures, so as to be able to make a proper claim in the unfortunate event of a fire. He spoke highly of the Ecclesiastical Fire Insurance Society, whose officials, he said, were naturally more fully acquainted with churches and their cost than were those of some of the ordinary insurance societies, and who, as the audience no doubt knew, contributed largely to the funds of that Society, as well as to the various diocesan funds.

Mr. W. S. de Winton moved:—"That having regard to the success which has attended the work of this Society in the past, it is desirable that a vigorous effort be made to secure increased support both for its general fund and its special mission buildings fund, so as to enable it to meet the very pressing claims which are continually being brought before it, and which arise not only from the need of supplying adequate church accommodation for the rapidly growing population in large towns, but also from the gradual decay into which the more ancient and interesting churches of the country are continually falling."

The Chairman said in reference to Mr. de Winton's observation as to the expediency of putting up mission buildings which would last, rather than mere temporary iron ones, with this he fully agreed, and in fact it had been his own practice; when at St. Mary's, Portsea, he had put up one iron church and four of brickwork.

ENGRAVINGS OF DUBLIN.

A PAPER was read before the Royal Society of Antiquaries of Ireland by Dr. E. MacDowell Cosgrave entitled "A Contribution towards a Catalogue of Engravings of Dublin." He said that in attempting to draw up a list of engravings of Dublin two classes of difficulties presented themselves—those of form and those of substance. The form which at first thought seemed best was of course the chronological, yet that magnified the importance of some, and where copies of older drawings had been subsequently produced it caused confusion. It also rendered undated pictures, of which there were many, a difficulty. The other obvious plan was to describe the most important groups of pictures, and then to fit into their proper places those of less importance. The chief difficulty of substance was how far, if at all, book illustrations should be admitted to such a list, as often they were only copies of earlier views; yet if book illustrations were omitted a great deal of information would be lost, as some were original, and sometimes it was impossible to find copies of the engravings which inspired the book illustrator. He had tried to steer a middle course, keeping chiefly to chronological order, but emphasising what was most important, and selecting any book illustrations which threw light on the appearance of their city. Dr. Cosgrave then presented a fine series of pictures, of which the first was one of 1581, representing Sir Henry Sidney leaving Dublin Castle, followed by another illustrating his return; various pictures and maps of Dublin showing the changes brought about in the course of time in the principal public and other buildings, and in College Green, Sackville Street, Mountjoy Square, &c. The pictures, which were frequently copied by contemporary and later magazines and journals, were of great interest owing to the alterations which had since taken place. They were brought down to 1784, and Dr. Cosgrave said he hoped on a future occasion to bring the catalogue.

The Council of the University of Birmingham wish to elect a professor of civil engineering to co-operate with the professors of mechanical and electrical engineering. He will have charge, with an assistant, of the teaching of surveying, strength of materials, hydraulics and other branches of civil engineering, and will superintend the laboratories for hydraulics and strength of materials. The stipend will be 600% a year. The Professor will be allowed to take higher consultative work, to keep in touch with civil engineering practice, provided that it does not interfere with his University duties. Applications, accompanied by 75 copies of testimonials, should be received by the secretary not later than May 20.

NOTES AND COMMENTS.

A CASE which was heard before the stipendiary at Burslem should be interesting to builders of chapels in towns. The trustees of a Methodist New Connexion chapel obtained a site for a new building, and sought exemption on the ground that the land was a place appropriated to religious worship. The magistrate reserved his decision. He came to the conclusion that under the Private Streets Works Act the place to be exempted need not be a building; it was also exempt from the payment of poor rates, because there was no beneficial occupation of the land. He was not, however, satisfied that it could be considered as a place set apart for religious worship solely. He found from an examination of the deeds that the trustees had the power to build a house or houses for a minister or an attendant. If that right were exercised they would not be exempt. If Sunday schools only were erected the question of exemption might give rise to discussion, but in the case of a house there could be no doubt. The magistrate therefore held that the trustees were liable for the cost of the street improvement. The decision is to receive the attention of the National Free Church Council.

In the section of architecture at the Ecole des Beaux-Arts Americans are more numerous than any of the other strangers who attend. It is believed that the average of late years has been from seventy to eighty. American amateurs are not forgetful of the hospitality shown to their countrymen. As a recognition of it Mr. STILLMAN has offered a sum of half a million of francs to the school. The money is to be applied as the Académie des Beaux-Arts may arrange for rewarding French students. Having so much interest in Paris it is right Americans should desire to know more about the city and its masterpieces than they can obtain from their hurried glances whenever they visit it. Recently M. DESPRADALLE, the architect, delivered in Boston a course of lectures to crowded audiences on the "Evolution of Modern Paris." The works he placed as foremost were Notre-Dame, the dome of the Invalides, the Garde Meuble and the Opera House.

THE parish church of Ramsgate is familiar to the majority of Londoners. It is supposed to be Gothic, but when it was erected there were no precise ideas about the style. As the building stands on comparatively high ground the octagonal lantern tower or belfry is a landmark for mariners. The church has suffered through its elevation, and lately the pinnacles and other adornments of the lantern have had to be removed. The restoration of the building is estimated to cost 4,800*l.* The lantern will require 2,700*l.* of that sum. Mr. CARÖE has charge of the work, and it would not be difficult for him to design a more interesting crown for the church which would not cost more than 2,700*l.*

THE Austrian dramatist LUDWIG ANZENGRUBER was one of the pioneers of realism on the stage. He took most of his subjects from the lives of the peasants, and it was a surprise to playgoers to discover that such a class of *dramatis personæ* could be made interesting. He died in 1889. Vienna possessed one memorial of the popular dramatist, but another has been placed in a fitting position near the Deutschen Volkstheater. It is the work of JOHANN SCHERPE. The sculptor wished to suggest that ANZENGRUBER belonged to the classes who are the substructure of the State. The pedestal is therefore a rough block of sandstone. At foot are stones amidst which appears a figure of HANS the stone-breaker, one of the writer's creations. ANZENGRUBER is represented as if in the mountains. He stands looking towards a distant place with a stout bergstock in his right hand while the left hand holds his large hat behind his back. The statue is certain to be one of the most popular in Vienna.

A CIRCULAR has been issued by Mr. M. B. ADAMS relating to his candidature for a seat on the Council of the Institute. He bases his claim on his services, after twenty-six years as hon. secretary of the Architectural Museum, in originating and carrying through the transfer of the property to the Architectural Association. He desires to still further advance the project. He adds:—"My ambition, however, is to be returned as the nominee of any section of the Institute. The one pledge which I give is my intention, if elected, to advance the highest interests of the art of architecture to the best of my ability." It is desirable to have a Council of a varied kind, and Mr. M. B. ADAMS's acquaintance with the inner and outer workings of architectural practice makes him a candidate who should be able to render useful service.

ILLUSTRATIONS.

ROYAL LONDON FRIENDLY SOCIETY, FINSBURY SQUARE.

READING GAS COMPANY'S NEW OFFICES, READING.

THESE buildings have been recently erected. They have a frontage to Cross Street of 102 feet and to Friar Street 40 feet. The basement contains a large room for the larger articles. A strong room, vaulted, adjacent, is provided, so that books, ledgers, &c., may be conveyed from basement to the second floor. Stores, lavatories, w.c.'s, &c., are provided, all well lighted and ventilated by a large open area. Two staircases communicate with the upper floors. The first floor contains a large show-room for lighter goods, such as the different varieties of small gas stoves, and the various forms of incandescent light fittings. A large general office is on this floor, with distinct divisions for the secretary and assistant secretary. A separate office is provided for the prepayment clerk, who transacts all the business connected with collecting money from the automatic penny-in-the-slot meter, and a coat-room filled up with lockers for the staff is provided, and also a cycle-room fitted with stands for each cycle. A separate entrance is provided in Cross Street for this purpose. The main entrance is in Friar Street. The first floor contains a large lecture hall for the practical demonstration of cookery by use of gas kitchen fittings, &c. There are various other offices on this floor for use of the secretary, auditors, typewriter, &c. The second floor contains several offices. On this floor accommodation is provided for the caretaker, comprising kitchen, scullery, larder, pantry, sitting room, bedrooms and bath-room. On the third floor provision is made for various rooms should they be required. The premises are heated entirely by gas as arranged by the company. The materials used are as follows: The entire ground floor is built of "Grey Granite" of a particularly pleasing soft grey color, the whole of it being worked to the architect's drawings in Norway and shipped to England, and carried by the contractor. The remainder of the building consists of cornices, bands, quoins, &c., in Devonshire stone, in heights to equal six courses to the top, specially made red bricks. The circular angle of the roof forms a prominent feature, and is 90 feet in height to the top of the vane. The roofs are covered with the finest quality picked Westmoreland green slates. The doors, windows, &c., are made of teak. The architect is Mr. G. W. WEBB, F.R.I.B.A., Market Chambers, Reading; the contractor is Mr. J. GODWIN, of Reading; the clerk of the works is F. BAKER.

BRACKNELL LODGE, FROGNAL LANE, HAMPSTEAD.

SKETCH OF THE PULPIT IN BAPTISTERY AT PICA.

RECENT EXCAVATIONS IN ROME.*

1898 Commendatore Boni began to excavate the Roman Forum for the Italian Government. It may be said, without exaggeration, that all the remains of classic Rome are most full of significance, and which throw the best light upon the Romans, upon the development of religion, their political institutions and their life, have revealed during the seven years of his work there. The Forum was the centre of every side of the life of the city, its most ancient shrines, its place of political assembly, its judicial tribunals and its best shops were all situated in the narrow and marshy valley which first rose in importance as the common market-place of the small villages set upon the hills in the midst of which it lay. Through it passed the great triumphal processions, and in every class of Romans assembled for social intercourse. The times of the kings and of the republic are those in which the foundations of the Roman power were laid, and the institutions of those times the pure Roman elements which lay at the base of it are to be traced. The centuries of the Empire show us a Rome in which foreign influences and importations had modified, and in great part changed, the true characteristics of the Roman and of his religious and political ideals; it is therefore to the remains of kingly and republican Rome that Signor Boni has striven to reach, and he has striven with a success which has exceeded all expectation.

It would seem that the Latin tribes entered Italy from the north-east corner, and wandered along the low flat coast at 1000 B.C. At last they crossed the Apennines and settled on the western side of the peninsula, rather on low hills rising out of the marshes than upon lofty mountain peaks. They would seem to have been originally lake-dwellers, and the name "Latin" has been derived from *latus*, "the people of the plain." From the volcanic group of the Alban Hills some of them came towards the Septimontium, and communities grew up on the Capitol, the Esquiline, the Palatine, the Quirinal, which about the eighth century B.C. were united into one city by the chieftain of the Palatine, whom we call Romulus. The villagers met for exchange and barter in the valley of the Forum, and so great was the loyalty of the Romans in later times to the traditions of their city that for thousands of years that valley remained, in spite of all its inconveniences, the central point of its life. The Sacra Via, the famous path of the triumphs, and the road where the emperor Nero strolled with his friends, was at first a track across the marsh, passing along its higher and its sunnier side, thus uniting the two chief villages of the Palatine and the Quirinal.

All dwellers upon hills must fetch their water from a spring below, or, rather, they must send their womenkind to fetch it. Under the steep cliff of the Palatine a copious spring rose to the surface, which the Romans called the fountain of Juturna. From it the first Palatine women fetched water in rough earthen jars up to the village, as the women of so many little towns in central Italy do today. When the Romans had learned to dig wells for water the primitive associations of this spring with the origins of the State gave it a peculiar sanctity in their eyes, and it became a shrine of that nature-worship which their allegiance so much longer in its purer and more primitive form than it did that of the Greeks. The Romans had an implicit belief in the curative powers of water, and water was so likely to be beneficial as that of the first great pool of their forefathers? A sanctuary of healing grew up around the place, which became a kind of pool of Bethesda of the city. Varro derives the name of Juturna from *juvare*, "because so many sick are wont to seek the healing of the waters." A number of small arched cells behind the pool were found to contain the statues of health deities and seemed to have formed a kind of open-air hospital.

The story went that Castor and Pollux, appearing from the sky upon white horses, decided the battle of Lake Regillus in favour of the Romans, and afterwards announced the crowning victory over the Tarquins in the Forum, where they washed their horses in the fountain of Juturna. Statues were set up at the place, and numerous fragments of these have come to light there. The sacred pool was placed in the charge of a priesthood, and since it was only resorted to by women, this was very naturally a female one. Close beside it stood the hut of the public fire

from which the same women might fetch embers to rekindle their own hearths, and which was under the care of the same priesthood, the Vestal Virgins. These were "the daughters of the city," and performed for the State all such duties as in each household were performed by its womenkind. They were present at all ceremonies connected with the harvest, they brought the sacred water for expiatory sacrifices, they cooked the sacred cakes of the *mola salsa*, and they kept alight the fire upon the City Hearth. It was this intimate connection of theirs with the corporate State which gave them so deep and abiding a sacredness to a Roman mind.

The Hut of the Fire was called the "Aedes Vestæ," and since it was above all the shelter of the hearth of the city, it kept throughout its many successive rebuildings the circular form of a primitive hut, such as we see in the clay hut-urns found in early Latin cemeteries. The dwelling of the Vestals adjoined it, and close to both stood the Regia, "the royal house," and the dwelling-place of the King and Father of the primitive Family State of Rome. Thus it came about that there grew up in the south-eastern corner of the valley, around the spring, a group of shrines closely connected with the earliest beginnings of the joint city.

In the diagonally opposite, and north-western corner, was the Comitium, or place of political assembling. It was railed off by Tullius Hostilius, who built the first Senate house, or Curia, on the slope of the hill above. In the Comitium stood the platform for orators, which was called the "rostra," because it was decorated with prows of the ships taken in naval warfare. In the Comitium, Boni has explored twenty-three archaeological strata, these being floors laid down one upon another, and each one scattered with relics of the pottery and the sacrifices of the Romans. Several passages from Latin writers agree in stating that there was here, and in close connection with the "rostra," a "Lapis Niger," which marked the site of the tomb of Romulus, which tomb was guarded by two lions of stone (or by one). The famous Black Stone was found in 1899, and is actually a trapezoidal piece of black marble pavement let into the white pavement of the Comitium, undoubtedly in order to hide from view certain ancient and ruined monuments which it covers, while for ever commemorating their position. In order to discover whether a tomb of Romulus did really exist beneath it, Boni dug under the marble, having supported it on iron props. He found there two bases on which the lions may well have stood, together with two broken columns, the one conical, the other pyramidal in shape. Around them lay the remains of a great sacrifice and many votive offerings. Boni's own theory is that during the social wars of the Republic, when the plebeians were attempting to seize a share in the government from the patrician families of pure Roman blood, and when their tribunes appropriated the "rostra" for their own demagogic harangues, the patricians made a violent onslaught upon them. The ancient monuments before the platform were broken, but the plebeians performed a great expiation, and covered down the ruin with black marble brought from Cape Matapan.

The pyramidal column is covered on all four sides by an inscription, written *boustrophedon*, and in Chalcidic Greek; but, in spite of all efforts, only a very general idea of the meaning of this will ever be gathered, since two-thirds of it are broken away.

The period of the Republic has few remains of importance in the Forum which distinctively belong to it, although it is very clear that the notions of the Romans of that most important time in their history, as to religion and as to political aims, are greatly elucidated by the monuments which have just been described. Pavements and mighty drains of Cato and his contemporaries can indeed be pointed out *in situ*, and the latest discovery is one which must not be forgotten. It is the Lacus Curtius. Ovid remarks that in the spot where the gulf opened and closed upon Marcus Curtius, a pavement had in his time been laid down. This pavement, together with two others beneath it, has come to light in the centre of the Forum, and upon it is part of the altar where sacrifice was performed to the Manes of Curtius.

Julius Cæsar determined to put an end to the Republic, and to establish an autocracy based upon a wide democratic popularity. As he planned to transform the State, so he transformed the Forum. The buildings in it, whether consecrated to religious or to political uses, had been orientated according to the sun's course when they were inaugurated by the augurs. Walls and pavements can be seen in every part of the Forum lying below those of the Empire, and set up on these lines. One by one each was rebuilt or changed by Julius Cæsar and by Augustus, and in defiance of the

* A paper read by Mrs. Burton-Brown at the meeting of the City of Arts on May 3.

old customs of inauguration the new imperial Forum grew up, a broad open square following the natural conformation of the valley and the Capitol. This Forum was dominated by the new rostra of Cæsar, from which the orators addressed the mob assembled in the open space, and no longer the free men of the Comitium. It was lined on both sides by the Basilicæ Julia and Æmilia, and at the further end, appropriately enough, stood the Temple of Divus Julius, just behind the altar which Augustus erected on the site of the pyre of the great dictator. The people as they assembled in the Forum saw it surrounded by monuments of imperial magnificence, and the lofty Temple of Julius, together with the triumphal arch of Augustus, shut the primitive shrines of Vesta, Juturna and the Regia out of sight and out of mind. In order to enhance its popularity Julius determined to hold the games on a scale of greater splendour than before. It was difficult, as may well be imagined, to find room for this, and it is now found that he tunnelled its length and breadth by a system of five subterranean corridors. By means of these theatrical properties, fighters and wild beasts were brought beneath the arena, and were hauled up to it by small lifts. There are ample traces of the windlasses by which these were worked. The corridors when found were quite choked with earth and rubbish, and now that they have been cleared they are the most salient proof which could be found of Cæsar's political aims.

Statius tells us that a colossal bronze equestrian statue of Domitian was set up under the emperor in the midst of the Forum. Its concrete base was discovered recently. On searching it Boni found a block of travertine embedded in the concrete. A small hole in the middle of it contained six vases of a very primitive type, a type indeed which was in use, as we have every reason to believe, about the eighth century B.C. Their contents comprised some gold ore. We know that Vespasian in laying the foundation-stone of the Temple of Jupiter placed in it unsmelted precious metals, and there can be little doubt that we have here the remains of the inaugural votive offering of Domitian's monument, contained in what the Romans called "*Vasa Numæ*," i.e. vases made in imitation of those actually in use under the king whom they revered as the founder of the religious institutions of the city.

Outside the Forum a most beautiful monument of Augustus has recently been partially explored by Signor Pasqui, the "*Ara Pacis Augustæ*." It was dedicated in the year 9 B.C. by the Senate, in commemoration of the victories of Augustus, and of the opening of that golden age of peace which it was hoped that they might bring to the Roman world. It consisted of an altar of sacrifice raised on a platform, and surrounded by a marble enclosure wall covered with carvings in relief, both on the inner and outer side. A large number of slabs from this wall have long been at the Villa Medici, others in the Vatican, the Uffizi and the Terme Museum. Only recently, however, has it been recognised that they were connected, and that they belonged to the Ara Pacis, and in consequence Pasqui was entrusted with the further exploration of the site from which they came. Many more fragments have come to light as well as the plinth of the wall.

The outer face of the screen had a frieze which represented a procession of majestic and dignified Romans, led by the Emperor Augustus to do sacrifice at a shrine. They comprise four Flamines and other priests, as well as the ladies of the imperial family, and portrait figures of Tiberius, Drusus and others. The sacrifice is offered by a symbolical figure representing the "*Senatus Romanus*," at a rustic stone altar. The shrine is shown as that of a graceful reclining woman surrounded by the emblems of fertility. She has been usually explained as "*Tellus*," but may equally well represent Augustan Peace, surrounded by the accompaniments of Fruitful Earth. The frieze may be regarded as the marble counterpart of the *Carmen Seculare*, which is filled with rejoicing over the prosperity which was expected as the result of Augustus's rule. This processional frieze challenges comparison with that of the Parthenon, and in the contrast between them lies the difference between the ideals of Greek and Roman. Upon the Parthenon all dignity and majesty is concentrated in the figures of the "deathless gods," the people are full of light-hearted gaiety, and not one of them is individually characterised. The true religion of the Romans was their loyalty to the State and its officials; hence upon the Roman frieze the dignity and clearly-marked personality of the latter is the first quality which strikes the spectator, and the figure of the worshipped is marked by a merely symbolic grace.

Augustus knew how to use every Roman feeling of to early political and religious traditions as yet on aid to his own greatness. He called himself tribu Plebs for life, and associated himself with the inst the Flamines as well as with that nature-worsh as we have seen, had always had so strong a ho devotion of the Roman mind. Where Julius ha grasped at absolutism and had fallen, Augustus bu power by diplomacy and succeeded.

THE "AULD BRIG," AYR.

IF Robert Burns had not written a poem about Brig of Ayr it would at once be demolished on of its dangerous condition and a new bridge subst it. The question of cost need not be considered, fo the Templeton bequest a sum of 10,000*l.* is availab work. But the association between the bridge and is too close to allow of a summary solution of the We have from time to time described the efforts keep the bridge from collapse, but apparently the patching cannot serve. The Ayr Town Council works committee recognise their responsibility as g of the safety of the public and as custodians of a structure. They recently commissioned Mr. John the town surveyor, Mr. John Eaglesham, ex- and Mr. J. H. Morris, architect, to examine and rep the bridge. Then Mr. Hall Blyth undertook to ac sulting engineer, and finally Sir William Arrol, M his advice on the subject.

Mr. Young considers that the south arch should down and rebuilt, reusing the present materials, and suitable; that the three piers be rebuilt from 8 or 10 feet below the present foundations up to t of the arches. A good foundation would be found below the present foundation. A considerable p the facework of the piers had apparently been from time to time with stone and brickwork, a would be no great loss, from an antiquarian point if the piers were entirely rebuilt with new mate was doubtful if the deepening of the foundations rebuilding of the piers and cutwaters, while retai superstructure in position, would be a reasonable, proposal to adopt, in respect that the weight of t structure was about 500 tons. He regretted very necessity of disturbing any portions of the structu the public use of the bridge was to be continued it made secure, doing as little damage as possible an ing every possible means to that end.

Mr. Eaglesham states that he has approached t with a strong desire to retain as much as possibl present bridge. He would strongly deprecate the destruction of any portion of the structure which ciently sound of itself to allow of the continuance o use by the public. He would further desire to ma any feasible means, if not at unreasonable outlay porting and retaining intact the sound portions structure. He is agreed that as a first part of the s rebuilding the three piers of bridge must be rebuilt, and the new piers must be founded from 8 lower than the present foundations. Any portion original ashlar masonry in the present piers w retained and incorporated in the new wor Eaglesham, after very full consideration, sees no saving the south arch of bridge, and is of opinio should be taken down and rebuilt. Its present state clearly proves that movements in the struct taken place, and that the continuance of its us present condition is fraught with danger to the That being admitted, he is of opinion that nothing rebuilding this arch would meet the terms of the Te bequest.

Mr. J. H. Morris says:—"I suggest, in term remit to us, that new foundations and substantia piers are imperative. Regarding the remainder structure, all insecure portions which it is impossib wise to preserve and make secure and serviceabl be taken down and built anew, and all defective or material carefully cut out and renewed. I ap and do not seek to minimise the engineering di involved, but in the face of the many triumphs of e ing skill, I do not think it should be held impossible unreasonable to affirm that the bridge can be subst rebuilt in terms of the remit and on the lines ab lined if once the real value of the ancient edifice

sed and accepted. The bridge is a most valuable most priceless heirloom of the town and of the y, and should not be sacrificed because of the mone- utilitarian considerations. The comparative cost of ilding the bridge as above, and (2) substituting an y new structure, even if in it part of the old material rporated, should, it seems to me, be an entirely ar matter. In support of these views I would point at even if the bridge be wholly taken down and reusing therein as far as practicable the old materials, id no longer be the 'Auld Brig,' or even Burns's but at best merely a new 'auld brig,' and a sham en at that. Further, while new material can, where ary, be fitly added to or incorporated in an ancient hich exists, old and new material can never, in an ogical or even scholarly sense, be fittingly 'built r in a wholly new structure without flagrant offence d breeding. From the point of view of intrinsic hrough the accidents and exigencies of time these monuments are being gradually lessened in number, hose remaining become not only of relatively in- ing, but of almost inestimable value. The intrinsic of the existing structure may be compared to that of re of an old master, an early manuscript, a piece of e silver. Once destroyed they can never be remade, e value of thousands sterling is reduced to nought. For and other similar reasons, which I need not here set l, as an archæologist, strongly advocate the preserva- f such of the structure as can reasonably be made , and to retain, at least in essence, the bridge of and of Robert Burns."

Hall Blyth says he need hardly say that he recog- as strongly as any one the historical and archæological of the old bridge of Ayr, and was as fully impressed e importance of preserving as much of the old are as possible. There were so many national as as local associations connected with it that it was ial that any scheme for reconstruction must be one ould preserve as far as possible the identity of the . It was manifest that the bridge as it stood was better than a ruin, and that drastic steps must be at once if it was to be preserved at all. The piers ow got into a ruinous condition, and the superstructure twisted and distorted from end to end, and from side, as to be quite unstable and unsafe. Nothing have given him greater satisfaction than to be able vise some means by which the bridge could be ed secure as it stood, but looking at the matter as a cal engineer he regretted to say that that appeared to quite impossible, and the question to solve therefore ow the bridge could be secured for all time while still rving its identity. He concurred in the necessity for ding the piers. Before any operations were begun arapets must be taken down, and the roadway, the filling between the spandrels and the cutwaters yed. There would then remain only the spandrel and arches, and these could be treated in two ways— support them on temporary scaffolding, and (b) to take down and rebuild them along with the bridge. To pt to support the superstructure while the new piers being built would be a very difficult and costly opera-

With the masonry in its present condition the est settlement might, and probably would, cause the lete collapse of the arches, and after all necessitate lding. Looking to the fact that they were all of on that considerable portions of the bridge must be ved and rebuilt, he had very reluctantly come to the usion that the only practical and satisfactory method aling with the bridge was to take it down entirely, rving an exact record of the details of every portion ebuild it stone for stone on the new foundations. It t cause regret to some that this course had to be ed, but he was satisfied that when it was completed eneral opinion would be that the right thing had been and if the work was properly and carefully carried e beautiful lines of the original bridge and its pictur- e appearance would without doubt be admired and ed by future quite as much as by past generations.

ir William Arrol writes:—"I have gone into this matter nnection with the old bridge both with Mr. Young and Morris, and there is no doubt but the structure is in a dangerous condition, and in the present state of the es and upper part of the bridge it would be a very ult thing to underpin or repair the pier's without ng the arches stiffened and strengthened to enable to stand the strain that would come on them by the

underpinning of the piers. This underpinning would be a very tedious and difficult job, as the weight of the piers is so much out of proportion to the main part of the bridge. Had the bridge been in a good condition and stiff enough to do the ordinary work for which a bridge is intended, an attempt might have been made to underpin and sink the piers to a greater depth to prevent scour and further damage by the action of the river. The position in which this bridge is placed makes this underpinning very difficult, being practically at the mouth of a tidal river, but it might be attempted and carried on for a year or more; but owing to the frailness of the upper part of the structure the whole thing might collapse when you had one or more of the piers repaired. Looking at all the circumstances of the case, I quite concur with Mr. Hall Blyth's report as being the best in a practical sense. By taking down and rebuilding the bridge, as he suggests, you would then have a substantial structure that would last for many generations to come. As Mr. Blyth points out, the mortar is entirely done, and the slightest movement might cause the whole bridge to collapse at any moment. I think, looking at all the circumstances of the case, both in regard to the opinion of counsel and Lord Low's opinion, and in the interests of all parties from an archæological point of view, and also from the point of utility, that the bridge should be rebuilt. In my opinion the bridge would then be practically as good as new, and at the same time have exactly the same outline and appearance as at present."

On Monday last the subject was again considered, and it was decided that Mr. John Young, town surveyor, act as engineer in the work, with Mr. John Eaglesham, C.E., Ayr, as consulting engineer, and Mr. J. A. Morris, Ayr, as consulting architect in archæological matters. The surveyor was instructed to prepare plans and specification, and issue schedules for tenders, including in his schedules a temporary footbridge for use during the work.

DURHAM CASTLE.

AT the annual meeting of the Durham and Northumber- land Archæological Society the Rev. Canon Greenwell, the president, delivered an address. Last year, he said, they paid a visit to Durham Castle, and were greatly indebted to Dr. Gee for the very interesting and valuable historical account he gave them, an account which he hoped in due time would be put into printed form. They were taken round the castle by Mr. Hodges, who he (Canon Greenwell) expected would bring out a very valuable and exhaustive monograph upon the castle of Durham. Mr. Hodges had been surveying and working for many years, and was acquainted with the castle in all its details. He hoped before long he would bring out this account of their castle, which, it was understood, would be very fully illustrated with views. In speaking of the castle, he might mention that for some time there was considerable fear lest a portion of it should fall—the portion built by Bishop Pudsey. Pudsey's architects, although they were men of very great artistic qualifications, as their buildings showed, did not possess the same amount of skill as his engineers. Nearly all the buildings erected by Bishop Pudsey were on insufficient foundations and showed signs of shrinking. Many of them, in fact, came to absolute ruin. Durham Castle in turn showed signs of shrinking, and it became so serious that it was rendered necessary to carry out some very important and extensive work. The shrinking portion of the castle had now been braced together with iron girders, and they hoped it would stand for many generations to come. Without these alterations the probability was that the Norman gallery, senate room, &c., would have collapsed altogether, and no doubt would have collapsed if it had not been for the gallery of Tunstall, which ran along the lower part and acted as a kind of buttress. Altogether, a very good work had been done at the castle, and the part of the building previously in danger of falling was now being made perfectly stable. Proceeding, Canon Greenwell, according to the *Durham Advertiser*, said he was sorry to say what he understood was going to take place had not taken place. He thought Durham Castle was going to be delivered from being cut up into rooms for the purpose of housing students, but this, it appeared, was not to be. He never could speak of this matter without feeling that some day or other the castle would be burned down. There had already been fires in the castle, but these fortunately occurred in a portion cut off from the rest of the building by a strong party wall, or a very great

part of the castle would probably have been burned down. As it was, the part of the building where the fires took place was entirely and totally gutted. The two fires had taken place in consequence of students occupying rooms at the castle. If a fire took place in the Norman gallery nothing in the world could stop it being burned down together with the back staircase. Nothing, too, would stop it burning the castle hall, and the whole of the building erected by Bishop Pudsey. The Senate and the common rooms would be totally destroyed. He had understood they were going to remove the students entirely out of the castle, but this was not to be. It was a most suicidal thing to have students living at the castle. He only wished Dr. Gee were there that day, and he would then hear what he had to say. He (Canon Greenwell) had protested over and over again, but without avail. People did not seem to have the slightest care for the building of which they were in charge. People who occupied buildings like the castle of Durham, which was full of objects of interest of the highest kind of architecture, ought to guard the building with the greatest jealousy, and ought to do nothing or have anything carried on in it that might cause fire. He did not say students were more dangerous than any other people, but they could quite understand how a man, putting a lamp or candle away in a careless fashion, as some people were apt to do, might set the whole place on fire. They had the fact that two fires, due to students, had already taken place in the castle, and there was ten times more than the mere chance of a further outbreak occurring. Proceeding, Canon Greenwell referred to a number of photographs (produced) of ancient vessels found by Mr. C. J. Gibson, of Hexham, in a cistern near Dilston. These vessels, he explained, were placed in the coffins by the Ancient Britons, evidently for the purpose of holding food for the corpse for the next world. The curious thing about them was this: he had opened several coffins himself, and had invariably found in them, alongside the vessels, a shoulder bone of a pig, from which it was evident the Ancient Britons were fond of roast pork. The President proceeded to refer to a number of local churches, abbeys, &c., which were showing signs of decay, and mentioned Hexham Abbey as a case in point.

A member present said the fund subscribed for the restoration of the Hexham Abbey transept was being used, and illegally used he believed, for the purpose of putting in a new organ.

Canon Greenwell said talking of organs reminded him that Bret Harte once said engines were poison. Archæologists, on the other hand, said organs were poison, for they spoiled the architecture and beauties of many of our churches. Durham Cathedral afforded a case in point. Organs drowned the voices and spoiled the music, and whilst at one time the sexton used to be the authority in the church, it was now the organist who was in power.

A vote of thanks to Canon Greenwell for his address concluded the meeting.

BELFAST CITY HALL.

THE people of Belfast have acquired a reputation for hard dealing and for endeavouring to get the upper hand of those who transact business with them. The new City Hall is not unlikely to afford another example of the peculiar local system. It is generally accepted that the building, when completed, will add dignity to Belfast, but there is also a desire that it should be enduring evidence of skill in bargain-making. The building has been altered from the original plans in order to make it more grandiose. The contractors must be paid for the additional work, but it is now sought by some of the Council to fleece the architect by restricting him to the commission on the original tender. That policy seems to be evident from the following letter to the town clerk from one of the aldermen:—

Belfast: April 27, 1905.
New City Hall.

Referring to the statement I made yesterday at the improvement committee as to the conditions upon which the successful architect should be employed, I now confirm same, a copy of which I read to the meeting. Your statement that Mr. Bretland was only responsible—this I reminded you was not the fact, as at the meeting of the improvement and general purposes committee of June 22, 1896, the conditions and instructions upon which the architects competed were drawn and signed by you as town

clerk, dated June 20, 1896. I distinctly asked meeting in your capacity as solicitor to the Corporation Clause 17 bind the architect that his entire remuneration should be limited to 5 per cent. on the amount of no matter if the new City Hall cost a million of pounds. Your reply was that whoever was employed as architect, matter what extras were ordered or what sum tender accepted was incurred, all the Corporation liable for would be limited to the amount of the tender.

"Instructions to Architect (Clause 17).—That the design which shall be placed first in order of merit be employed to execute the new buildings and unless insuperable obstacles (of which the Corporation the advice of the assessors, shall be sole judge) such employment. In the event of the author of the design placed first in order of merit being employed to execute the buildings as architect, he shall receive as remuneration a sum equal to 5 per cent. on the amount of the sum accepted for the erecting of the buildings. It is to be understood and agreed that this sum will be remuneration, and is to include all professional charges and expenses in connection with the design, supervision and completion of the new buildings, excepting city surveyors' fees and clerk of works' salary, to be paid by the Corporation."

At the improvement committee I was present on January 14, 1899, when it was decided to raise the rate. The following resolution was adopted, so that no doubt or misunderstanding could arise as to fees:—"That the architect be informed that the committee consider the fees of 5 per cent. on the amount of the contract covers the entire of the remuneration on the design, as well upon the plans as any extras that may be authorised," and confirmed by the Council at the meeting held February 1, 1899. At the sub-improvement meeting held March 14, 1899, Mr. Thomas's letter of February 9, 1899, was produced as follows:—

"5 Queen Anne's Gate, London.—Belfast City Council."

"Dear Sir,—I regret to see from the copy of the letter forwarded on the 19th ult. that the committee do not in my views with regard to fees herein. I do not, however, I need say more in this matter now, but I shall have an opportunity of doing so at the conclusion of the meeting when no doubt the committee, after due consideration, will view the matter differently."

(Signed) A. BRUMWELL THOMAS.

This letter is not copied in the book setting of the various facts of the transaction. At the meeting of the improvement committee passed the following resolution:—"Resolved, that the architect be informed in reply that the committee adhere to the resolution of January 14, 1899," and this resolution was approved by the Council on April 5, 1899.

I take it in conformity with your duty to have forwarded this resolution to Mr. Thomas, and I present no reply has been received from him on the subject, which settles all questions of extra fees to Mr. Thomas, as he has gone on with the building under the terms and conditions upon which he was appointed.

At the improvement and general purposes committee meeting held on October 21, 1897, it was resolved that Messrs. H. & J. Martin's tender for the erection of the new City Hall, reducing the item of 10,000*l.* set apart for contingencies to 5,000*l.*, making the sum of their tender 149,854*l.* This resolution was adopted by the Council on November 1, 1897. This change was not put before the contractors who tendered.

On December 18, 1897, at a meeting of the improvement and general purposes committee, the town clerk reported that the conditions of the contract for the erection of the new City Hall had been settled by him, the clerk, and Messrs. Martin, as set out on page 59 of the report. Messrs. H. & J. Martin's contract states the new City Hall should be completed in four years, and they commenced operations in January 1898. From that period (1902) to the present, now over three years, the work has been completed, and alterations made which have saved the city from the most awful calamity. . . . This has been prevented by necessary extras being insisted upon by the Council at the meeting of the improvement committee on April 5, 1899, when a sum of 37,000*l.* was asked for to supply the materials and do other work, I moved an amendment to the resolution as follows:—"That no further expenditure be incurred on the City Hall until we have a full statement of the cost and the cost of all extras and expenditure necessarily ascertained to complete and finish the entire building."

me required to do so, so that the Corporation may what the new City Hall finished complete will cost." Howard stated he would second the amendment, but I did not understand that the resolution was put by the man and carried, to which I entered my protest. As will be no notice taken in the minutes of these facts, I consider it my duty to place the same in writing before you in your official capacity as town clerk and solicitor, so that a record of the facts can be hereafter referred to. It is set out in page 4 of the report, wherein the improvement committee asked for competitive plans not to exceed £100,000 to begin with, now by a system of patchwork the new hall will likely when finished cost 300,000. I was told, as you know, to the rates of the city being saddled with what I all along told you would be the final result, the enormous annual interest and upkeep of such an expensive building, likely costing 15,000. to 20,000. a chargeable upon the rates. Understand, I have no personal feeling against anyone. As a trustee for the rates I deem it my duty to them to record the facts. It is with them to take such steps as they may deem advisable. I find myself powerless to prevent further delay and unknown outlay.

ARTISTS' BENEVOLENT INSTITUTION.

The annual anniversary dinner of the Artists' General Benevolent Institution was held on Saturday, with Lord Chief Justice as chairman.

In proposing the toast of the Institution his Lordship hoped his shortcomings as an artist would not diminish the effect of the claim he was to make. He referred to two cases within his own experience. One was of a sculptor, penniless when he started, who showed ability, and soon rose on the top of the wave making success. He married, and, just as his name was being established, he was stricken down, and dying as a widow and three small children without support. A moment of foresight could have anticipated that terrible calamity. That was the class of case which the Institution did and did aid. He also knew the case of an elderly man who had been successful and had brought up a large family creditably. But his artistic capacity seemed to diminish; he had to live upon his savings, and, finally, he was leaving his family unprovided for. What could be more strongly to successful men than cases like these? Artists were the most unselfish set of men he knew, and the least jealous of each other, but they were not very provident. They were sanguine and—necessarily so, for otherwise they would not be artists—and they were easily led into unwise speculations. Nor did they make the best of their opportunities. There were reasons which showed the necessity for an institution of this kind. A great point in its favour was that its beneficences were distributed with a delicate and moderate hand, for the ladies they aided were such as would not go and beg in public—ladies who would drag on the merest pittance rather than let their sufferings be known. He pointed to the inadequacy of the funds at present for the disposal of the committee, and suggested to successful artists that it ought to be a code of honour with them to support the fund for the assistance of their less fortunate brethren—even to the extent of a tenth of their means.

Mr. Lawrence Alma-Tadema, R.A., responding to the toast of "The Royal Academy and the other artistic Societies," said:—I know there are some who fail to believe in the efficacy of our efforts, but their turn will come. They will probably be told, later on, how inefficient they are, and yet, no doubt, they will be acting in all sincerity to the best of their belief. Therefore, let us continue to live in our own aims and stick to the principles which have guided our lives, never forgetting that, art being needed by tradition, those who come after us will be the outcome of our experience, as surely as we are the result of the gathered experience of those who have preceded us. This leads me to remind you of the great need of our days, namely, education. Let us teach what can be taught, and more than ever doubt that one can give first-class work without knowledge. Individuality, resting upon a foundation of knowledge, will not fail to produce originality, for the same kind of seed sown in different soil will produce different results, while unguided experience cannot produce any result of value. Therefore, let us teach what can be taught in the schools and by

exhibitions. We show thereby not merely the results of modern teaching but also exhibit works of art representative of the efforts of divers countries. These exhibitions enable us to collect moneys for our schools and for yet further exhibitions; the remaining sums we use, as far as in our power lies, to alleviate the sufferings of the less fortunate fellow artists and their families. And in this sense we are a sister body to the Artists' General Benevolent Institution, which has done so much noble work for which we cannot be overgrateful.

Subscriptions to the amount of 3,725*l.* were announced.

BRICKS FOR FOOTPATH AND CARRIAGE-WAY PAVING.*

TO treat this matter exhaustively would take much more time than that at my disposal; but I hope it will be followed up by other clayworkers, and that the result may be co-operation with engineers and surveyors, with the object of producing the best and most suitable goods for their purposes, from which nothing but good could result.

Footpath Paving.

The county of Staffordshire has had a longer and wider experience in this than any other part of England, and the wear and tear on the footpaths there (the population consisting largely of colliers and ironworkers) is severe; yet nothing has been found to compare with good blue bricks in price, easy laying and removing, or wearing qualities.

The first essential is the right material which will produce a tough and hard brick, and this must be treated in a way to develop its best qualities and avoid the defects which in many instances have given paving bricks a bad name. The firing must have the most careful attention, or in this process the best of material treated by the best methods will be rendered worthless for paving.

It is necessary to have a clay which will stand a high temperature before fusion, viz. one which is highly ferruginous having a low proportion of alkalies.

It will be understood that I am dealing only with bricks which are made blue by the action of fire alone (a large quantity of artificially blued bricks are made in districts which do not possess a blue burning clay, and which are naturally very inferior).

Bricks are often specified to be blue through, and to this may be traced many failures to produce a good brick, and in many cases bricks have been rejected which did not answer this description in favour of bricks which did, though the latter were in every way inferior. We find that to blue (or, more correctly speaking, black) through a brick burns the nature out of the clay and renders it brittle and often spongy, and under some conditions might simply mean that the carbon had not been carefully burnt out of the clay.

Laying.

The subsoil being made solid, a bed of screened ashes is all that is necessary. The bricks lay and wear most evenly when laid herringbone, with one or two courses parallel to the path on both sides, with angle-pieces specially made to join up to these. Grouted in with fine ashes, and a sprinkling of ashes being thrown over the finished pavement, it is ready for traffic, which will soon wear the ashes into the joints and make a perfect grout. Sand and cement are sometimes used for setting, but it is an unnecessary expense.

Blue bricks are sometimes objected to on account of their sombre appearance, but this is preferable to the appearance of a light-coloured pavement in bad weather. A good hard brindled would give a mottled appearance, and may be preferred by some, while a hard red is preferred by others, but greater care would be necessary in selecting red bricks to avoid soft ones, and in any case their life would not be equal to that of blue. Good blue bricks may be relied upon to last for forty years without repair under the heaviest wear, and may last very much longer.

I am anxious not to overstate the value of bricks for roads, and do not claim that they are suitable for the severest traffic at present; but for residential areas, or streets where the traffic is not both heavy and quick, cattle markets, goods yards, tramway depôts, back cartways to houses, crossings, cab-stands, &c., they possess some advantages over any other kinds of paving. They give a perfectly true surface,

* From a paper by Mr. A. E. Blizard, read at the Conference of Municipal Engineers on the 5th inst.

are most sanitary (being non-absorbent), are easily washed down, are not more slippery wet than dry, give a good foothold for horses (having rounded arrises), are not as noisy as stone or granite setts, and will stand a great deal of wear; but that is the point upon which I am sensible that surveyors will require to be satisfied.

A brick-paved street may be repaired more cheaply than any other; and with a cement filler no special apparatus is required, as for pavements where asphalt or pitch is used; and the offensive smell of the latter is avoided.

For bicycles, motors and all india-rubber tyred vehicles, bricks are preferable even to asphalt, for with the latter there is a certain amount of suction on the tyres, which in the case of bricks is broken by the rounded arrises; and now that horse-drawn traffic is so rapidly being superseded by motor-driven, this is another point in favour of brick paving.

To give bricks a fair test they must be well laid, and the standard specification for the construction of brick streets adopted by the committee appointed to consider the matter in the United States of America is as follows:—

Standard Specification.

Substructure or Grading.—Earth in excavation to be removed with plough and scraper or other device to within 2 inches of sub-grade, then brought to true grade with the roller, the weight of which should not be less than 5 tons nor more than 8 tons. If the earth is too hard to receive compression through the weight of the roller, then loosen the remaining 2 inches with a pick and cart away. Earth in embankment must be applied in layers of 8 inches in thickness, and each layer thoroughly rolled; and in both excavation and embankment the sub-grade must have a uniform density. If the ground is a spouty clay, tile drainage should be provided to carry off the accumulation of wet.

Channelling.—If cement is used it should be completed; if stone, all should be hauled and distributed and set before the grading is finished, and it may then be used as a guide to finish the sub-grade.

It should range in thickness from 4 inches to 6 inches, and from 20 inches to 24 inches wide, the business and street traffic governing the same, and the lengths should not be shorter than 5 feet except at closures. The top to be neatly dressed with a square or rounded outer edge, and 4 inches down on the inside. The outer surface to be tool-dressed to the depth of the face exposed and to the depth of the thickness of the brick and sand cushion.

The intersection at street corners and alleys should be circular with radius of 4 feet and 3 feet respectively.

Curbs should always be of a hard and durable character of stone, and from 14 inches to 18 inches deep, dressed on top and 5 inches down the face next to the brick, and should be set accurately, to fix the curvature of the cross-section of the street on 6 inches of concrete, and backed up with the same within 6 inches of the top.

Concrete Foundation.—Crushed stone should be of approved quality of hard rock, with no fragment larger than will pass through a 2-inch ring and none smaller than will pass through a 1-inch ring in their longest dimensions, free from all refuse and foreign matter.

Sand.—Must be clean, sharp and dry and thoroughly mixed in its dry state until the whole mass shows an even shade, with an approved brand of either hydraulic or Portland cement. If of hydraulic, the proportion of mixture should be one part of cement and two parts of sand; if of Portland cement, one part of cement and three parts of sand. To the above mixture should be added sufficient clean water to mix to a plastic mass, fluid enough to rapidly subside when attempting to heap to a cone shape. To this mixture add four and five parts respectively of damp crushed stone or clean screened gravel, and turn the whole mass over not less than three times, or until every fragment is thoroughly coated with the cement mixture. For the reception of this mixture the grade should be set off in 5-foot squares, with a stake at each corner. Tops of each should be at the surface of concrete, which must be tamped until free mortar appears at the surface. Occasional sprinkling in extreme hot, dry weather is beneficial. After 36 hours the cushion sand may be spread.

Sand Cushion.—Sand should be clean and free from foreign or loamy matter. It need not necessarily be sharp. It should be 2 inches thick before the compression of the brick by rolling. The sand should be spread, by the aid of a template, the whole or one-half the width of the street,

and made to conform with the true curvature of cross-section.

Brick.—The brick should all be hauled and laid inside the curb line before grading is finished, or by the engineer, delivered on the street in waggons or carried from the pile or waggon on pallets or wheels and not wheeled with barrows. They should be and thoroughly vitrified, showing at least one fair face, with rounded edges, with no greater radius than sixteenth of an inch. They should not be less than 4 inches by 8 inches, or more than 3 1/4 inches by 9 inches, free from cracks, with lamination, and at least one edge with marks allowed. Such bricks or blocks shall be to a test of one hour in the National Brick Manufacturers Association standard rattle and under the conditions prescribed by that association; and if the loss by during such tests exceeds 20 per cent. of the original weight of the brick tested then such bricks or blocks shall be rejected.

Bricklaying.—Bricks should be laid perpendicular to the curb. Broken brick or block can only be used in joint in starting courses or in making closures. Bricks shall be laid on edge, close together, in straight line the roadway between gutters. Gutters shall be cut as directed by the engineer. After the bricks are laid they shall be thoroughly inspected, and all warped, soft bricks removed and replaced by more perfect ones. Those found with the bad face up should be turned.

Tamping and Rolling.—After the inspection is completed the edge of the pavement shall be tampered next to the curb, to the width of 6 inches or out from the curb, with a hand tamper. The pavement shall then be rolled with a 5-ton steam roller. Bricks are thoroughly bedded and the whole assumes a practical plane.

Expansion Cushion.—An expansion cushion must be provided for of 1-inch thickness next to the curb, filled with thirds of its depth with pitch, the top one-third bedded with sand, and a like cushion at right angles with at intervals of 50 feet.

The Filler.—The filler shall be composed of each of clean, sharp sand and Portland cement. The mixture should be dry. The mixture, not exceeding one-third of the sand, together with a like amount of cement placed in the box and mixed dry until the mass assumes an even and unbroken shade. Then water shall be added forming a liquid mixture of the consistency of thick cream. From the time the water is applied until the last is removed and floated into the joints of the brick the same must be kept in constant motion. The mixture shall be removed from the box to the street surface by a scoop shovel, all the while being stirred in the box as it is being emptied. The box for this purpose shall be 3 feet 6 inches to 4 feet long, 27 inches to 30 inches wide and 14 inches deep, resting on legs of different lengths so that the mixture will readily float to the lower corner of the box, which should be from 8 inches to 10 inches above the pavement. This mixture, from the moment it touches the brick, shall be thoroughly swept into all the joints. Two such boxes shall be provided in case the width of the street is 20 feet or less in width; exceeding 20 feet in width three boxes should be used. The work of filling the joints should be thus carried forward in line until an advance of from 15 to 20 yards has been made, when the force and appliances shall be turned back and the same space again in like manner, except that the force for the second coating may be slightly thicker than the first. To avoid a possibility of the grout thickening at any one place there should be a man with a large sprinkling can, perforated with small holes, sprinkling gently the joints ahead of the sweepers. This should be done in the proportion of each course specified. After the joints are filled flush with the top of the bricks, and sufficient time for evaporation has taken place, so that the coating will not absorb any of the mixture, 1/2 inch of sand should be spread over the whole surface, and in case the work is subjected to a hot summer sun, an occasional sprinkling sufficient to dampen the sand, should be followed once or three days. The grouting thus finished must be absolutely free from disturbance or traffic of any kind for a period of ten days.

What is now required is a fair test, on the line of the specification given above, on the whole length of the street where traffic is not too severe. There are a number of blue brick-makers capable of supplying any demand.

standard specifications and tests may be adopted by municipal engineers and surveyors in conjunction with the Institute of Clayworkers before any attempt is made to use bricks on a large scale.

Here we offer a suggestion by which the cost of providing a brick pavement in small country towns may be reduced, viz. by paving only the centre of the roadway, leaving room for two vehicles to pass, grassing the remainder on each side; sewer, gas and water pipes, &c., if laid on the side of the paving, could then be reached at any time without disturbing it, and a good track would be provided for horses. Then the dust nuisance, about which there is so much now, and which cannot be avoided on unpaved roads, would be obviated.

We would like to refer again to cattle markets, for which, as far as one will find any difficulty in recognising suitable as an ideal pavement. At present they are paved with cobbles, concrete, asphalt or stone setts, for the most part. Cobble gives good footing, but is either dusty or uneven and most insanitary. Concrete and asphalt do not give good foothold, cattle often falling and bruising themselves, whilst they have a very short life compared with stone setts. Stone setts are most uneven for cattle to walk upon, and do not drain off thoroughly. Bricks are not so absorbent, can be hosed down, drain off perfectly, give a level floor to stand upon (the rounded arrises give good foothold) and will undoubtedly wear for this century for generations when laid on concrete.

THE BOLOGNESE TOWERS.

Two of the most remarkable edifices in Bologna are the watch-towers. During the twelfth century, when the cities of Italy, "tutte piene di tiranni," were rivals in arms as well as in arts, watch-towers of considerable elevation were frequently erected. In Venice, in Pisa, in Cremona, in Modena and in Florence these singular structures yet remain, but none are more remarkable than the towers of the Asinelli and Garisenda, in Bologna. The former, according to one chronicler, was built in 1109, while other authorities assign it to the year 1119. The Garisenda was constructed a few years later, has been immortalised in the verse of Dante. When the poet and his guide are led up by the huge Antæus, the bard compares the huge stature of the giant to the tower of the Garisenda, as the spectator stands at its base while the clouds billowing from the quarter to which it inclines, appears to billow upon his head. The tower of the Asinelli rises to a height of about 350 feet, and is said to be 3½ feet out of the perpendicular. The adventurous traveller may climb to the top by a laborious staircase of 500 steps. The view presented at the summit comprises Imola, Ferrara and Ravenna, as well as the hills about Verona, Mount Baldus, and the Apennines seeming to rise abruptly from the dead flat which covers the three sides of Bologna. On the south are the very pleasant hills with villas. The Garisenda tower, leaning probably by the family of the Garidendi, is about 10 feet out of height, and inclines as much as 8 feet from the perpendicular. It has been conjectured that these towers were originally constructed as they now appear, but it is difficult to give credit to such a supposition. According to tradition the leaning of these towers has been occasioned by the sinking of the earth. Garisenda stoops so much that the perpendicular let fall from the top will be 7 feet from the bottom of it; and, as appears from examination, when the tower bowed, a great part of it went to ruin, because the ground on that side that inclined stood on was not so firm as the other, which may be said of all other towers. The tower of St. Mary Zobenica, at Venice, leans considerably to the side. So also at Ravenna is another stooping tower, leaning on the ground on that side giving way a little. The whole structure of the Garisenda stooped, much as it does, as appears by the top of it.

A party of members of the Edinburgh Architectural Association visited Niddrie Marischal on Saturday. It belonged to the late General Wauchope. The old tower was built about 1600, and converted later into a spacious staircase to serve the south wing, which was built by Sir John Wauchope, who succeeded to the estate about 1632. Sir John afterwards decorated the dining-room ceiling, still remaining, with devices in honour of Charles II.



R.I.B.A. Council Elections.

SIR,—Will you allow me to thank my many correspondents from all parts of the country who have sent me their promises of votes and support as an independent candidate for election on the Council of the Institute? May I urge, whatever the result of this important election, that every single individual member should record his vote in the interest of all that is best for furthering the advancement of the art of architecture and of those who practise the art, irrespective of party politics. This is the one aim which I have in view, and I am the sole candidate whose nomination was signed by two eminent R.A.'s.—Yours obediently,

MAURICE B. ADAMS.

Edenhurst, Marlborough Crescent, Bedford Park, W. :
May 11, 1905.

SIR,—That small minority forming the anti-registrationist body of the Royal Institute, still suffering from the shock caused by the slaughter amongst their ranks at the last elections, realise that their only hope is to adopt the electioneering measures which they so mercilessly condemned in their opponents, and appeal to the electorate for its vote and support. This minority has issued a circular intimating that the "leading architects" (under which vain-glorious heading it must be inferred the signatories class themselves) are the only persons through whom the Institute can ever hope to maintain its dignity or conduct business of "the nicest and most delicate nature." This is their platform. It looks new, but it is only the old worm-eaten platform the remnants of which have been fished out, patched up and ill-disguised by a clean coat of paint. In short, they invite the electorate to return to the old "do-nothing" policy and all will be forgiven.

Not a hint is given in their circular that any one of those subscribing are in any way predisposed to registration even as a principle. It is considered sufficient that they dub themselves "leading architects" and that they promise to be very nice and delicate, and above all dignified, dignity of course being a quality incompatible with the holding of registrationist views. Think how important it is that the Turveydrop manner should be well in evidence at the forthcoming international congress of architects, which is casually referred to in the circular. Here is exhibited a thinly-veiled dread that the registrationist party will, at the time of this great congress, be still in power, and will grasp the not-to-be-missed opportunity of bringing the registration question prominently forward, of passing a monster vote in favour of the movement, of presenting a memorial for signature by practising architects. The opponents of registration have realised, perhaps more keenly than its supporters, the bearing which this great congress may have upon the realisation of events. The last Council elections transformed that body from a coterie which persistently ignored the wishes of the majority into a body representative of those desires, a body which in one year of office has practically completed the draft of a registration Bill, a body which should be again returned in order that it may continue the good work. It therefore behoves every good registrationist to cast his votes only for those who are declared partisans of the movement and have proved their sincerity by positive and energetic action on the late Council.—I am, Sir, yours faithfully,

ANTI-STAGNATION.

SIR,—In the circular issued by Mr. George Aitchison, R.A., Mr. J. Macvicar Anderson, Sir William Emerson and Sir Aston Webb, R.A., all past-presidents of the Institute, occur these words:—"It appears to us of the greatest importance that the members of its Council should be representative architects of the highest standing, whose names are well known to the profession and the public, for without the experience and assistance of such men we are convinced the work of the Institute cannot prosper or confidence in it be maintained," and they "urge the importance of selecting only the most representative men as members of its Council, in whom all can have confidence while this important question (compulsory registration of architects) is being considered. If this is not done, we are convinced a very serious crisis will arise in the affairs of the Institute, which will paralyse, if it does not wreck, its usefulness, and thus defeat the object we all have in view, i.e. the

advancement and the highest interests of the art of architecture."

These are weighty words, and it behoves all members to weigh them well if they seek to advance the highest aims of the Institute; to record their votes in accordance with the advice given and to refuse their support to those candidates whose avowed aim is to force through the compulsory registration of architects under parliamentary powers.

I have voted in every election since I was elected a Fellow, and have sometimes been surprised at seeing the names of those nominated and elected, but never have I been more surprised than in the *personnel* of the present Council. When the list came out it appeared to me, and to many, I venture to think, as a veritable *débâcle*, when men, by no means "representative architects of the highest standing," occupied the seats of many who were.

To those entitled to vote and who have not yet done so, not knowing among the extensive list of candidates this year against whom to place a X, I would suggest that the circular issued by Mr. W. Gillbee Scott offers some valuable hints.—Yours obediently,

COLE A. ADAMS.

COLE A. ADAMS.

SIR,—The alteration of the Council last election must have been to the interest of the profession. For proof of this see the consternation caused and the keenness being shown by those architects who come under the dignified title of "the leading men of the profession."

Apologising for trespassing on your space.—I am, &c.,
NEW BLOOD.

GENERAL.

Lord Avebury has been re-elected the president of the Society of Antiquaries. Mr. Philip Norman will be treasurer, and Mr. F. G. Hilton Price a director.

Messrs. Bryan & Roberts, Weston-super-Mare and Taunton, were the successful architects in a competition restricted to architects practising in Somersetshire, including Bristol, for the erection of new Council schools at Taunton for 800 children. No premium is given, but Messrs. Bryan & Roberts will carry out the work at a commission of 5 per cent.

The Chailey Rural Council have granted a certificate for the occupation of Sir William Grantham's cottage at Barcombe.

Mr. Vernon Hodge, Teddington, has been awarded the first premium in a competition for a Carnegie free library at Wrexham. Mr. Willink, Liverpool, acted as arbitrator in connection with the 104 designs submitted.

Mr. F. J. Edge has, it is said, resigned the post of city engineer to the Newcastle-on-Tyne Town Council in order to act as consulting engineer to a private firm.

Sir Edward Poynter, president of the Royal Academy, left London on Saturday for Constantinople, where he intends to make a stay of some duration in search of subjects for his canvas.

A Small Roman Coffin has been presented to Colchester Museum, which, from perforations in it, had evidently been used as a sink.

The Streets Committee of the Bolton Town Council have resolved "That all architects and builders submitting plans to this committee be informed that in future all cross sections to houses shall have the levels of front and back streets shown thereon."

Mr. H. R. Hall, M.A., will on Tuesday next read a paper on the "Excavation of the Oldest Temple at Thebes" before the Applied Art Section of the Society of Arts.

The District Council of Altrincham, Cheshire, have accepted the plans of Mr. Wm. Owen, Duchy Chambers, Clarence Street, Manchester, for the erection of a hospital for infectious diseases. The designs were submitted in limited competition, and were awarded the first place by the assessor, Mr. Frank Briggs, Liverpool.

An **Imperial Museum** of fine arts is to be erected in Moscow in memory of the late Czar Alexander III. The building will be modelled in close imitation of the Pantheon at Athens.

H.M. Board of Works have now definitely taken over the ruins of the ancient Edwardian walls of Berwick-upon-Tweed, which stand outside the present Elizabethan walls which completely encircle the Border town. The Edwardian

walls include the bell tower from which apprised the town of the approach of the Scots. of Works will appoint a local committee to walls, and a guide and custodian.

The Total Number of works purchased Chantrey Trust, including this year's purchase of these 88 are oil pictures, 12 water-colours, 9 sculptures in bronze, 6 in marble. The leaving out of account Mr. F. Cadogan Cowper's *Prison*, is 67,018*l.* 15*s.*, or an average of about 1*l.* 10*s.* for each.

The General Purposes Committee of the Council, in a report concerning the memorial presented by architects as to the preparation of plans for new buildings, recommended that no alteration be made in the present practice followed in preparing such plans. The Mayor, when the report was discussed, said it was convenient to the Council to have advice upon such points from permanent officials. In cases where it was requisite an outside architect's assistance had to be obtained. The report was adopted.

The Customary Book of the city of Norwich of the MS. books of the Corporation, has been and steps have been taken to secure its retention and custody in the muniment-room in the municipality. The holder being struck by its antiquity, showed it to the librarian at the free library. The book was identified and secured for the city. The book has long been in the city and was not included in the last list of city documents compiled, as it was not expected that it would ever be replaced. It dates from the reign of Edward I.

The Four Niches in the wall of York Minster the late Archbishop Thomson's tomb and the south aisle of the choir, have been filled with statues of St. John, St. Simeon, St. Ann and St. Cecilia. They have been designed by Mr. G. F. Bodley, A.R.A., and executed in Tadcaster stone by Messrs. Farmer & Brindley.

Mr. A. Hodgson, metalwork instructor under the County Council, has been selected by Sir Philip the request of Johnson Pasha, for appointment Egyptian Government as foreman instructor in the ing section of the model workshops at the ne Assiout about to be opened. Mr. Hodgson has for Alexandria.

A Memorial Statue of the late Queen Victoria unveiled in the grounds of the British Legation at
The commission was given to Mr. Alfred Gilbert

The Shropshire County Council having failed terms with the Shrewsbury Corporation with respect to Shire hall, have decided to take the steps necessary for the erection of new county buildings. A sum of £100,000 has been offered in full discharge of all claims.

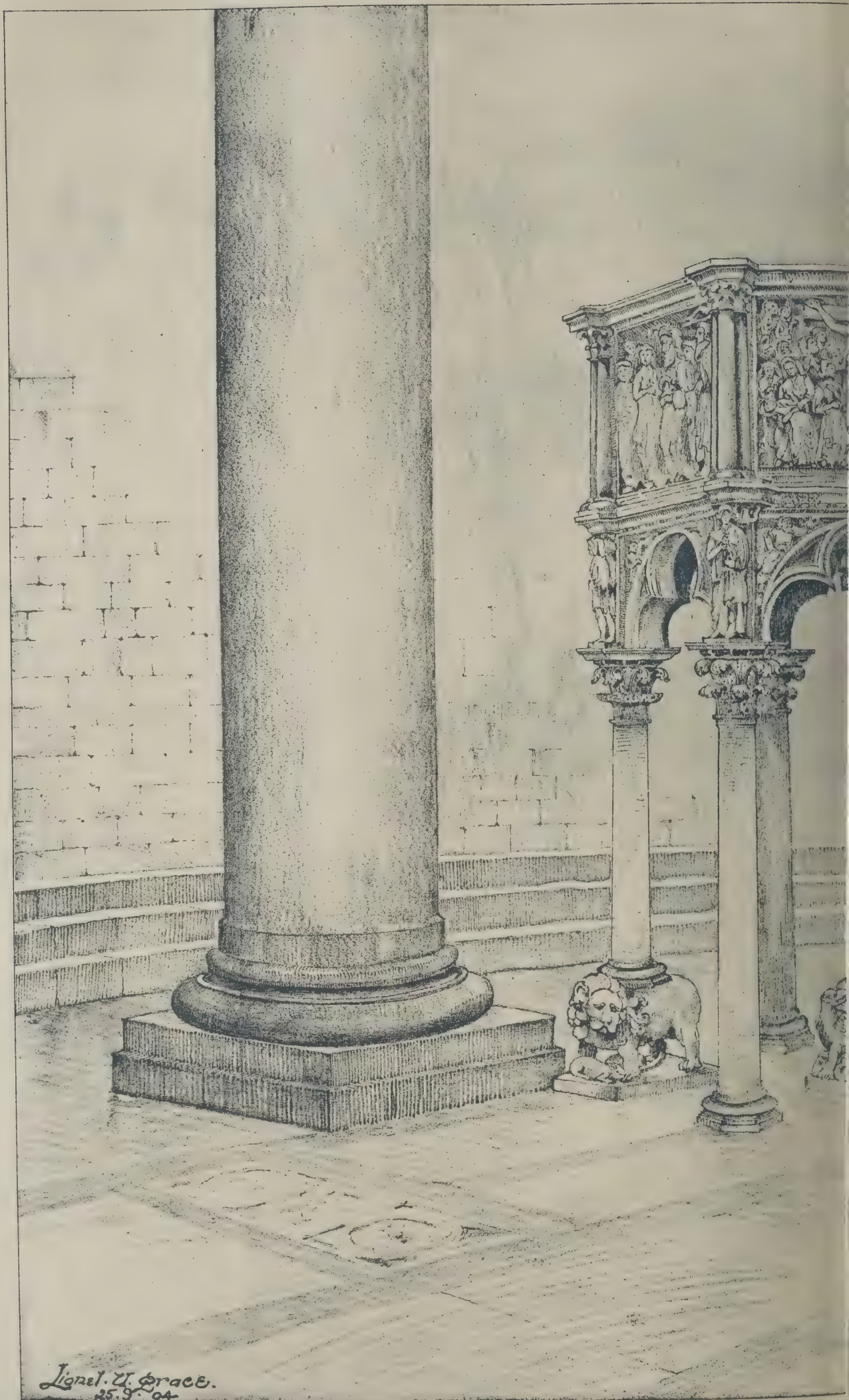
Mr. W. A. Pite (Messrs. Pite & Balfour) has been awarded the first place in the competition for the new King's Hospital, on the advice of Mr. Rowland Plumb, who has been appointed architect by the removal committee.

The British Fire Prevention Committee's test will shortly be moved from Bayswater to a site with access from the West End. All the testing chambers erected at the new station will be of the larger type adopted by the committee, with provision for division into compartments.

Messrs. Groome & Bettington, architects and Hereford, have been instructed to carry out the for the extension of the Wesleyan church, Brid Hereford.

The Bucks County Education Committee rec-
sets of drawings for schools in Aylesbury and V.
Mr. T. W. Cutler has made the following award:
premium: Messrs. John Moir Kennard & Har-
nard. Second premium of 25*l.* to be divided jointly
Mr. Alfred Hendy and Messrs. John Cash & M.
Elementary school, Wolverton.—First: Messrs.
ton, Ley & Kerkham. Second: Mr. F. T. H.
Secondary school, Wolverton.—First: Messrs. H.
Ley & Kerkham. Second: Mr. G. Sedger. The c-
regret that it will not be possible to arrange a pub-
lication of the drawings.

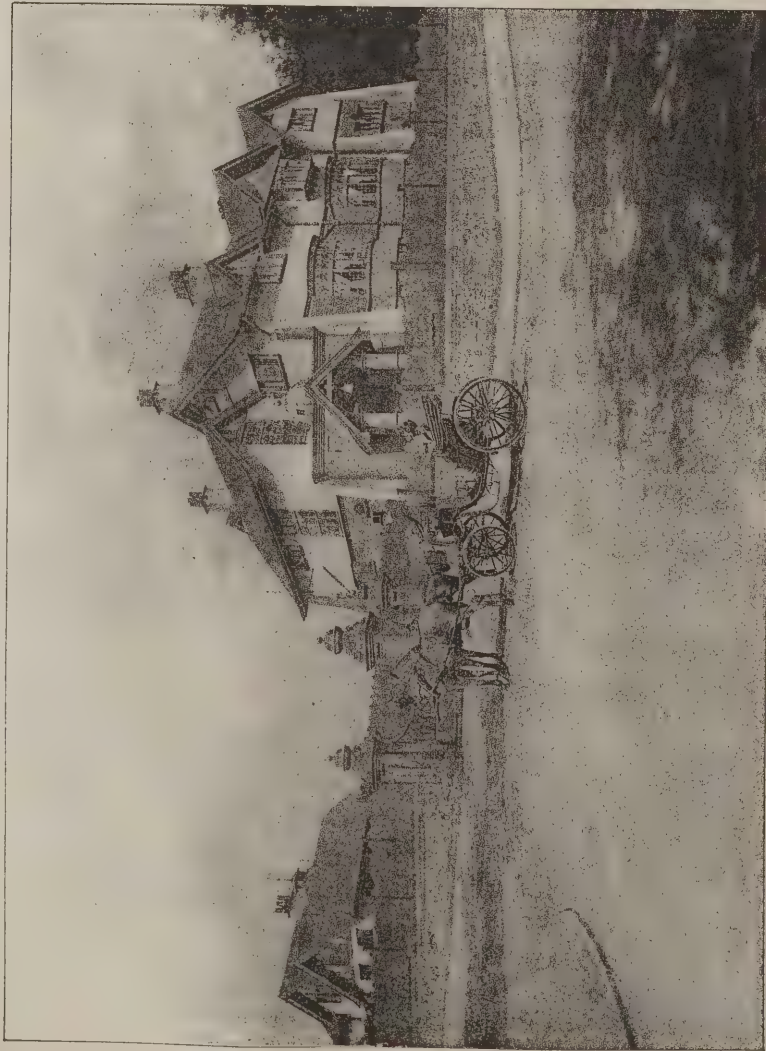
The Non-Provided Schools in the West Riding 300, and the average outlay required for additional improvements is 400*l.* per school. There are schools which will require 147,250*l.* to be expended on repairs.



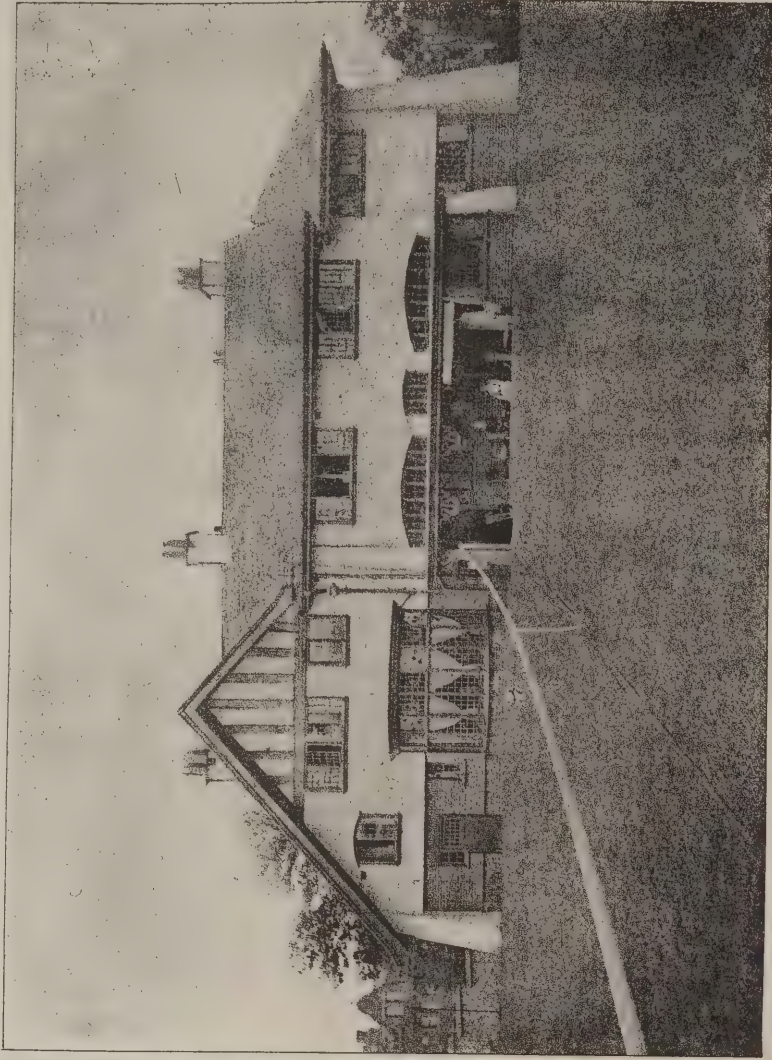


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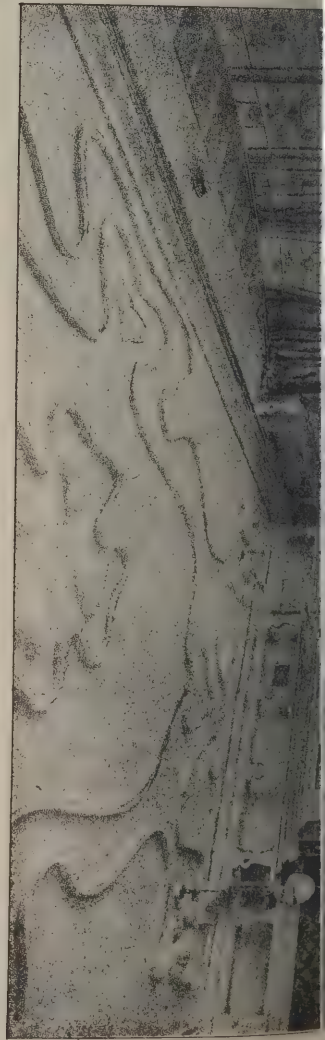
The Architect, May 12th 1905.

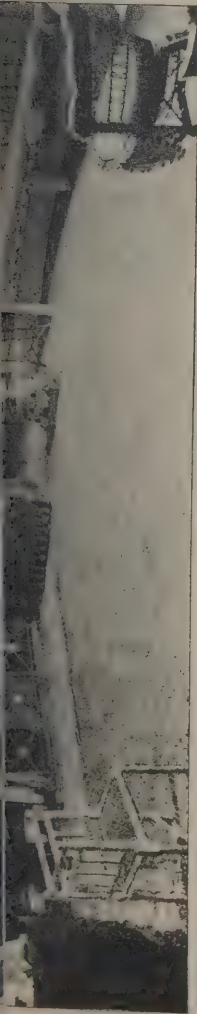


View from Road.



View from Garden.

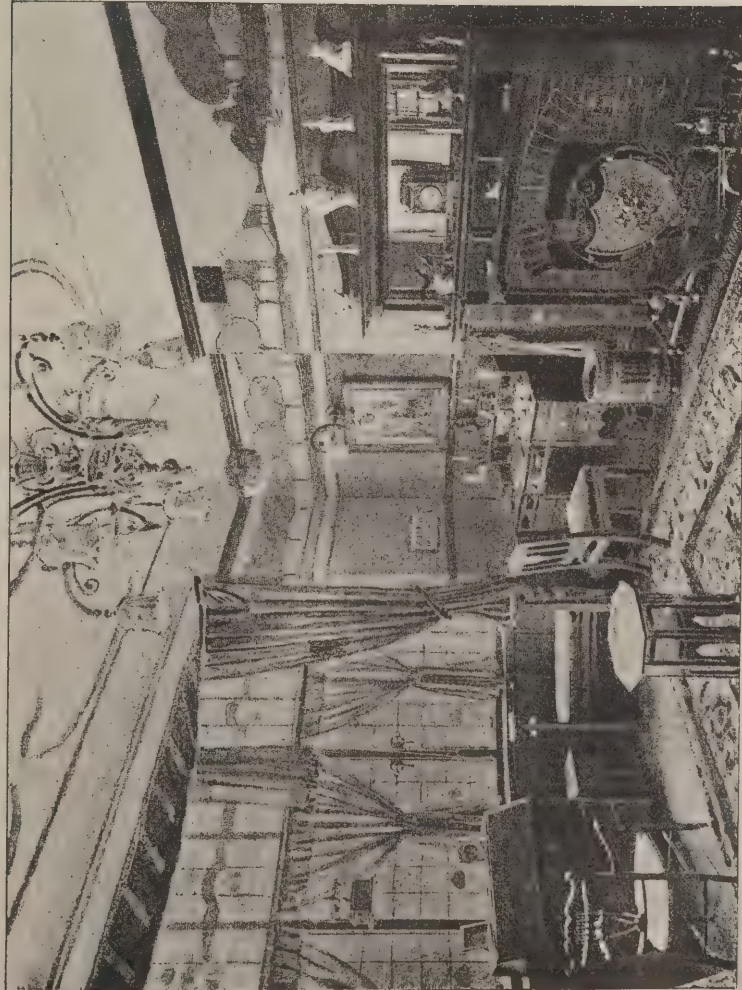




Corner of Drawing Room.



Corner of Dining Room.



Corner of Morning Room.



Corner of Bed Room.

"BRACKNELL LODGE," FROGNAL LANE, HAMPSTEAD.

Messrs. BARRETT & DRIVER, Architects.

The Architect, May 12th 1905



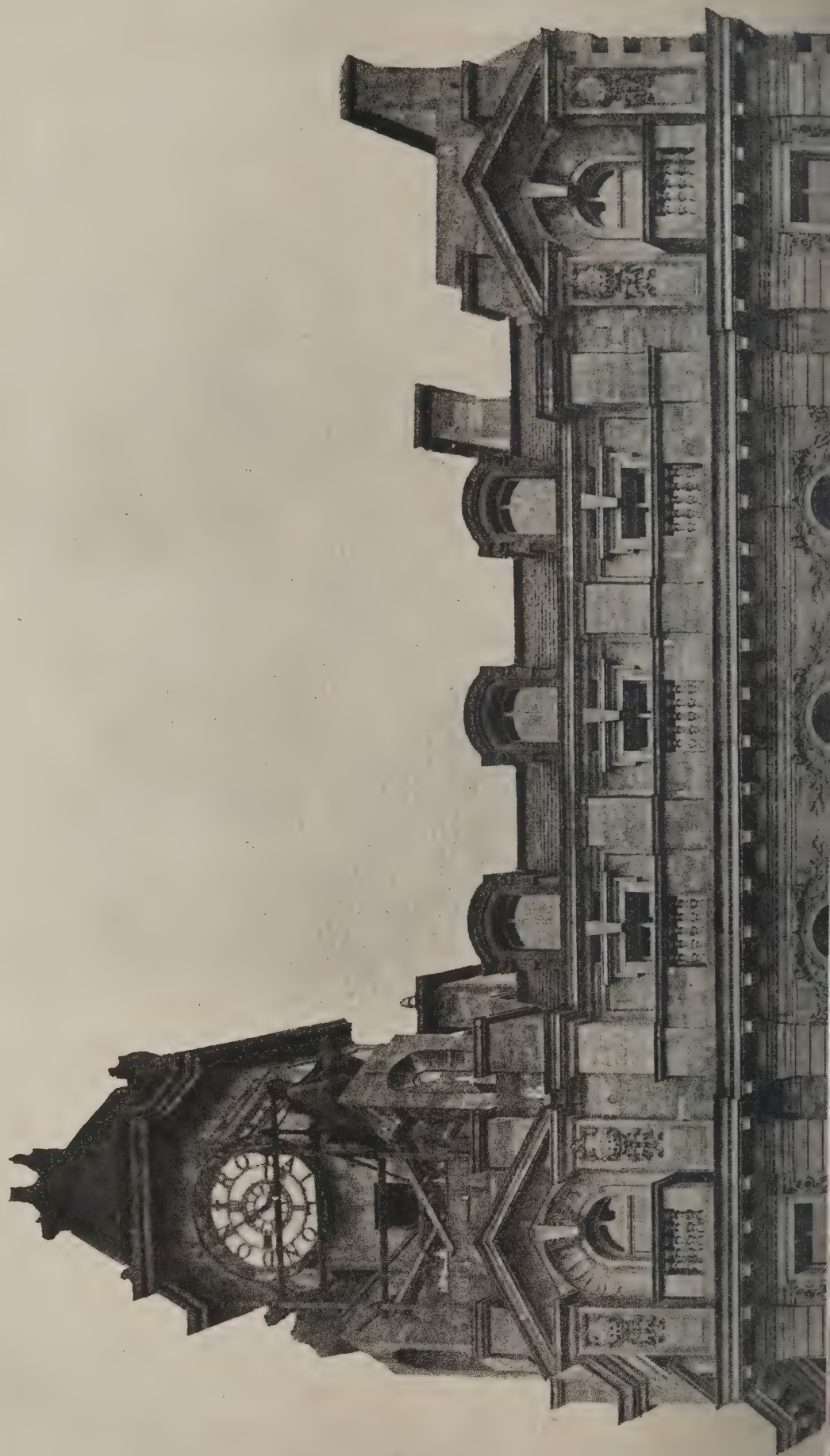


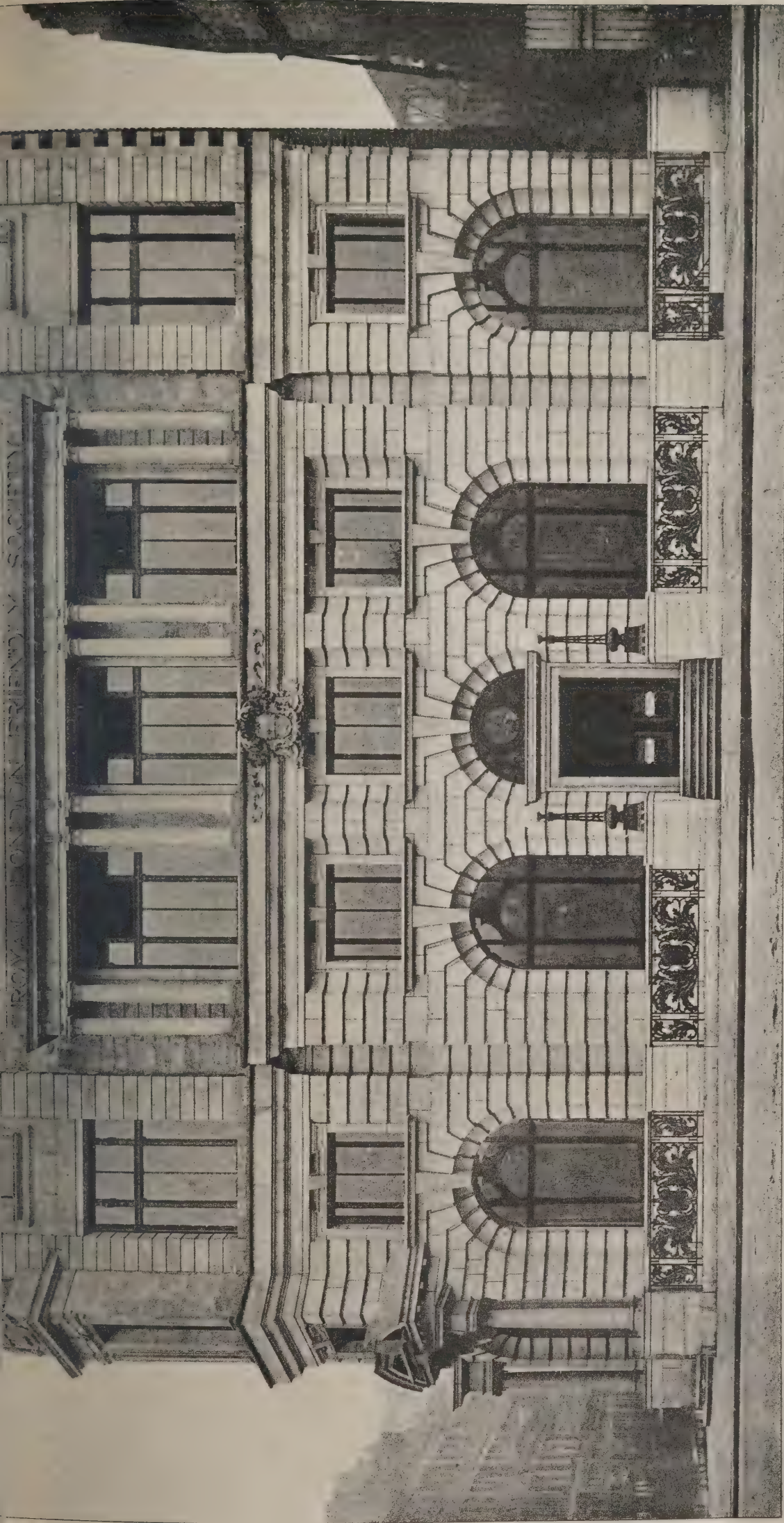
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READING GAS COMPANY'S NEW OFFICES, READING.

GEORGE W. WEBB, Architect.

The Architect, May 12th 1905





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ROYAL LONDON FRIENDLY SOCIETY, FINSBURY SQUARE, E.C.

JOHN BELCHER, A.R.A., Architect.

The Architect.

THE WEEK.

THERE may be some exaggeration in the paragraph which has appeared in the papers about the valuation of the parish of Sittingbourne, in Kent, having been returned at 10,000*l.* above the normal amount. But the possibility of such an error will be admitted by anyone who has given attention to the manner in which property is assessed for taxation. It is commonly believed that ordinary men are as competent to determine the value of buildings and lands as to try complicated cases as jurymen. Both offices are supposed to need no training. The decision is arrived at through a process of muddling. Revising assessments gives an opportunity for the display of friendship, and unless we are mistaken there is not a valuation list in England which does not bound in anomalies, some properties being assessed far below their value, while for compensation other properties are mulcted heavily. The local authorities of Sittingbourne might be imagined to possess sufficient interest in the public welfare to recognise that the valuation was in excess; but there, as elsewhere, the men who hold office are regardful of their own convenience rather than that of the people who elected them. The district has suffered by having to contribute to the County Council on the erroneous total, but the sufferers are not those who perpetrated the blunder and who approved of it. It must be expected that irregularities will arise while public bodies are afraid to employ trained valuers.

THE series of water-colour drawings by Mr. ALBERT GOODWIN, which is now on view at the Gallery of the Fine Art Society, deserves the attention not merely of amateurs but of all lovers of English cathedrals. Most of the buildings are found in positions which are attractive, and this fact has been emphasised by the artist. He does not represent the buildings with that anxiety for accuracy of detail which sometimes mars the effect of drawings by other artists. The cathedrals are not taken by themselves, but as the most important element in a scene which the artist can make beautiful by his interpretation. If the churches lose in one way they gain in another, for it must be admitted it is sometimes preferable to see a building from a distant point of view than in a formal close. Here and there Mr. GOODWIN may have exercised the artist's privilege and adapted the environment to suit a cathedral. But in all cases he has been reverent in his treatment of the buildings.

THE promise which was made in the House of Commons that an inquiry should be held into the financial position of the Royal Hibernian Academy must be advantageous to that institution. When the Academy was made public property by FRANCIS JOHNSTON, the architect, at whose expense it was erected, the premises were sufficiently large to accommodate the pictures which were then produced, as well as students of art. But it must now be considered as a public building, and as such there can be no doubt about its inadequacy as a gallery for exhibitions or as a school for art. If the Irish people were generous in buying pictures, we have no doubt the artists would imitate the founder and contribute towards the improvement of the premises. It is, however, doubtful whether on such a site the Academy could be transformed sufficiently to do justice to whatever is hung on the walls. The accommodation for classes is not equal to that provided in the ordinary art schools of English country towns. The erection of a new Academy would no doubt be an advantage, for under the altered circumstances the paintings would look better than in the Abbey Street building. But until wealthy Irishmen will imitate the example of Scotsmen, and purchase

pictures out of the exhibitions, the gain to art and artists will be of little account. If the inquiry were conducted by men of business who were free from official theories they would be likely to come to the conclusion that any machinery for galvanising art in Ireland was only continuing "a delusion, a mockery and a snare." One of the Irish members told the House that the career of HOGAN, one of the greatest sculptors of the nineteenth century, showed what Irishmen could do in sculpture and painting if only means were provided for the encouragement of those arts in Ireland. Yet when HOGAN died he had not one commission, and if the Government had not come to their rescue his family must have gone to the workhouse. It cannot be expected that taxpayers in general should provide means to compensate for the indifference of Irishmen to men of genius when they are born amongst them.

AFTER the remarks which were made by the standing committee of the House of Lords on the Workmen's Compensation Bill, it may be assumed that the new measure is doomed to failure. Lord CROSS, the chairman, considered that the Bill ought not to be allowed to go before the House of Commons if unaccompanied by the Acts of 1897 and 1900, and information relating to the additions, omissions and substitutions in the new Bill. The task which will be thrown on workmen and employers will become more puzzling, and it will be vain for them to attempt, what was originally intended, to interpret such an obscure measure for themselves. The consequence is that more litigation than ever will arise, and it may be concluded that the result to the workmen will be even less satisfactory than it has been. The comprehensiveness aimed at will only increase the obscurity, and employers are likely to become so alarmed they will be still more exacting about the age of each workman who accepts work from them.

SECTION 14 of the Factory and Workshop Act, 1901, confers a piece of jurisdiction upon the County Court which the High Court does not possess. That section, in effect, provides that the sanitary authority shall see that all factories are provided with proper means of escape in case of fire, and empowers it, in case a factory is not so provided, to serve on the owner of the factory a notice specifying the measures necessary to be taken, and requiring him to take them. The owner can then, notwithstanding any agreement with the occupier, take the necessary steps to comply with the requisition. If the owner alleges that the occupier ought to bear any part of the expense he may apply to the County Court, and the County Court may make such order as appears to be just and equitable under the circumstances of the case. In the case of *HORNER v. FRANKLIN* the Court of Appeal has explained the meaning of this clause. In the first place, an application under the section must be made to the County Court. That is the only Court which has jurisdiction under the section. In the second place, the owner must bear the expense. If he wishes to shift the burden to the occupier he must make an application under this section. In the third place, the duty is upon the owner to bear these expenses, notwithstanding any agreement by the tenant to pay taxes or outgoings, except in so far as that duty may be varied by the County Court Judge. In the fourth place, the County Court Judge, in considering what is just and equitable under the circumstances of the case, must bear in mind not only the terms of the lease, but also all other matters—such, for instance, as the length of time which the lease has still to run—in coming to a conclusion upon the subject. We have pointed out before now (*The Architect*, March 11, 1904) the injustice often done to tenants by the wide construction put by the Courts upon covenants of tenants to pay rates, taxes and other outgoings in these days of sanitary and other similar legislation. We should like to see the principle of the clause extended to other cases of necessary improvements effected by order of public authorities.

SCULPTURE AND ARCHITECTURE.

THE absence of Mr. A. GILBERT, R.A., and Professor LANIERI from the meeting of the Institute on Monday prevented the discussion of the subject of sculpture in relation to architecture at the length which was desirable. Mr. STIRLING LEE has suffered through his devotion to the sculptor's art, and was, therefore, entitled to be heard; while Mr. REYNOLDS STEVENS is a master of decoration, and can with equal ability employ sculpture and painting, but the expression of more experience on the subject was desirable.

It is beyond doubt that sculpture, and especially as a mode of adorning buildings, is now receiving greater attention than formerly. There is not, it is true, more than one example to be found this year in the Royal Academy, viz. Mr. PAUL MONTFORD's group for the Town Hall in Cardiff. But we can see both in London and in the provincial cities that the value of architectural sculpture is being recognised. The fact, too, that a public gallery for sculpture has been established in so remote a place as Aberdeen is also an indication that ordinary people can find interest in moulded as well as in painted figures. It would of course be more satisfactory if sculpture could be appreciated in Great Britain as it is in France, Germany or Italy. However, when all the circumstances are considered, there can be no question that much has been gained, for sculpture now occupies a position which would have been thought unattainable half a century ago.

If we examine the causes which have led to the undervaluing of sculpture we may, in the first place, mention the Puritanic fear by which statues became idols. When we now read in an entry dated September 26, 1351, of the payment to "WILLIAM of Padyngton, for making twenty angels to stand in the tabernacles, by task-work at 6s. 8d. for each image, 6l. 13s. 4d.," we are amazed at the moderate cost. We cannot imagine that the people who looked on WILLIAM's figures were more debased by doing so than he was in creating them. But such is the weakness of human nature, it was supposed that figures, whether in brass, wood or stone, were agents in making those who gazed upon them superstitious. Representations of angels and saints were prohibited in churches. But mythological and allegorical figures were received with welcome. FLAXMAN was a very sensitive man on the subject of religion, and although he praised Mediæval sculpture, he never suggested that Christians were liable to perdition by admiring it.

The prejudice continued during many years, and it cannot be said that it has yet come to an end. One consequence was that when sculpture of an important class was desired in this country it was necessary to have recourse to foreigners. Without going very far back, LE SŒUR was a Frenchman, CIBBER was a Dane, GRINLING GIBBONS, although born in Spur Alley, was the son of a Dutchman, RYSBACH was a Fleming, ROUBILLIAC was a Frenchman, and other names could be cited. Native bust makers alone could reckon on being able to live in England. Larger works might be considered as one of the results of campaigns. St. Paul's is evidence of that fact, for the war with France undoubtedly gave an impetus to sculpture.

With such works it never was realised that sculpture should be of a relative or subsidiary nature. The sculptor treated his figure as if it were to be a thing apart, and when it was intended to adorn an interior no thought was given to the building. The men who produced the astounding works in Westminster Abbey were regardless of scale, style and consistency. A Gothic memorial for a general, or a judge, or a beloved wife would have

then been regarded as worthy only of barbarians. If the sculptors had practised more in reliefs they would, no doubt, have been compelled to give consideration to architecture. One of our debts to JOHN FLAXMAN arises from his efforts to make people comprehend the importance of reliefs as architectural adornments.

When we speak of the advantages of sculpture it is well to have it understood that it is not essential to architecture. The Parthenon, no doubt, was a glorious temple, but there existed at the same time Doric temples which were impressive, although neither friezes, pediments nor metopes were adorned. The Greeks were to a great extent utilitarians, and if they employed sculpture it was because it served a definite purpose. In the Parthenon the figures were made to illustrate the influence of the goddess to whom the temple was dedicated, and possibly they also suggested that several of the inhabitants of Olympus took an interest in the periodical ceremonies in honour of ATHENÆ. There was some excuse when DECIMUS BURTON, the architect of the Athenæum Club in Pall Mall, employed the processions to adorn the exterior of the building, for the name indicated that the goddess was respected by the members, and when the bishops made no protest there could not be much danger of idolatry. But it would have been preferable if BURTON had commissioned an English sculptor to represent equestrians on the entrance to Hyde Park, instead of repeating the Panathenæic procession. In Athens the figures must have been infinitely more expressive than in London.

In architectural sculpture the cue ought to be taken from the Parthenon and the subject selected should indicate the use of the building. It is not necessary, nor is the sculpture improved if this is done with elaborate obscurity. The panels which Mr. STIRLING LEE has placed outside St. George's Hall, Liverpool, are excellent if we consider them simply as figures. But their meaning is not clear to the public, and that we believe is the main cause of the delay in commissioning the complete series. Another prominent case, although it is an example of simple mosaic rather than sculpture, is to be seen around the Albert Hall. The building was erected as a concert hall, and the simplest way of suggesting its purpose would be by figures of musicians. Instead, we have representatives of various industries, as if the building were a great technical laboratory. Figures that have meanings which are only known to the initiated may serve in private galleries. But they are out of place as accessories to a building. It may seem to be an unworthy office for sculpture to serve as if it were a sign-board. Men, however, have not as yet sufficiently advanced to consider that a building should be merely a sort of pedestal for a work of sculpture. It cannot be forgotten that sculpture is only an accessory, and when seen in a building it is supposed to explain or glorify the architect's work. This can be done without any loss of quality. The relief we see on the Royal Stables, Buckingham Palace, would receive attention in any place, but in its present position it acquires a fitness which would not belong to it if exhibited in a gallery of sculpture. Without the relief the buildings might not be considered as stables. But, seeing it, there can be no doubt on the subject.

The stables relief suggests another consideration. Although it is near the ground, the figures are modelled in bold relief. Of late years the tendency is towards very low relief, as if in emulation with the style adopted in the new coinage. We must allow that with a soot-charged atmosphere there is a risk that figures which are much raised are likely to be darkened. Nevertheless, on the other hand, when the relief is low the character of the composition becomes obscured. There should be a proportion between the height of the ground and the relief of the figures. But sculptors can reasonably complain that they do not obtain sufficient encouragement to enable them to arrive at the required proportions.

ROBERT ADAM.*

IF architects in another world are allowed to display some of the excusable weaknesses which were familiar to them when on earth, they must often envy ROBERT ADAM. There was no originality about him, and everyone must be suspicious that his most insignificant ornamental form is derived from an ancient example. He was a counterpart of WEDGWOOD, and both were disposed to consider "Elegant extracts" as preferable to the designs of eighteenth-century artists. ADAM has not merely obtained the reputation of being the creator of a fine style—indeed, his name is to be met with every day in the catalogues of furniture-makers, as well as those of auctioneers—he has also been able to gain an enthusiastic eulogist, we might almost say an idolater, in Mr. PERCY FITZGERALD. Devotion of that kind is unique, for whenever litterateurs condescend to write about architects they usually furnish themselves with a critical scale and other apparatus for testing, in order to demonstrate by what a simple process success was attained. ROBERT ADAM is to Mr. FITZGERALD a brilliant Scot, a most engaging person, a very great artist, a most accomplished man, a pleasant man, an English BENVENUTO CELLINI, a decorator of the most elegant and fanciful order, a worker in metals, the author of a style, a remarkable personage, an Admirable CRICHTON, a man of romantic ideas, &c. We do not object to the phrases; there is, as Mr. FITZGERALD says, "something almost marvellous in everything associated with ADAM," and as evidence of it the lectures might be cited. As we said before, there is nothing like Mr. FITZGERALD'S book in architectural literature. He takes delight in gazing at the houses designed by ADAM which still survive. A walk down Portland Place and up again is, as he remarks, at once suggestive and entertaining. It is astonishing to note the varieties while all seem of the same pattern. A man is to be envied who can find so much enjoyment in that way and on whom even room doors have exercised a refining influence. The world has so few simple pleasures, Mr. FITZGERALD is rendering a service to the public in leading them to see how he can be pleased with things which should be no less influential with them. He claims the credit for having discovered ADAM. "A mere layman in these matters," he says, "I have had to work unassisted; for we look in vain, after a hundred and odd years, for any commentaries or exposition of his theories and work. I have brought a good deal of industry to my very pleasing task, and I really think have evolved a nearly complete system, which will give a very fair idea of what was the architect's mind when he was planning and carrying out his designs." It might be supposed that in an age when subjects were eagerly sought for criticism the neglect of ADAM must have had a motive. But that is a subject with which we have no concern. It will perhaps be more interesting to ascertain what were the reasons which induced Mr. FITZGERALD to take up a subject which others had neglected or abandoned.

In the first place, Mr. FITZGERALD felt the fascination of buildings. CHARLES LAMB preferred London to WORDSWORTH'S country, and for Mr. FITZGERALD mountains and lakes have not the attraction of a small ancient town. Renaissance buildings especially afforded him a particular delight. Then he admired WALTER SCOTT, and he concludes that ROBERT ADAM resembled the Wizard of the North not merely in features, but in power of work and other virtues. Little is known about the life of ADAM, but a clever novelist can make out a biography from a very few hints. Indeed, we imagine that Mr. FITZGERALD considers ADAM to have resembled a great many artists, and that what is related of them may have belonged also to him. Few, for

instance, would have observed a relationship between ADAM and the late JOHN SEDDING, but in the book we find it established in the following way:—

Casting about for a word or words that would exactly describe Adam's peculiar methods—a difficult thing to find—it seemed to me that to call him a pictorial architect and his system pictorial architecture would answer very well and correspond to the various gifts displayed by our architect. For he laid out his façades very much as a painter would his picture, with a view to attract, to excite interest and curiosity. Colour, shadow, relief, contrast, graceful forms and outlines—these he set forth on his "fronts"; he made everything speak or say something. Such pictorial artists are always interesting; their works excite and pique. "Wood of Bath" was pictorial in this sense, so was the late Mr. Sedding, and a few more. They contrast strongly with the slow-moving, strictly regular, and the rather uninteresting professors of the regular school, who do all by square and line. This Sedding had a wonderful likeness to Adam. He had an attractive personality and something of Adam's versatility, as we can see from that interesting if somewhat theatrical church of his in Sloane Street. Like Adam, he loved to expend himself in designing everything for his work, such as the lights, door-handles, railings, &c. Adam's nature was permeated with this pictorial feeling; he found nothing that was responsive or suggestive in the established models that surrounded him at home. The "pillar and portico style," as it might be called, had no flexibility, for it had its stiff rules. He could not exercise his fancy on such materials. Full of enterprise and originality, he resolved to go forth as an architectural pilgrim and seek for what he wanted. And this exploring was not to be in conventional pastures, but he set himself to discover what would be new and at the same time practical. There was a stroke of genius in this motive.

A paragraph of the foregoing kind suggests the weakness of words. If Mr. FITZGERALD were describing one of the great Italian architects or the designer of the palace at Spalato, he could hardly be more effusive. That building served many purposes for ADAM, and Mr. FITZGERALD says:—"I heartily wish, if I might say so, that this fashion of an architect attaching himself to a single building like St. Mark's or San Sophia or some town, was more in fashion, that he let it colour and direct all he did, just as ROMNEY gained by perpetually painting Lady HAMILTON." It is satisfactory to find that a good building is supposed to be inexhaustible, like a work of nature.

The grand principle of the ADAM system is assumed to be what he described as movement, a word for which we suppose contrast would now be substituted. According to ADAM:—"Movement is meant to express the rise and fall, the advance and recess, with other diversity of form in the different parts of a building, so as to add greatly to the picturesqueness of the composition. For the rising and falling, advancing and receding, with the convexity and concavity and other forms of the great parts have the same effect in architecture that hill and dale, foreground and distance, swelling and sinking, have in a landscape." Mr. FITZGERALD shows how ADAM realised movement in his buildings. He is described as having a sort of passion for the oval, which we suppose means that in his travels he had realised that the Greeks were not satisfied with the circle, but preferred more subtle forms. But he sometimes carried it to excess, as in his oval balconies. Mr. FITZGERALD does not, we fear, realise the importance which curves have in many architectural forms. He talks in a sarcastic way about "a Mr. PEARSON, a great Athenian in architecture," who has discovered further mysteries which, according to Mr. FITZGERALD, one might think "either that these things were owing to accident, decay, settlement, or the deceptions of scene-painting would become thus ennobled into art." We could understand an ignorant and presumptuous man like that glorified bricklayer, the late Sir ROBERT RAWLINSON, K.C.B., when he expressed a similar opinion, but Mr. FITZGERALD is a scholar and a man of taste, and should remember the Greeks were logical even in their masonry.

* *Robert Adam, Artist and Architect: His Works and His System.* The Substance of Lectures delivered at the Society of Arts, the Society of Architects, and various provincial architectural societies by Percy Fitzgerald, M.A., F.S.A. With Illustrations. (London: T. Fisher Unwin.)

There is a long description of the Adelphi; for ADAM was never oblivious of financial possibilities when he was building, and in dealing with that part of London he was speculative builder as well as architect. His houses in London and in the country are also dealt with. Mr. FITZGERALD, in addition, treats of the decoration. He cannot realise that everybody is unable to look on the arrangements of the ornament with as much pleasure as himself. One of the Earls of DERBY demolished a house in Grosvenor Square which ADAM had built or altered, and his lordship's action is described as an incredible want of taste. The *motifs* for the ornament are not very numerous, and owners were therefore to be excused if they occasionally tired of the antique patterns which were suggestive of a different world. Mr. FITZGERALD is so happily constituted that the most insignificant work of ADAM appears to be beautiful in his eyes. He keeps up his enthusiasm until the end of his book, and we can read every line he writes with pleasure, although we may not be convinced of the greatness of ROBERT ADAM.

ROYAL INSTITUTE OF BRITISH ARCHITECTS.

A MEETING of the Institute of Architects was held on Monday evening at 9 Conduit Street, W., Mr. John Belcher, A.R.A., president, in the chair.

Sculpture in its Relation to Architecture.

Mr. T. STIRLING LEE, in his lecture, asked what was that craving whereby both architects and sculptors sought to express themselves in figurative language. In the earliest times almost man had desired to express his thought in form, and the work on his tombs or temples bore testimony of this, and showed that he had taken sculpture to speak of his enlightenment as a language could. It would be seen, too, that the great ideals of the whole world had been written in the same manner, for without sculpture on the buildings how much would the succeeding generations have lost of the thoughts and lives of the Egyptians, Greeks, Romans and Florentines. There were the Mediævalists also, because if taken all the way through they would find that the buildings would have lacked expression had not the sculptors of those days been associated with the architects. It seemed to him that in sculpture men were writing the history of their times in the most open of all books—that of architecture. It stood in the streets for all to see, and the sculptors wrote their 'peoples' history in figurative language. No sculptor, therefore, who had to do serious work with architecture could approach his art except from that point of view, and believing that it was the highest sphere in which he could display his skill and knowledge. It was in that sense that, the lecturer said, he felt that every sculptor must be a very deep thinker and that he should always have been. For such work a man must observe nature very closely, because he had to use as his language those characteristics which he found in nature, and his observations therefrom had to appear in his sculpture. It seemed, therefore, doubtful, treating modern work from this aspect, whether we as a nation understood the figurative language. Did they, when sculpture was put up on our public buildings, grasp the fact that they were putting on a language that was going to be read and understood by the public? Was the symbolic language a living language to-day? The people no longer had an acquaintance with nature, and he was afraid that when sculptors worked out their observations from her source few people who saw their work would stop and read that which was written, and yet that was the use of sculpture in relation to architecture. One continued asking oneself, he said, if that longing to express whether our religious views, scientific discoveries, or whatever told of the attributes of good government on our public buildings of the liberal arts and sciences was real of the sculpture of to-day, and was it real of the public when it was set them to read in figurative language whence came the origin for such a mode of expression? In the old days they had not books, and people went about illustrating their thoughts and by seeing observations of nature the language of the sculptor was intelligible to them. But to-day they had to a great extent lost that touch with nature, and with it had gone the use of symbols on their buildings. On the æsthetic side, however, they had a language which must always exist as long as architects would continue to use and

design ornament as part of their building scheme. This was the highest form of ornament and masonry, because from the first principles of sculpture in relation to architecture the sculptor must realise that his carving was masonry. In a scheme for the use of sculpture on a building the first thought of the architect was to work out the sculptured parts. No doubt there would be a great desire to use that highest form of decoration, the human figure, and if that was so, what were the first principles in which the sculptor would treat the scheme? He must solve its deepest thought, its *raison d'être*, and translate this on his work. He must appreciate the idea of that part of the building which he had to decorate, what lines he had to carry through and the proportion of line, width and scale. The lecturer then demonstrated with the aid of photographs the wonderful genius of the Greek sculptors in the treatment of light and shade, continuity of line and their mastery of the laws of optics. They found from such examples that the Greeks cut up their sculpture in the proportions of panels and designed the ornament accordingly. Giotto and his contemporaries overcame the same problems in the same manner as the Greeks, and made all the lines of their sculpture harmonise with the architectural lines of their buildings. In dealing with the sculpture of the carver and the work of the modeller, Mr. Lee held that modelling was nothing less than the stone-rendering of a clay figure, and since the work was governed by anatomy rather than by geometry, it could not be so happy in its relation to architecture as the stone-cutting of the carver. Turning to the practical side the lecturer said it was a very serious difficulty in England to meet with good carvers, and the few men they had were doing less and less of their own work. There could be no doubt that sculpture offered as much individuality of expression as any other art. In conclusion, the lecturer said sculptors and architects should work together, and the sculptor must go to his art with the one idea of enriching the architecture.

Mr. W. REYNOLDS STEPHENS, contributing a short paper on the Relation of Sculpture to Architecture, said the subject naturally fell under two heads. First, constructional sculpture, or that which was formed out of a piece of the structural material of the building, and which actual piece had to perform its original office as weight-bearer or receiver of a thrust, such as columns, caps of columns, keystones, corbels, brackets and the like. Secondly, applied or superficial sculpture, under which heading he placed niche figures, the filling-in spaces, such as spandrels, panels and friezes; also mere surface work upon walls and other structural features. In both classes fitness for its purpose should be the greatest quality in the sculpture, and under that quality of fitness beauty stood supreme. The proportion, too, of certain lines in the building should guide the sculptor in his work, and their treatment should be expressive of our own times. In constructional sculpture an absolutely essential requirement was that it not only aided but appealed to the eye and brain as aiding the building material of which it was formed to do its work, whether its duty was support or resistance. The author drew attention to some faults of the past which should be avoided in modern work—for instance, where the pose or placing of the figures showed no appreciation of the laws of gravity. In many examples of architectural sculpture they could see figure after figure acting as bracket, corbel and the like, reaching out and pretending to carry a mass of material when in reality the material really carried them. Nowadays the average standard of the sculpture applied to buildings was not up to the quality of the architecture. There were some brilliant exceptions, the author admitted, but generally it was so, and he felt the reason was that sculptors wanted to be treated with more confidence and less as machines. The money paid was usually insufficient to provide thoughtful work, yet the total amount spent upon sculpture and ornament on many buildings was ample to provide the buildings with a few parts thoroughly well decorated with good quality sculpture, bestowing as great a gain to the building as to the sculptor. From some architects sculptors received all sympathy in their work, but not from the majority. Let architects go, said the author, to individual sculptors, first setting down as lightly as they liked conditions which it was just and right that architects should impose, explaining fully the site for the work and the surrounding materials, stating the approximate scale of figures or ornament, stating also any direction of line they wished emphasised—the flatness or height of projections. Let the architect give the subject he wished illustrated. Let him emphasise that he required a true recogni-

of use of material and provision against weather the work was to be outside, and the like. Let him be somewhat as to the money available, and then let the sculptor make a small design model for the architect to see, and after that give the sculptor a free hand and the honour and credit to be the designer of the work. The result would be that architects got the very best out of the sculptor, instead of, as in the present day, most sculptors looking upon their architectural sculpture as potboilers, and keeping their best intellectual qualities for their other work. With architects rested the responsibility of making the modern school of British architectural sculpture. Architects might not, and probably would not, get from the sculptor just what they had pictured in their minds, but with such an understanding as he had suggested they would get living work with individual character.

Sir JOHN TAYLOR, K.C.B., in proposing a vote of thanks to the two lecturers, said he was sure all architects would agree with every word which had been said on behalf of sculpture. The subject of the co-operation of the architect and the sculptor had been brought before the Institute on several occasions during the last two or three years, but he thought they had never had the value of it put more strongly before them than by the views expressed that evening. The architect and the sculptor should co-operate in the preparation of the design. It was no use whatever to have an architectural design prepared and then afterwards do the best to fill in the parts of it which required sculpture. They saw a few of many absurdities even in completed work in this respect; in some instances where the niches were all made for the figures, and, for want of co-operation between the sculptor and the architect, when the figures came to be placed in position they were not only inches but feet too large for the niches made to hold them.

Professor BERESFORD PITE seconded the vote of thanks, and said the lecturers had spoken earnestly of what they thought and recognised as an important subject. It was important to sculptors, and without any doubt it was important to architects. The latter perhaps were not so seriously convinced of the need for co-operation with the sculptors as they might be, and he was sure that sculptors were not convinced either. Did the architect ever trouble about a planing in the sculptor's work? Did not he regard it rather in the light that he wanted so much ornament, and therefore he used so much sculpture?

Mr. H. STANNUS said sculpture might be applied to building for two ends: first—and it was the reason of its existence—to tell its story; and secondly, to make fine building. With regard to the use of supporting figures, he suggested that, as no human being would be put in such positions as those sometimes devoted to sculpture, the designer should not adhere strictly to the lines of the human figure in his work. He might brutalise the figures by making the head more square than the ordinary human head.

The PRESIDENT said he felt bound to say that the sister arts, architecture and sculpture, had drifted apart, and it seemed as if the architects were to blame in the matter. He hoped, however, it was a division to be spoken of in the past tense, and that the future would find the architect and the sculptor knowing each other better, enabling the two arts to work closer together. The architect should prevent sculpture being used for ignominious purposes, because any one would agree that the sculptor had naturally drifted away from co-operation when his work with the architect lost its full purpose. As architects were beginning to learn the uses and advantages of sculpture on their buildings, so he hoped the sculptor would begin to learn that his own work could be a great aid to the fulfilment of the ideals of both arts.

OIL-PAINTINGS AND PASTELS.

IN the *Scientific American* is an extract translated from Herr Ostwald's book on "The Theory and Practice of Painting," which is deserving of the attention of artists. The author is a painter as well as a chemist. He says:—

Little improvement has been made in the technique of oil-painting since Pettenkofer, forty years ago, explained its scientific principles and exposed the antiquated character of current knowledge and practice. The temperature and humidity of picture galleries is now regulated in accordance with Pettenkofer's recommendations, and his method of renovating paintings has been adopted and developed, but the important question how to produce durable paintings is still neglected even by the best technicians, as is shown by the proportion of obviously short-lived works in every

collection. What is still more remarkable, picture buyers, both governmental and private, pay no attention to the expectation of life of their dearly-bought treasures. I know a very costly Makart which, though little more than twenty years old, is already a senile wreck. Its brilliant colours have become muddy, all detail is gone from the shadows, and the whole picture is flaked, cracked and wrinkled. A celebrated Knaus in the Leipzig Museum has become so covered with cracks that it has been taken down, and some of Menzel's early works are in little better condition.

So our art treasures are perishing before our eyes. Has the same condition always existed, and must it continue to exist? Neither the one nor the other. When we look at the splendid Van Eycks in the Berlin Museum, which have retained their brilliant hues almost unchanged for nearly five centuries, we infer that the swift decay of modern works is not an organic necessity. It may be objected that the method by which these durable old paintings were produced is irretrievably lost. True; but it is surely as possible to make permanent pictures now as it was then.

The first requisite is a certain amount of scientific research, the second and more important is that artists and purchasers should pay the same conscientious regard to permanence that was paid in Albrecht Dürer's time.

We require of the architect, as a matter of course, that his artistic creations shall not crumble in a few years, but the genius of the painter, it is assumed, must not be fettered by chemical laws or petty technical considerations. Yet so great an artist as Boecklin devoted his life to technical experiments, and he might have carried them further and given freer scope to his genius if he had also known a little chemistry. For example, he used pure vermilion with startling and unpleasant effect, because he fancied that vermilion is permanent when used alone, but is affected by other pigments. The truth is that some varieties of vermilion withstand the action of light very well, while others turn gray or brown, whether used alone or with other colours. If one speaks to a painter of these things he retorts that chemistry is the root of the whole evil; the Van Eycks knew nothing of it, and made durable pictures, but the modern aniline colours fade. This is unjust, for nineteenth-century artists painted fugitive pictures before aniline colours came into use. The fault is not in the colours but in the medium. Now, as formerly, the palette of the oil-painter consists chiefly of pigments of unquestioned permanence. All the yellow and red ochres, most blacks and browns, ultramarine, cadmium yellow, chrome green and some other colours remain unchanged for thousands of years; indigo, madder and Prussian blue endure for centuries. The former are the pigments of thirteenth-century and fourteenth-century frescoes; the latter are found well preserved in still older miniatures.

But these are not oil-paintings. The medium is carbonate of lime in the frescoes, gelatine or albumen in the miniatures. Nor are the Van Eycks above mentioned oil-paintings in the modern sense. The method employed in their production is not recorded, but it could be ascertained by micro-chemical examination. Many technical questions might be solved by such examination of minute fragments, which could be taken from the edges of pictures without material injury.

Still, some genuine oil-paintings are very permanent; for example, Raphael's "Sistine Madonna" in the Dresden gallery. Now a comparative study of old oil-paintings shows that those which are best preserved are very thinly painted. This is not a mere coincidence. The evils of oil increase with the thickness of the layer of paint, and are further intensified by applying one colour over another. Hence the works of Rubens, painted thinly and rapidly, are so much better preserved than Rembrandt's; and, for the same reason, Knaus's pictures, painted apparently on an asphaltum ground, have decayed so soon. In short, though it is possible to make permanent oil-paintings, conditions fatal to permanence are very apt to occur. One such condition is the use of thick masses of colour or impasting.

In spite of these obvious disadvantages, oil has practically displaced all other media, because it permits the artist to judge the effect of his work at once, as oil colours do not change appreciably in drying. Water colours alter perceptibly, and gouache still more, and the painter must make allowance for the alteration. But though the oil-painting does not change in drying, or in weeks or months, it changes inevitably in decades and centuries, and always in the same way, by assuming a general yellowish brown cast, called the "gallery tone."

Is there no remedy? I know none for the yellowing of oil with age, but we may take a broader view and seek a method, which shall retain the chief advantage of oil-painting and yet avoid its defects. Such a method is pastel.

Pastels show no trace of "gallery tone," but remain bright and fresh for centuries. They are executed with dry coloured crayons, which adhere loosely to the ground, and must therefore be protected with glass. Pastel allows the greatest freedom of treatment, and unsatisfactory parts can be wiped off and done over as often as necessary. When I recommend this method to painters, they say: "Very true. If one could only fix the pastel." Even this is possible. In my "Notes on Painting" I have given the formula of a fixative which enables a pastel picture to be rolled, dusted and cleaned with bread crumbs without injury. This brings us back to a medium, but one which is used in very small quantity and does not darken with age, but at the worst only disappears, when it may be reapplied. When I add that pastel is suitable for pictures of every size and character, that it is the cheapest of all methods, and that it enables the artist once more to prepare his own colours and assure himself of their purity, it will be understood why I regard it as the method of the future.

MANCHESTER SOCIETY OF ARCHITECTS.

ON May 2 this Society began its summer programme of visits, about thirty members going to the church of the Christian Scientists, Victoria Park, Mr. Edgar Wood, architect. The entrance forecourt shows picturesque grouping of simple and unusual character, and the interior, when completed to double its present length, will be very satisfactory, the whole showing considerable individuality and suitability to its purpose. Afterwards the members visited St. Chrysostom's Church to study the effects of the recent fire, finding very complete proofs of the unreliability of stone when exposed to heat and water.

On Saturday, May 6, a visit was made to Leeds to see the new Roman Catholic cathedral, Mr. J. H. Eastwood, architect. A considerable time was spent, under the guidance of the clerk of works, in thoroughly examining the building, and much of interest was found, both in detail and in general design. The party then divided and utilised the little remaining time in making flying visits to Kirkstall Abbey or to Mr. Bodley's fine church at Allerton.

TESSERÆ.

The Skull as a Model.

THE human skull is composed of five great bones united and consolidated by interlacing processes, termed sutures. Here we have at once a perfect dome, and also a solution of that difficult problem how best to render firm this mode of architectural construction. The dome of St. Sophia, in Constantinople fell three times during its erection, and that of the cathedral at Florence stood unfinished 120 years for want of an architect. In St. Paul's, London, the dome is linked together with strong iron chains. So also St. Peter's at Rome and St. Isaac's, St. Petersburg. In Byzantine architecture the necessary support is given by increasing the thickness of the coping at the base of the dome. This is rendered necessary by the heat of southern climates, which by expanding the iron cramps would soon destroy any dome so girded together. Still, of course, the system of dovetailing or suture is the best, and, indeed, so strong is this union that when everything, muscle, ligament and membrane, has been removed, the sutures of the cranium still hold till separated by a strong internal pressure acting upon every part of the junction at once. The great obstacle to be encountered in the formation of a roof is the lateral thrust of the rafters. Now this may be got over in various ways. In an angular waggon-headed roof it may be done by supporting the mitrings. And this is exactly what we find in the thickened centres of the parietal and frontal bones. For to explain this physiological fact by simply saying that the centres of these bones are the points from which ossification begins is to assert a principle which, pushed to the legitimate extent, would do away with all evidence of design whatever in the structure of the human frame. What are called open roofs are usually supported either by tie beams or braces. Now to have bones analogous to the latter construction, running through the brain would

be extremely inconvenient, and accordingly we find a beam employed as represented by the temporal, more by the spheroid bones. The inner table of the skull is termed the tabula vitrea. With our brittle materials we are unable to dovetail, so in this glassy formation we have no suture but a plain contact.

Henry Fuseli, R.A.

Henry Fuseli, or Füssly, was born at Zurich in 1754, in consequence of a dispute which he had with the Government. He then removed to Berlin, where he became acquainted with Sir Andrew Mitchell, the English Envoy at that Court. He had read one of Shakespeare's plays in a German translation, and was so much delighted with it that he determined to learn the English language, which he accomplished with facility and at length with correctness, both in speaking and writing. When Sir Mitchell left Berlin in 1765 Fuseli accompanied him to England, and as an evidence of his proficiency in the language he published in the same year a translation of Winckelmann's "Reflections on the Painting and Sculpture of the Greeks," and afterwards, in 1768, "Remarks on the Quarrel between Voltaire and Rousseau," in favour of the latter. Subsequently he visited Italy and finished his studies in painting, attaching himself to the world-famous Michel Angelo, for which he professed a devoted affection, but the artists he chiefly imitated were Spagnoletto and Goltzius. His "Lycidas" from Milton, his "The House," the "Nightmare," and "The Three Witches" are among the best examples of his genius. He was a man of high pretensions, and had respect for the opinions of others, which he treated with ridicule or satire. But a caustic and racy style of observation, combined with a peculiarity of pronunciation and of countenance, rendered him very entertaining in society. Those who have by nature a bluntness and incivil manner, and affect even more, suppose that they are earning a reputation for honesty and a fearless independence, although it often happens that men of this disposition trample on the weak and defenceless, are servile when they have any view of their own advantage, and are cocksure when their exaggerations are successfully opposed. These traits were remarkably characteristic of Fuseli. When Marchant (the gem-engraver) offered himself to be elected as Associate of the Royal Academy, Fuseli opposed him, insisting that the Academy might just as well elect a watchmaker; but when he found that Marchant could render him service among the patrons of art he became the subject of eulogy, and loudly declared that his *intagli* were worthy of Michael Angelo. At one of Johnson's (the bookseller's) hebdomadal dinners he met Horne Tooke, and as he spoke most disrespectfully of one of Horne's friends, having been forced to acknowledge that he had neither known nor valued him, he sheltered himself under an abject apology. Fuseli amused himself with playful satire on the works of more eminent contemporaries. West's picture of "The Jews fighting for the Bones of Japheth" he called "The Jews fighting for the Bones of La Hogue." What he said of Northcote's "Balaam" is sufficiently known, and Peter Paul's retort that Fuseli was just appointed by the Devil to be the painter of hobgoblins has been ten times told. He made a singular observation concerning the characteristics of Northcote, Opie and himself as artists with respect to design. "If you would have a picture of nature as she is, you must go to Opie; if one as she has been, go to Northcote; but if you wish to possess representations which never have been, nor ever will be, come to me." His constant friend Johnson, the bookseller, left him a legacy of 50*l.* a year for the lives of himself and his wife, which was sold for 630*l.* His drawings, which amounted to a number of 804, after his death were sold by Mrs. Fuseli to Sir T. Lawrence, who gave her a bond bearing interest of 200*l.* a year, outstanding at the time of his decease. This bond was cancelled upon the drawings having been turned by his executor. They were sold for the same sum to the Countess Dowager of Guildford.

The Antecedents of Gothic.

The Romans were making rapid strides in the art of vaulting when the removal of the seat of empire to Constantinople, and with it of the best artists of all classes, appears to have also transplanted this growing art to the soil of the East. The latest vaulted hall in Rome is the so-called Temple of Peace, now held by the Italian authorities to be a basilica erected by Constantine. In the East

ing on a large scale continued to be practised, and the improvement of suspending a dome over a square by means of pendentives, of which S. Sophia at Constantinople is the great specimen. This Byzantine style, so regularly derived from the Roman, was brought to the West, first to Ravenna by the exarchs, and afterwards by the Venetians in the eleventh century, as exemplified in St. Mark and other buildings of their district. In the meantime the great Christian churches erected at Constantinople, under the patronage of Constantine and his successors, show but too plainly the deplorable state of architecture in the West. They are, to be sure, large and lofty, and consist of parallel ranges of columns, of different orders, adapted without skill from the destroyed temples, sustaining upon arches walls of disproportionate height, covered with open wooden roofs, the whole bearing the mark of ignorance and neglect of rules. In the distant remote from Rome another process of architectural change was going on. Here the ravages of the barbarians swept away the ancient rules altogether, and left only a few tattered examples, and here we find that after they had led themselves in their conquests their builders, working unschooled imitators, copied the construction of these and employed their materials, using the fragments of sculpture, but naturally placing them so as to be entirely servient to the actual construction of the building. Here new ornaments were required they imitated the old or invented others. In this way were formed the various styles of the ages preceding the eleventh century, the German and French Romanesques, the Lombard, Saxon, Norman, Saracen and others, all of which have features deriving entirely from those by which the Byzantine and Christian Roman are separated from their common origin, but all exhibit more or less of a barbarous and rude character. They constitute, however, so many different and independent sources from which may be traced the formation of the Gothic, some supplying one feature and some other, while others, after enduring transitions, were finally superseded by the introduction of some descendant of the first.

Ancient Lighthouses.

The most celebrated lighthouse of antiquity was that situated at the entrance to the port of Alexandria. It was built by Sostratus of Cnidos on an island which bore the same name by command of one of the Ptolemies, and at an expense of 800 talents. It was square, constructed of white marble and with admirable art, exceedingly lofty, and in all respects of great dimensions. It contained many storeys, which diminished in width from below upwards. The upper storeys had windows looking seawards, and torches or fires were kept burning in them by night in order to guide vessels into the harbour. Pliny mentions the lighthouses of Ostia and Ravenna, and says that there were similar towers at many other places. They are represented on the medals of Apamea and other maritime cities. The name of Pharos was given to them in allusion to that at Alexandria, which was the model for their construction. The Pharos of Brundisium, for example, was, like that of Alexandria, an island with a lighthouse upon it. Seutonius mentions another pharos at Caprea. Two pharos remain in Britain. The first is within the precincts of Dover Castle, is about 40 feet high, octagonal externally, tapering from below upwards, and built with narrow courses of brick and much wider courses of stone in alternate portions. The space within the tower is square, the sides of the octagon without and of the square within being equal, viz. each 10 Roman feet. The door is seen at the bottom. A similar pharos formerly existed at Boulogne, and is supposed to have been built by Caligula. A round tower had served as a lighthouse on the summit of a hill on the coast of Wiltshire.

Antique Gems.

There is, perhaps, no more remarkable chapter in the history of the arts than that of gem engraving amongst the ancients. It is the one pre-eminent art in which the ancient Greek and Roman masters never have been and probably never will be surpassed. From the imperishable nature of the vehicles of embodiment, many even of the masterpieces of antiquity have come down to us in their pristine perfection; whilst such was the astonishing number of engraved gems, executed during a long series of ages, and such is their comparatively indestructible nature, fire or the sea alone withdrawing them from our actual or possible possession with absolute finality, that it is more than probable the modern world now possesses specimens

of every style, technique and material, at any time adopted by the ancients; in short, for the study of this art there exist the amplest materials, and this can scarcely be said of any other subject or concern of antiquity. Without speculating as to the precise period or country in which the glyptic art had its origin, there can be little doubt that it became popular in the very earliest ages of ancient civilisation; it was doubtless practised amongst the Greeks not less than five or six hundred years before the Christian era, and it is highly probable we have monuments in our possession of at least that antiquity. Nor can it be said that the modern world has been indifferent to the subject of ancient glyptic art, for the literature of this art is one of the most voluminous branches of written knowledge; in every great library no small space is accorded to the ponderous volumes in which the immense mass of glyptic erudition is embodied; indeed the subject has been rather overlaid and stifled with crude illustration than neglected. It would be a curious speculation to endeavour to estimate the probable number of antique gems, glass pastes, &c., now extant in collections or worn on the fingers of modern possessors; certainly it would amount to many hundreds of thousands, perhaps even millions, whilst there cannot be a doubt that a vastly greater number are still hidden beneath the surface of the soil. In reference to the latter thought, indeed, what can be more tantalising than the reflection that of the innumerable fragments of noble antique gems preserved in collections, the missing and often most precious portions are still quietly slumbering in the ground, washed from century to century by the rains of heaven, crusted with the tartarous salts of an ancient soil, imperishable, but never to be reunited to their kindred pieces. Here it is, indeed, that a potent divining rod might be exercised in a worthy cause.

Tudor and Elizabethan Mansions.

The principal deviation from the plan of the earlier houses, in the time of the Tudors, was in the bay windows, parapets, porticoes; and internally, in the halls, galleries, chambers of state and staircases. The two last-mentioned were rendered as rich in ornamental carving as the grotesque taste then prevalent could invent or apply; the ceilings were fretted with roses and armorial devices, but without pendants, as in the earlier style. The fronts of the porticoes were overlaid with carved entablatures, figures and armorial devices; the lofty and wide galleries generally exceeded 100 feet in length, and the staircases were so spacious as to occupy a considerable part of the centre of the house. The imperfectly imitated Roman style introduced by John of Padua, in its first dawn in this kingdom, began now to extend its influence, although partially. At Burleigh, the parapets which surround the whole structure are composed of open work, describing a variety of Tuscan scrolls; and the chimneys are Tuscan columns, two, three or four, clustered together and surmounted by a frieze and entablature. Open parapets, having letters placed between them, as a conceit indicative of the founder, were then first introduced. The large manor-houses, dispersed throughout the several English counties, constructed of timber frame-work, were very general where a supply of stone or brick failed; the carved pendants and the weather-boards of the gables and roof were carved in oak or chestnut, with exuberance of fancy and good execution. The counties of Chester, Salop and Stafford abounded more especially in curious instances, many of which are no longer seen and their memory preserved only in old engravings. The zenith of this particular fashion of domestic architecture was the reign of Elizabeth, and it is thus discriminated by a contemporary observer:—"Of the curiosnesse of these piles I speak not, sith our workmen are grown generallie to such an excellencie of device in the frames now made that they farre pass the finest of the olde. It is a worlde to see how divers men being bent to buildinge, and having a delectable veine in spending of their goodes by that trade, doo daileie imagine new devises of their owne to guide their workmen withall, and those more curious and excellent than the former."—Harrison's "Desc. of England," p. 336. In the more ancient cities and towns houses of timber frame, but in a peculiar and not less ornamented style of carvings, were frequent; and in the fronts towards the street and in the wainscoting of the apartments the supporting figures were of extremely whimsical forms. It is not easy to determine what they were intended to represent. Those which have remained to our own times might have been seen at Chester, Shrewsbury, Coventry and Bristol; but in the last-mentioned place most have vanished in the course of the eighteenth century, and their representations are preserved only in the portfolios of local antiquaries.

NOTES AND COMMENTS.

GLASGOW has the enviable privilege of possessing a school of art with distinct characteristics. Not many years ago the city would not be considered as a likely place for the cultivation of genuine artists. But having appeared, they have exercised that influence which at one time was common in Italian cities. Encouragement is given by the purchase of pictures, but it is now evident that the power of art is recognised among people who may never aspire to the possession of an original work of the smallest kind. An application was lately made to the Corporation to allow the art galleries to be opened on Sundays. BAILIE NICOL JARVIE respected the Sabbath so much, it was a crime for anyone to enter the Tolbooth in the evening, and, indeed, he thought it was a sin to have given way to his own thoughts on that day. There was therefore excuse if the Corporation were afraid to deal with so momentous a subject. It was accordingly resolved to have a plébiscite. One hundred and forty-one thousand six hundred and forty-two papers were distributed, 7,030 were undelivered, and of those which were returned, 4,733 were doubtful. Of those which were valid, it was found that 53,389 were in favour of the opening of the galleries and 45,181 represented the old, serious way of dealing with the subject. There is consequently a majority on one side of over 8,000. That would be a decisive victory in any ordinary town, but in Glasgow it is a revelation of a remarkable change in public opinion.

MOTOR traffic is assumed to be the principal cause of that deterioration of roads which causes anxiety to every county council in the kingdom. Various remedies have been proposed, and we believe the patent list is likely to contain records of specifics, all of which are supposed to be infallible. In Leith experiments have been undertaken under conditions which are creditable to the Town Council. The attempts were recommended by one member, and they were sanctioned on the condition that in case of failure he would repay the whole of the expenses. There is, however, no mystery about the proposed treatment, for it is simply adopted from the practice followed in some parts of France. The surface of the road is brought to the proper section. It is then well swept with a hard broom, the superfluous matter being preserved. The surface is then sprayed with tar, and the sweepings are carefully spread over the tar. The road is then rolled, and after five or six hours, when the tar hardens, it can be used for traffic. Although tar is more expensive in France than in England, it is considered that the use of it in the way described is economical. In some places the roads have remained in good order for a twelvemonth. The arrangement is a combination of tar pavement with a solid foundation.

THE housing problem ought to present more of a difficulty in France than in England. But it is lessened by the content of the humbler classes to put up with inconveniences which in England would be a constant source of irritation. Philanthropists have endeavoured to do much towards its solution, and there have been countless conferences on the subject with the usual accompaniment of speeches and reports. But the experiments in building have been insignificant. According to M. HENRI TUROT, one of the municipal councillors of Paris, there were only 1,503 cheap dwellings erected in the whole of France during the decade 1894-1904. Forty-four of them are to be found in the Department of the Seine, and only five in Paris. Considering all the eloquence which has been expended on the subject, that may seem incredible, but M. TUROT is an authority. A law was passed last year to facilitate enterprise in that form, but apparently the conditions are not sufficiently attractive. M. TUROT proposes that building sites for cheap dwellings should be free from taxes for twenty years, and he suggests that the funds which

are to be set aside for old-age pensions should be applied to habitations, and that loans should be obtained from public funds at a more moderate rate of interest is usually required. The recommendations appear to touch the real difficulty, which is that of finance. English capitalists would prefer to deal with a man like M. TUROT rather than with a tribe of philanthropists.

THE Berks Archæological Society will henceforth be suitably lodged in Reading, for a new lease of the Abbey Gate has been obtained from the Corporation, but at an increased rent. Power has, however, been granted to let the large chamber for meetings at a suitable charge for its use. It is hoped that the funds of the Society will not be unduly strained by the increased rental which the Corporation had required. The principal chamber of the Gateway affords a very convenient meeting-place, and the committee desire that extensive use may be made of that ancient building. The annual report of the Society expressed the hope that the Corporation of Reading, into whose hands the old Hospitium of the Abbey has reverted, will do their utmost to preserve the ancient building, and not countenance any destructive vandalism for the sake of modern utility.

A MEETING of local Associates of the Royal Institute of British Architects was held in Leeds this week, and the following resolutions were passed:—(1) That a meeting of Associates views with much indignation the present large influx of members to the Royal Institute by direct election to the Fellowship, and in view of the facts (a) that many of the candidates are of suitable age to qualify for membership by the "special" examination provided for such cases; (b) that some of them have not been successful in the examinations, but are nevertheless supported by prominent members of the R.I.B.A. Council, we protest against this as a lowering of the standard required for membership; as a most unfortunate blow to the cause of professional education they profess to encourage; and as a gross injustice to those who have qualified by examination for membership at much expenditure of time and money. (2) That we urge upon the Associates in London and in all the allied Societies to combine in opposing these numerous and unwarranted nominations by demanding a ballot as prescribed by-law 9, and by all the regular means. (3) That copies of the above resolutions be sent to the R.I.B.A. Council, to the allied Societies and to the leading professional journals. The following Associates were present: W. G. SMITHSON, W. H. BEEVERS, H. ASCOTT, CHAPMAN, R. FIELDING FARRAR, ALBERT E. KILGOUR, HERBERT E. ILLINGWORTH, F. E. P. EDWARDS, RYSHWORTH HILL, CHARLES B. HOWDILL, JOSEPH WOOD, FREDK. MUSTO, EDWARD L. GAUNT.

ILLUSTRATIONS.

ST. DAVID'S CHURCH, BATHGATE.

THIS building was used for service a fortnight since. The design is not yet carried out in entirety, but will be undertaken in due time. The architect is Mr. J. GRAHAM FAIRLEY, of Joppa, Edinburgh.

INDEMNITY HOUSE, OLD BROAD STREET, E.C.—ENTRANCE HALL FROM DOOR—ENTRANCE HALL TO DOOR.

SOUTHWARK POLICE COURT.—EXTERIOR.

STAIRCASE, COUNTY SESSIONS HOUSE, PRESTON.

MESSRS. ARCHIBALD D. DAWNAY & SONS, LTD. have carried out the constructional steelwork, of which there was a considerable amount, and the fireproof floors in the Reading Gas Company's new offices, of which we published an illustration last week.

STATUTORY QUALIFICATION OF ARCHITECTS.

THE following papers were read at the meeting of the Society of Architects on the 18th inst:—

By MR. G. HUBBARD, F.S.A.

As a London practising architect and as a Fellow of the Council of the R.I.B.A., I am very anxious to know more of the general feeling of the profession in respect to the statutory qualification of architects. It is not from idle curiosity that I wish to obtain this knowledge, but it is because I am anxious to make some practical use of it so that the Bill for the statutory qualification of architects may receive the unanimous support of the profession throughout the country. The Allied Societies of the Institute have considered and held up their minds on this question, while the London Society have remained apathetic. It is very much, if not almost entirely, thanks to the able and persistent energies of the representatives of the allied Societies on the Council, that London is at last rousing itself from its slumbers, and preparing to give serious consideration to what your Society seriously considered years ago. As you may be aware, the Council now has this important question seriously under consideration, and it has from its body elected a committee to report upon the principle of registration.

In a broad sense it is easy to see that a Bill for the provision of qualified architects is very desirable, but it is not so easy to see how a Bill can be framed which shall be constitutional in its clauses. It is obvious that no Bill would be acceptable to Parliament which was unconstitutional, would it be likely to get through its committee stages if due opposition was brought to bear against it. Certain compromises may have to be made in matters which are of minor importance, but in all matters essential there must be unity. The necessity of such a Bill must in time become apparent to all in London who have the interests of the profession at heart, and the cumulative knowledge which can be gained in discussion amongst practising architects will be of the greatest service to the committee which is now engaged in drafting the Bill. I therefore trust the views of your Society may be frankly expressed in discussion which is to follow. It is essential that this should be framed so as to embody the best and highest traditions and interests of the profession both in London and the provinces.

To you, gentlemen, and to me it must have become apparent that the profession is constantly being recruited by the untrained and incompetent. That both for the sake of architecture and the properly trained men it is essential steps should be taken to foster the one and protect the other. This can only be done by compelling those who wish to practise, to prove their qualification before being allowed to do so. Our guidance for the future can best be derived by studying the experience of the past. If we look a quarter of a century we find that there was no compulsory examination for the Associateship of the R.I.B.A.; there was, however, a voluntary examination for which few candidates ever presented themselves.

It was not till the year 1882 that the compulsory examination for Associateship was started, and the immediate result of converting the voluntary to the compulsory examination was that there was an immediate rise in the number of candidates. But ever since that compulsory examination was introduced in 1882 there can be no question as to the superiority of men who have joined the Institute or the superiority of their works. If one bears this fact in mind as a guide to the future we should feel encouraged to promote the whole profession a similar state of affairs by similar means as now obtains among the Associates of the Institute. A compulsory examination has there encouraged candidates to study the art they intend to practise with a great access of competence to themselves and of dignity to the art of architecture. What holds good for the few may be fairly assumed to apply equally well to the many—where all are aided the access of competence and dignity must be in like proportion. A general application of the principle of excluding the incompetent from our profession would result in protecting the competent and the art of architecture from the most flagrant debasers.

It must not be forgotten that an architect's work is a lasting monument which eloquently expresses not only the individual mind which conceived it, but it goes to show the general civilisation of the nation. Every ignobly conceived and executed building tends to lower the general instincts of beholders, whereas the refined work of the cultured architect is ennobling from generation to generation. In

fact, no truer evidence of the culture and civilisation of a nation is recorded than is to be seen in its buildings. Think of the everlasting nature of the Egyptian, the beauty of the Greek, the scientific construction of the Roman, and the rise, development and perfection of Gothic, and can anyone for a moment suppose that the designers of these buildings had no training? Were not they above all others qualified to practise the art of architecture?

This it may be thought is approaching the subject from a lofty point of view, but not more lofty than is fully justified when one compares the architecture of the past with the average architecture of our generation. It is, in fact, from a high and not low standard that the subject should be considered. Architecture is an expression of faith, of feeling and of purpose, but it is only the trained architect who knows how to make his art respond to his impressions. Let us consider how to place the noblest of professions in the high position which it ought to occupy, and to induce men of standing and education to join our ranks so that our profession may go down to our sons safe from the debasing influences of the ignorant and incompetent. Without statutory qualification it is impossible to carry out these high ideals.

For many years the profession has had before it a Bill promoted by your Society. This Bill is in my opinion excellent in its general scheme, but it is also in my opinion capable of improvement in detail. The Royal Institute of British Architects is, however, the right body to bring forward such a measure. The royal charter granted to that body constitutes it the head of the profession in the kingdom, and while recognising the important work which has been done by your Society, we must look to the Institute to protect the profession and bring forward the Bill for the statutory qualification of architects.

Without entering upon questions of detail which are now under consideration of the committee of Council of the Institute, I wish to indicate to you in general terms the broad lines on which the Bill is being drafted. It is not desired, nor is it desirable, to frame a Bill which should be complicated, as it is felt that if the broad principle of safeguarding the profession is established our main object would be attained.

It may be safely said that no Bill would be acceptable to the profession which did not recognise the R.I.B.A. as being the official head and which did not give each provincial Society and your own Society a reasonable representation upon the governing body. Also no Bill would be acceptable to Parliament which did not give the Privy Council representation and possibly right of final appeal.

It is essential that vested interests of all practising architects would have to be recognised. All who are now gaining their livelihood as practising architects have this vested interest, and it would be unconstitutional to prevent any, even the most incompetent, from continuing thus to earn his living. On this point there has been a considerable amount of diversity of opinion. It is felt by some that no benefit would be gained unless the Bill debar all who are unqualified from continuing to practise. It must, however, be recognised that as the ignorant and incompetent die, the vacancies will be gradually filled by the properly trained and qualified. It may not be in our generation, but in the generation to follow, that the art of architecture will gradually recover when it becomes entrusted only to the qualified to practise.

At first the fact that the names of the highest and the lowest in the profession would have to be entered side by side in the same register or roll is distasteful to some, but I must admit that I fail to see that they need be more affronted by this than they are to-day in having their names recorded together in Kelly's Directory, for instance. In any case, the foolish pride of the few should not be allowed to stand in the way of a great reform advantageous to the profession and to the country. It must be remembered that this annoyance to some will be gradually decreasing, and, as I have just shown, in the course of a generation it will have disappeared.

It was just thirty years that internal jealousies delayed the passing of the Medical Act, and it is now just fifty years since that Act was passed, and yet throughout the land it is doubtful if a single medical practitioner is to be found who has not passed the necessary medical qualification. Our grandfathers might tell us how different was the respect accorded to the barber surgeons of their day, as compared with the respect which is shown to the properly qualified medical men of to-day. Not only has the stamp of man entirely altered, but the immeasurable advance both in

medicine and surgery is unquestionable. It is doubtful whether anyone, either layman or doctor, would care to go back to the old order of things. And in our profession, after the Bill has once become law, is it likely that architects would give it up?

Surprising as it may seem, it is just twenty years since the first Bill for the registration of architects was drafted. Think for one moment how different would our position be to-day had the Bill been passed.

There is now practically unanimity amongst the provincial Societies. London is wavering, but even there the active opponents are few and unable to bring forward any valid arguments.

There are two reasons why London lags behind.

Firstly, just as it is easier to move a hundredweight than a ton, it is easier to convince a small compact community than it is to convince a great and loosely bound body of men. Secondly, in the provinces the necessity of registration is much more real and apparent than it is in London.

For the ultimate success of the movement it is essential that all future candidates for the profession should serve a certain period of indentures with a recognised practitioner, or in some recognised architectural college or school, and after that period they would have to pass the qualifying examination which would have to be conducted under the auspices of the R.I.B.A. None but those who would have properly fulfilled these conditions would be entitled to call themselves "Architects," nor would they be able to recover their fees as such in a court of law, nor would they be able to issue valid certificates. It must not be assumed from this that the Bill contemplates insisting upon every employer only engaging the services of the registered architect. An employer would be perfectly at liberty to engage the services of anyone he chose whether qualified or not, but what the Bill will insist upon is that the unregistered practitioner shall not be at liberty to call himself "Architect" and claim his fees as such in a court of law, nor would he be able to issue valid certificates.

It is necessary to remember that the actual number of practising architects does not perhaps represent more than half the total number of those who are engaged in gaining their living in the profession. The great number of architects' assistants and draughtsmen who have spent many years of their lives in that capacity have also some form of vested interest, and their claim to protection in the Bill must also be carefully considered. Their service of years will in all probability entitle them to have their names also recorded on the register or roll.

Another very important point to remember is that at the present time we have no means to deal with malpractices, however flagrant. The removal from the roll in other professions is a punishment of the greatest severity, and the right of inflicting it in our own profession would have to be in the hands of the governing body. With comparative impunity can the malefactor practise his dishonesty, and even detection and conviction does not deter him from continuing to practise as an architect. The fear, however, of being struck off the roll will doubtless in some instances act as a healthy corrective.

Such in fact is the general outline of the Bill now being considered by the sub-committee of the Council of the R.I.B.A. The demands for the protection of the public and the profession are eminently reasonable and moderate, and as there is so little of a contentious nature it may be, I think, safely assumed that the Bill will go through Parliament with but little opposition.

It may be anticipated that the chief opposition to making our profession a close one will arise from the underlying socialistic spirit which governs all modern legislation. I am not using the term "socialistic" in any political sense; all I intend implying is that modern legislation tends to give the community common rights rather than to give any particular section of the community special privileges.

Parliament, however, will not be unmindful of the fact that where a particular section of the public has made a considerable investment in acquiring the special knowledge of the art and practice of a profession, that it is entitled to have that investment protected. This protection is not only justified in the interests of those who have made it, but it is also justified and advisable in the interests of the community, who should be enabled to discriminate between the properly qualified man and the incompetent charlatans. At the present time both the qualified man and the charlatan can equally claim to be professors of the art, and the community without some internal knowledge as to their respective merits is unable to distinguish between them.

When one considers the large financial interests which the architect has often to advise, the necessity of Parliament affording the public some assistance in the selection of its advisers becomes the more apparent. Many matters outside our own profession the layman's statutory powers is often felt. An appeal at the present time from the R.I.B.A. to Parliament or to any governing board may perhaps carry some weight, but were it to speak as representing a homogeneous profession it would do so with infinitely greater effect.

That there has been a lack of esprit de corps amongst ourselves is not entirely to be wondered at. To say that a man is an architect is not a passport to guarantee cordial reception, and when we are all bonded together under an Act of Parliament, with the common interest that is the profession, we shall find that that bond will be of union and of friendship. It is undoubtedly in the provinces more than in the Metropolis that the necessity of statutory qualification is keenly felt.

In London the individual architect is but one amongst thousands; he has his own particular clientele, and perhaps spends his life without his existence ever coming known except to a very small section of the architectural world. His position would probably not be improved or damaged by statutory qualification, and does not therefore hold any decided opinion one way or the other. In the provinces the architect's position is different. He is known to all the other practising architects in the town or neighbourhood. The architect is generally well known to the inhabitants, and the position of the architect is more clearly defined. The standard of the provincial architect, or any architect of education, is distinctly damaged when perhaps an intelligent bricklayer, for instance, who has raised himself to the position of a master of works, and who, after having served some time in that capacity, suddenly aspires to calling himself an architect. He may not perhaps enjoy a vast amount of confidence, but he succeeds in securing a vast amount of work, but there remains that both men call themselves "architects," and such they become bracketed together in the eyes of the public. By allowing both men to be established on the same footing, the professional status of the educated architect is seriously damaged. That statutory qualification would do much to improve the status of the architect there can be no doubt.

The main points aimed at in the proposed Bill are as follows:—

1. The R.I.B.A. to be recognised head of the profession.
2. Adequate representation of London and provinces on the governing body.
3. Representatives of the Privy Council on the governing body.
4. The vested interests of present practising architects to be recognised.
5. The vested interests of assistants.
6. A register or roll of architects to be kept.
7. Compulsory examination for those in the future wishing to practise as architects.
8. The governing body to have the right of striking names off the roll or register for malpractice.
9. The safeguarding of the name "Architect" being used by any except those who are registered.

That a movement favourable to registration has thus far at the Royal Institute of British Architects is a happy circumstance, entirely due to the confident manner in which the electors last June returned to the Council candidates were pledged to support registration, and I trust that the Society and the Institute may work harmoniously together in support of a movement advantageous to all.

By ALFRED W. S. CROSS, M.A.

"The cause of the less successful members of our profession is the cause of reform, of equal justice, of education—must be a good one, and those who support it must be in the right."

The following brief notes on the proposed scheme for the registration, or as some of us prefer to call it, statutory qualification of architects, have been prepared for the view of eliciting, by an evening partially special informal discussion with the members of the Society of Architects, any suggestions that may be offered on the subject which are likely to prove of assistance to the committee of the Royal Institute of British Architects that is now dealing with this great question. But to enable us to be fully conversant with the aspirations of registrationists, as well to review, as briefly as possible, the present position.

our profession before indicating in general terms what is not by registration and what we believe will be ultimately effected by its adoption. I have therefore grouped my paper under the following heads, viz.

1. The present state of architecture and of the architectural profession.
2. The statutory qualification of architects.
3. The reformed profession.

The Present State of Architecture and of the Architectural Profession.

In making a cursory survey of current architecture, even with a full knowledge of the vexatious limitations and restrictions which fetter the architect of to-day, the honest man is compelled to arrive at the unwelcome conclusion that the best of our modern public buildings, or at least those designed in the now popular Italian Renaissance style, fall below the standard of excellence attained by such men as Jones, Wren, Gibbs, Chambers, the Brothers Adam and others of their school. Indeed, I doubt if we have as yet a single architect capable of producing monumental works which will not largely suffer by comparison with designs for buildings of a similar nature that have emanated from one or another of these great artists of the sixteenth and eighteenth centuries. If you admit the force of this proposition you will agree with me that the present position of our art or profession—call it which you please—is an eminently unsatisfactory one, and to me it seems evident that whilst the works of modern architects sometimes display a certain amount of creative power or originality, this attribute is very rarely found in combination with architectural scholarship, by which I mean an intelligent appreciation of the true principles which form the foundation of the style we are discussing and are exemplified in the glorious buildings of ancient Greece and Rome.

Within the last twenty years we have seen so many imitations of architectural style and taste that it has been almost impossible for an architect who has, wisely or unwisely, followed the fashions to absolutely master any one of them. I can recollect the able Gothic designs for public buildings (imitated *ad nauseam* by many admirers) of Mr. E. W. Godwin and Mr. W. Burges; drawings galore in the so-called Queen Anne style, an ephemeral revival of a phase of art for which Mr. Norman Shaw was largely responsible; and, still more recently, many of our leading architects were working in the hybrid Jacobean style, which in course of reality no style at all, but simply an intermediate stage between the domestic Gothic of the Tudor period and the real Italian Renaissance of Inigo Jones.

At the present time a few architects seem to be realising the necessity of working in a style founded upon a sounder and more enduring basis than any of the above modern revivals, and attention is being once more directed to the works of Palladio, Sansovino and others of their school in Italy, and to the works of the seventeenth and eighteenth-century artists of our own country whom I have already mentioned.

As Wren rightly insisted, architecture should possess the quality of the eternal, by which he meant, as I understand it, that we should endeavour to produce work that not only meets with the approval of contemporary critics, but which may reasonably be expected to merit commendation from those of a future generation, and, in this age of mediocrity, we must not hastily assume, because we admire a design by any architect of to-day, that its author is therefore the creator of a work of art which will stand the most severe tests, that of time.

But although we are at length exercising wisdom in our choice of a style in which to work, it appears to me that we are not employing the right methods to enable us, or architects who are to follow us, to design buildings at all comparable with those erected by our predecessors. To begin with, the keynote of the success obtained by the great masters of the Italian Renaissance was scholarship; they recognised that originality was not to be obtained by means of general distortion and inversion of the proportions and properties of the orders so magnificently conceived by the ancient Greeks, employed by the Romans and bequeathed to future generations, perfect in their grace and harmony and unsurpassable for all time.

But modern architects are rapidly losing this old-time instinct for proportion, harmony, beauty of line and architectural scale, chiefly through their persistent efforts to ruin, by the introduction of grotesque travesties of the orders, designs which might otherwise pass as fairly successful

ones. Does any sane man contend that the art of architecture is advanced by designing Corinthian or Ionic columns with heights equal to about fifteen times their diameters or by the happy and decidedly original inspiration of combining, say, a Corinthian entablature with a Doric order? Such affectation is merely evidence, if indeed any be required, that many of us have not mastered the grammar of our profession and that our architectural education is imperfect. No new style other, at best, than one of a transient character can ever be evolved by such means, and the designs produced thereby can only meet with the approval of those of us who are engaged in the exercise of our practice under similar educational disadvantages. What would be said of a modern writer if under the plea that they were "too archaic" he ventured to transform some of Shakespeare's finest passages into choice cockney dialect, or could we take seriously the oratorical efforts of a great speaker if he clothed his wisest thoughts in the popular slang of the day?

Mediocrity is excellent to the eyes of mediocre people, but no architect who loves his profession can afford to consistently neglect its grammar, and even although he be in the enjoyment of a large practice he should recognise the fact that he is still a mere student of what ought to be regarded as a great and scholarly calling.

Never did we architects stand in greater need of a higher standard of general culture, never was there less necessity for the rank and file to follow in a servile manner and endorse the precepts and practices of certain so-called eminent men, for many of your great architects of to-day may be—and I venture to predict will be—forgotten a few years hence, not because their works lack creative ability, but because they contain little or no scholarly feeling. As the well-known French philosopher, Joubert, points out, "He who has imagination without learning has wings and no feet," and no architectural works which will delight future generations can be produced unless creative power and scholarship are both employed by their designers.

The Statutory Qualification of Architects.

In my opinion the favourable reception given to the proposed scheme for closing the door of the profession to unqualified men by means of registration is due, in a large measure, to the Institute itself, which has through its successive Councils generally favoured a policy little short of one of absolute indifference to the legitimate grievances of its ordinary members, who are now beginning to realise how impossible it is, under existing conditions, to penalise unprincipled or unprofessional conduct, and to recognise the almost insuperable obstacles that are placed in the way of those desirous of effecting measures of reform in the conduct of architectural competitions. These facts, coupled with the Institute's well-known disinclination to afford assistance to architects who in a private capacity are battling for rights such as those affecting the ownership of drawings—which question, by the way, ought in the general interests of the profession to have been made the cause of a test action or actions fought under the auspices of the Institute itself years and years ago—have had due weight with many architects who would otherwise have withheld their support to the movement in favour of registration.

The leading principles of the proposed scheme shortly to be placed before the Council of the R.I.B.A. will probably contain the following essential elements:—

1. That the Bill brought before Parliament must be one of a nature tending to increase the prestige of the R.I.B.A.
2. That the R.I.B.A. will be constituted the examining body and the registration authority.
3. That the scheme will afford reasonable facilities to enable every architect of repute and every student of average capacity to obtain registration.

Whilst we may assume that these three general principles would be components of a Bill promoted or supported by the R.I.B.A., yet the first practical effect of any Registration Act would be to stop any further increase in the number of incompetent practitioners.

The adoption of a Registration Act under its auspices would enable the R.I.B.A. if necessary, by a general revision of its by-laws, to severely penalise any member for unprofessional or dishonourable conduct, and to admit of its instituting a thoroughly comprehensive system of architectural training by which men of good general education and culture would be attracted to the profession, and to effect this steps would probably be taken to enable the R.I.B.A. to enter into negotiations with the governing bodies of all

the universities in the United Kingdom with the view of inducing them to appoint professors of architecture at their respective seats of learning.

The Reformed Profession.

And, after our Registration Bill has become law, and when through its instrumentality the flow of hordes of illiterate and incompetent men who are now overwhelming by sheer force of numbers the legitimate practitioners is effectually and finally checked, to what extent, you ask, will the art of architecture and its exponents benefit?

Well, it will take time, but the final issue of our labours can never be in doubt. Under a wise scheme of registration the average architect of the future should be a man of sound general education and culture, and as such he will recognise that he is a member of a great and honourable profession to which he is proud to belong. He will know that all unprofessional or dishonest conduct will meet with prompt and exemplary punishment, and owing to his early associations with many of his fellow-practitioners, either at the public school or university, he will be possessed of what we as a profession at present sadly lack, viz. a strong feeling of esprit de corps, and although his designs may possess little or no great creative power or originality, they will be far more likely, on account of their technical scholarship alone, to stand the test of time than those produced by an illiterate and imperfectly trained man of perhaps far greater natural ability.

Your great architects of the future will be men possessing special aptitude for their work, whose inborn ability has been carefully nurtured and systematically trained, and I venture to think you will all agree with me that such men cannot fail to produce works of a far higher standard of art than those emanating from the architects of to-day, whose technical training, such as it is, has been obtained, in the majority of cases, in a haphazard manner.

We should remember that the cause of the less successful members of our profession—the cause of reform, of equal justice, of education—must be a good one, and that those who support it must be in the right, and it is therefore our bounden duty to eliminate, as far as possible, any minor differences on registration tending to obstruct the progress of this great measure of reform, which has met with the hearty approval and support not only of a large majority of the members of the Royal Institute of British Architects, but of a large majority of members of the whole profession, who confidently expect that under its beneficent sway future practitioners will be instrumental in restoring architecture to the proud position in public estimation she has for the moment lost, but which is hers by inalienable right, as that of one of the greatest of the professions—the mother of all the arts.

What says the poet Longfellow?

to build,
That is the noblest art of all the arts.
Painting and sculpture are but images,
Are merely shadows cast by outward things
On stone or canvas, having in themselves
No separate existence. Architecture,
Existing in itself, and not in seeming
A something it is not, surpasses them
As substance shadow.

In conclusion, gentlemen, I am a registrationist because, in my view, registration means, *inter alia*, a sound and systematic course of training such as will enable an architect of average ability to discriminate quite early in his career between work that is either good, bad or indifferent, whereas under our present system of training it is only the experience gained by years of practical work which enables the eminent architect of to-day to produce, generally quite late in life, a design that in any way approaches the standard of excellence shown in the works of the well-trained and well-educated architects of the seventeenth and eighteenth centuries.

If many of the old-time men could design buildings of a monumental and scholarly type at comparatively early stages in their careers, is it not palpably absurd to argue, as I believe our opponents do, that "training fetters art"? On the contrary, is it not reasonable to believe that whilst your properly-trained architect of ability will be capable of producing consistently good work at the age of, say, thirty years, one that is untrained will be unable to give practical effect to his inborn talent until he is nearing the close of his professional career?

If we examine the works of any distinguished modern architect we shall find, as all things have a beginning, that whilst his earlier buildings are, as a rule, neither better nor

worse than those of his contemporaries, his later are far superior to those of the average architect of his time. Is not the result thus obtained late in life—the come of scholarship gathered through years of steady labour in the exercise of his profession, and does it seem probable that under a systematic course of training the scholarly feeling necessary to enable one to produce good work could have been acquired at an earlier outset of his career?

There is no doubt that unless an architect is properly educated before he commences the active work of his profession he will be unlikely to resist the blandishments of that ephemeral fashion of his art. In following the transient fashions, it seems to me that several able architects of our own time have both injured their own reputations and exercised a baneful influence upon the judgment of many of their youthful admirers and imitators.

In short, gentlemen, nothing should be left unattended to in formulating a satisfactory system of compulsory education which alone will insure the production of designs of a high and prove acceptable to future generations. Has not the poet told us that "Every human action gains in honour, in all true magnificence by its regard to things that come." It is the foresight, the great and confident principle that, above all other attributes, separates man from brute, brings him nearer to his Maker, and there is no art whose majesty we may not measure by this test. Therefore, when we build let us think that we build for the future. Let it not be for present delight, not for present use. Let it be such work as our descendants will thank us for, and let us think, as we lay stone on stone, that a time will come when those who follow us will say as they look at the labour and wrought substance of them, "See the fathers did for us!"

ROMAN CAMP NEAR MANCHESTER

PENDING the publication of the first annual report of the excavation committee of the local branch of the Manchester Association, which will not probably be issued till the end of the season, it may be interesting, says the *Manchester Guardian*, to summarise briefly the work that has been accomplished since excavations were commenced at Melandra some three months ago.

The committee set themselves definitely to answer, if possible, these three questions:—

1. What was the nature of the northern and southern gateways? No part of these had hitherto been examined.

2. Did a stone rampart completely surround the camp? Mr. Garstang had reported "traces near the chief gateway only."

3. How did the rampart join up with the four towers? Here, again, the report referred to state "the outer wall having been stripped from around the three corners . . . it was not now possible to examine the exact connection between these features of the masonry."

To the first two of these questions satisfactory answers are now possible, and the committee hope that the work of the present week may throw light upon the last, to which they already have some clue. The third question, however, important as a satisfactory answer would assist materially in determining the date of construction of the fort.

The complete excavation of the northern and southern gateways has revealed the fact that while the former was a double gate with double arches, the dimensions similar to those of the eastern gate, the southern entrance was by a single gateway with a single arch. The leading from this gate towards the Prætorium is well served and consists of coarse gravel on clay. Part of the surface has been carefully riddled, but it has yielded so far nothing worthy of note. The sections of the bank now visible are of interest, first, as showing the relative position of the mound; and, secondly, as indicating by the lie of the bricks what may have been the original slope of the mound. Immediately to the west of the north gate the excavation came upon a large quantity of charcoal. Whether this should be regarded as the remains of a fire has yet to be determined.

From this point the stone rampart has been traced almost to the north-western corner, the flag foundation for the whole distance being intact, and surmounted for part of the way by the first course of dressed stones. As the wall has also been traced for nearly 40 feet at the north-east corner, it may now safely be asserted that a stone rampart surrounded the camp.

the last few days the foundations of the north-
er have been cleared, and it has been found that
of the fort was rounded off by the wall curving
the turret. The exact method of joining will
be seen more clearly from another tower now
mined. The curve of the wall is beautifully
the part uncovered runs straight for nearly 14 feet,
arves inwards 3 feet in the next 20 feet, to meet
Judging from rough calculations the curve
seem to be the arc of a circle.

y measured plans of the gateways have been
a number of excellent photographs of the founda-
y been obtained, a selection from which will be
the report of the committee. No stones found
been in any sense disturbed, and exact measure-
preserved of every single stone so found. As the
s have been carried to a considerable depth, a
nt of earth has been heaped up. The committee
ly anxious to do nothing to disfigure the site.
therefore asked and obtained permission from
ard to remove this from the enclosure, and this
be taken in hand immediately.

s the most interesting objects that have been
in the course of these excavations are several
ses of circular columns, the first hitherto found
p. The mouldings do not resemble those found
ter or Brough, but they are very similar to some
porcovium on the Roman walls, and figured in
s architectural notes on the excavations at that
he mouldings consist of two recessed tori on a
nth of 18½-inch side. Curiously, these bases
d embedded in the hard road at the northern
This would seem to show that the last road
strengthened with fragments of the earlier
of the camp. Foundations of the pillars of a
are still discernible in the courtyard of the
e, and these bases may have stood there originally.
unately the work at Melandra is rather hampered
ge amount of earth left in heaps as the result of
excavations, and a great deal of unproductive
l have to be expended in removing this before
discoveries can be made or the site can be
anything like the condition in which such an
g and valuable national monument ought to be

The proper housing of the objects found since
s were first commenced is a matter which is
the earnest attention of the local committee, who
before long these interesting relics will be placed
building at Glossop, and so made accessible to
Meanwhile all praise is due to Mr. Hamnett
colleagues, who have so carefully collected and
e them.

ARCHITECTURE IN GLASGOW.

collection in the Royal Glasgow Institute of the
Arts this year, says the *Glasgow Herald*, is a
a, and there are missing a good many of the names
who customarily exhibit. The source is almost
ly local, for, out of Glasgow, only two English and
burgh architects are represented. The examples
nely to the class of public buildings, domestic
ries second in importance and churches follow.
t are quite unusually few, and buildings are all
in style, as the others are variants on the all-
Renaissance. As the collection is pretty evenly
between works actually executed and those only
about half are photographs. The rest are drawn
en and ink chiefly, or monochrome wash; none
water-colour or in pencil, and, viewed merely as
some have considerable merit.

ton Municipal Buildings as proposed is about the
cheme illustrated. Mr. Cullen's design was
in competition, and has a central flattened dome
les, flanking towers and pyramidal tops something
t Venetian model; a good deal of effect is got by
l rustication throughout. Another design for the
Mr. D. Barclay, illustrated by a fine wash-drawing,
de; plans of neither are given. The Theatre at
ck, also by Mr. Cullen, is placed between
g, so only one façade appears; it is much above
fortunately is the general level of excellence in our
tes, and very freely treated as befits the subject.
ed office of the North British and Mercantile
Company is a stately four-storeyed block in

Princes Street, finely shown in a geometric drawing. There
is a large order in the centre, a rusticated basement and a
main cornice, with no tower or other extraneous feature, all
quite ordinary elements in a modern Classic composition,
but as treated they allow reasonable originality. The
doorway and the window heads of the main floor are not
such as would have been done fifteen years ago. To those
who know, there is really little chance of chronological
confusion in our present-day use of revived styles; what to
some appear copies only have really characteristics peculiar
to themselves. Messrs. Hunter, Barr & Co.'s warehouse
(Mr. David Barclay), one of Glasgow's biggest, is bound
together with good effect by vertical ranges of oriels, but
the detail is coarse. In the design for Technical College,
by Messrs. Thomson & Sandilands, centre and corner
blocks are marked by slated pavilion roofs in French
fashion.

Of the small town libraries that are springing up,
Anderston is a fair example, by Messrs. Stewart & Paterson.
The dome in the reading-room is an excellent feature.
Another library, by Mr. Lindsay, is appropriate. The
municipal offices, by the same, is even better. A design for
Montrose Public Library, by Messrs. Watson & Salmond,
has a broad entrance portico that tells well against the plain
wall making up most of the façade. Kirkintilloch's Town
Hall and Council Chamber, by Messrs. Walker & Ramsay,
on the drawings have nothing to show whether these are
contiguous. Rather oddly, the lantern is the same in each.
Both are two-storey blocks; the former has had given to it
a Greek treatment. Schools are not illustrated, beyond a
sketch of one proposed at Newcastle. A Nurses' Home and
Pathological Laboratory at Lenzie, by Messrs. Salmon, Son
& Gillespie, is a good essay in brickwork inexpensively
treated; and Lanfine Cottage Home, by the same, is even a
simpler subject, but equal care is evident, and the result is
a very interesting building. Messrs. Sawers's premises,
Paisley, by Mr. Eric A. Sutherland, is something beyond the
usual street frontage, and effective too is the co-operative
building, by Messrs. M'Kissack & Son.

Of houses that by Mr. M'Kellar is the most important.
It is illustrated in two very good wash-drawings, in free
Classic manner, with a corner circular tower of up-to-date
type, but quite happily used here. Craigmyle, by R. S.
Lorimer, R.S.A., shown by photographs, is a most interest-
ing north-country mansion, built in granite overcast with
"harl"—through which the stones show, unfortunately—
and full of quaintness. The entrance-door has a fine splash
of heraldic carving over it, if the gables with curved tops
have more of Dutch than Scotch character. The lodge is
good too, but the gatepiece is rather lacking in interest.
Dalveagh, by Leadbetter & Fairley, is also Scottish
domestic and satisfactory; a plan is given. House at
Skelmorlie, by H. E. Clifford. Here length rather than
height asserts itself; the style is Late Tudor, with squat
tower, tall stone chimneys and timber gables. It is
shown by a pen-and-ink drawing. Kennyhill, by
Miller & Black, is a frame of photographs, chiefly
interiors, of a sumptuously-appointed house. A
swimming-pond and a bowling-alley are unusual adjuncts,
and the equipment of a bath-room shown corresponds.
There is novelty in the double grille at the glazed
entrance-door, and in the stained glass in screens and doors
throughout, besides in windows. Normanhurst, by Mr.
Balfour, shown by photographs. Neither exterior nor in-
terior is of much distinction, but not inappropriate. A
series of photographs of the Hill House, Helensburgh, is
by Messrs. Honeyman, Keppie & Macintosh. The perverse
austerity of the outside, where everything is covered with
rough-cast, is consistently maintained within. Fittings,
furniture, wall-hangings and foot-mats have the same
adornment of little squares pierced or stencilled. Decora-
tion according to this recipe is surely simple enough.
Messrs. Annan's building, by the same, and Gadgirth
Library, chiefly interiors, are shown by photograph, where
furniture is almost better illustrated than fabric. Middleton
Hall, by Mr. J. Macintyre Henry, is a photograph of addi-
tions to a house, widespread, symmetrical and bare, of late
eighteenth-century period. A plan is appended. Nord-
heim, by Messrs. Beattie & Morton, is something out
of the common in disposition, but without extrava-
gance. A double house, by Mr. W. Whittie, is also
plainly treated, with oriels that run up as low
towers. More in the picturesque manner is a cottage at
Cathcart by Mr. F. Rowntree, who also has Pilmuir Lodge,
which is yet more rustic—of brick, surmounted with an
extinguisher tiled roof and central chimney-stalk. Villa at

Maxwell Park, by Mr. Nisbet, has its lower storey of red stotie, the upper of rough-cast and timber gables; the interior shows some details of interest. Tulliallan Gate Lodge, by Watson & Salmon, is Jacobean in style, and attached to an imposing arched gateway, set off by an effective background of foliage. A small country house, by Mr. A. N. Paterson, has its entrance at the inner angle of an L-shaped plan. Internally modelled plasterwork of a type presently revived gives interest; a doctor's house, with plan attached, is excellent; and the proposed additions to Kyles Hydropathic, also by the same, help to produce a composition of note. This last is shown in tinted chalks. Small houses by Messrs. Mitchell & Whitelaw, D. W. Sturrock, and D. M'Naughtan have merit—the last specially. The doorways have a good deal of new art in their design. The interior of S.S. *Yongala*, by Mr. J. M. Crawford, has details on rather a larger scale than is usual in yachts.

Dalmuir and Radnor Park churches, by Messrs. Stewart & Paterson, illustrated by photos, are both simply treated; a main doorway is of interest. Baptist church at Springburn, by Mr. James Lindsay, is of good scale and dignified, if only a street frontage. Parish church at Elgin, by P. Macgregor Chalmers; here the buildings are low, so that the square tower without great height is effective—the style is Norman. One of the designs for St. Paul's Church, placed second, by Beattie & Morton, is of Late Gothic, a good deal influenced by "new art," in details principally, but affecting the tower roof of hollow line; the corner buttress is a little in the way. The halls adjoin and group well with the church. A design for St. Columba Church, by Mr. D. Barclay, differs from the one erected in having its side as frontage. There is a spire and the style is Decorated. A fresh architectural sketch rather than a water-colour proper of the porch of St. Mary's Church, Oxford, is by Mr. Wm. B. Fulton. Very little stained glass is shown: a fine memorial window for Forfar Church, by Mr. John Guthrie, is of good composition and rich in colour so far as a sketch can represent that; one by Mr. Stephen Adams is a panel from the Grosvenor Restaurant that is more of a picture, as suits its place and purpose.

ROYAL SCOTTISH ACADEMY AND WORKMEN.

THE Council of the Royal Scottish Academy have issued the following circular to employers of labour in the city, pointing out the special facilities which are now afforded for the working classes visiting the Academy's exhibition in the evenings:—"Royal Scottish Academy, Edinburgh, May 1905. Dear Sir,—The exhibition of the Royal Scottish Academy is open every evening from seven to ten. The new light installation enables visitors to see the collection under most favourable circumstances, and the President and Council believe that if this were generally realised, the public—especially the better class of artisans and their families—would take advantage of this opportunity of evening recreation. I am therefore instructed to ask if you would be willing to distribute, on application, among your men single admission free tickets? It is understood that the holders of these tickets have the privilege of procuring others at the door at 4d. each for the use of their friends.—I am, yours faithfully, GEORGE HAY, Secretary."

YAPTON CHURCH.

AN interesting account of recent discoveries made in Yapton church, Sussex, appears in the parish magazine of this month. "The puzzle," writes Mr. P. M. Johnston, "has always been as to how the church was lighted when it was first built, seeing that such things as the dormer windows, which now so abundantly light the church, were not then in use, and that there were no clerestory windows over the nave arcades. The little Norman window at the east end of the south aisle, together with one or two small openings, which must originally have pierced the west wall of the nave, would thus have been the only means of lighting the church in the twelfth, thirteenth and fourteenth centuries, unless—and this is the point that has until now always remained in question—the low walls of the aisles were pierced with windows.

"So far as the south aisle, at any rate, is concerned, this question has now been solved, for during the present week the vicar and myself," continues Mr. Johnston, "have been

able to make a careful search, with the curious little circular openings have been found in the south aisle. The eastern of these, at the end of the aisle, had been partially destroyed, but enough remains to show that there was a stone frame about a foot in diameter, of plain work, while the western, otherwise similar, is a window of quatrefoil shape. These openings were fitted and rebated to hold glass, but plain leaded glass was found of their having been blocked up on the occasion of their being turned into recesses at some date like 1400; when the large dormer windows were made, they were bricked in and plastered over. Yapton should be proud of these, the latest of the church's antiquities, as there is nothing quite like them anywhere. Any of the low aisle walls of this part of Sussex to go as far as Piddinghoe, near Lewes, to find the same character."

AMERICAN PLANS IN CANADA.

TWO new important buildings for Toronto have been put into the hands of United States architects, the *Canadian Architect*, and the duty on plans collected on a valuation of the blue prints that are based upon the time supposed to be taken by a man in producing them. If there is to be a creditable that its collection should be made a duty on the Government—not the present Government—did acknowledge at one time that the duty should be collected on the cost of the drawings (and not blue prints) but that the duty should be collected on the cost of the importer. The irritating point in the architects is that the best architect in Canada is allowed to erect a hen-house in the United States; another point, equally irritating, is that while the States architect is employed in Canada, he has a better chance in the way of expenditure than the Canadian. His clients are, in fact, a good deal more liberal. As they have sent to New York for advice, would be silly not to take his advice. The effort is to raise the high-water mark of cost all round, far as that is a good thing, we ought to be able to do ourselves.

AMERICAN PRACTICE.

FOR the first time in our history, says Mr. Johnston in the *American Architect*, we have a man educated for a special purpose, who have as their duty to keep abreast of our national development in the main departments of the work for which they are trained. This failure is not due to want of ability. Most of the architects of the new generation are virile and cultured men. But virility and culture accomplish nothing without concentrated effort. The pressure of our modern industrial system has been diverted to other and more urgent channels. This being a materialistic age, the vast majority of the buildings of the character that makes for architectural development are erected for purely commercial purposes. Every advance in science and mechanics is eagerly upon. Radical changes in the building arts are required to adapt modern construction to such an extent that the man can grasp their intricacies and honestly present himself an expert. The changes which the business of the building trades are undergoing are equivalent to a revolution. This is an age of feverish business haste. As we pride ourselves upon the promptness with which we accomplish results. Economic success in building is generally dependent upon rapidity of construction. The owner and contractor show an increasing tendency to be through corporate interests. The mechanic, and frequently the contractor can be dealt with through their organisations, through which the building industry are utilising and developing the forces of cost to the fullest extent.

In the midst of this feverish haste the architect is posed to be an authority in all the varied services for the construction of a huge modern work within a minimum limit of time. A busy architect may find such structures under weigh coincidentally. To vitalise his claim to perform mechanical and scientific service in an expert capacity, he attempts to keep the times by acting as civil engineer, sanitary expert,

ing specialist, professional electrician, and so through the whole gamut of endeavour necessary for the solution of his complicated constructive problems. Sometimes he employs professional assistance, but he attempts to supervise the work of the experts with most exactness, notwithstanding the fact that this is in itself a study to which other men devote their careers.

The architect's claim as an authority in economics is based upon the exigencies of his employment. The architect's exact and careful supervision of financial affairs being paramount to all other considerations. The building must be constructed at the minimum cost and must yield the maximum income. This duty is imperative. The architect is delegated to employ, as is the case with the engineer, more strictly architectural functions of his profession. To hold his *clients* the architect gives the best of his thought to the business of answering this. He involuntarily bends his energies to this end, and becomes thoroughly familiar with the latest and best methods of construction, in order that he may erect his building with the utmost despatch. and one year's loss of rentals may mean financial disaster to his client, and hence to himself.

In the few moments that he has to spare from his other duties he occasionally attempts to design, or make the roughest sort of a sketch, which is then sent to a draughtsman for further elucidation. More often the sketch itself is the work of the draughtsman, and the architect exercises purely advisory supervision. When the design is finished the architect signs his name, and assumes responsibility.

Under these conditions most of our architectural works are done by men whose lack of experience prevents acquaintance with existing sociological conditions, and the knowledge of which is essential to the creation of a new type. Generally these draughtsmen have had no real training in the schools. Historic style is a mere resource. Mistaking transient modes for permanent, they are compelled to achieve results with that careful study is impossible, and even for the desire to be original the text-book becomes the only safe guide.

When the draughtsman has obtained the necessary training to make him a competent designer, he too becomes an architect, and, if successful, must in turn leave his position to subordinates. These young men, fresh from the schools, the real sponsors of most American work are apt to be orthodox in their tastes. Their training prescribes exact rules of procedure. In the early years of their careers, which is the only period when they are free to design, they have not yet learned that their training was simply a preparation for the designing of the actual problems of an architectural practice. The influence of this system much American design is mere judicious copying, and it is commendable in proportion to the judiciousness with which the copy is accomplished.

What is the future? What has architecture to offer in the development of our national art? Its ranks are being recruited from the best types of our young men, whose training in the technical schools, both at home and abroad, is equal to any that the world affords. Many of our architects are men of broad view and great energy. Here are two conspicuous examples of American architects who have devoted time and concentrated energy to designs, whose work shows strong personal and original characteristics. It has devolved upon a Philadelphia practitioner to demonstrate to the world of American designers to meet modern conditions untrammelled by precedent. The Westerner's solution of the steel-frame building is as modern and national as the building itself. It plainly indicates its structural character. It makes no pretence to being supported by masonry. The large expanse of windows laughs at precedent, and claims a new and light structural material. The architect's treatment of the more humble problems of domestic architecture is equally original, for although he is perfectly familiar with historic style, he has chosen to proceed according to his own untrammelled taste. So the lack of harmony between Gothic mouldings and modern ornament, and the results have justified his choice. The whole profession has contributed to the development of the small American suburban residence, and the same dwelling is one triumph of national architecture in which all of the workers may claim a share. There

were no precedents to hamper the designer. There were no historic motives in the material used. There were no complicated methods of construction such as are involved in the larger works. The problem was purely architectural, and its solution appealed to that large middle class which is itself so characteristically American. The result has proved satisfactory, whether considered from an economical, mechanical, artistic or national point of view. It is the one bit of purely American architecture evolved under conditions compelling and permitting original artistic thought.

Thus in this isolated field, where the American architect has expended time and energy, he has produced national types, and in the realm of science and mechanics, where economic necessities have compelled constructive inventiveness, he is also thorough and original. How can the American architect be allowed to devote equal energy and to obtain equal results in the broader art of design which, in its ultimate aim, is the quality which distinguishes him from the engineer?

In England, where the same conditions obtain to some extent, a small band of men is attempting to solve the question by making it a rule to accept only a limited number of commissions in each year; agreeing with each client to devote personal attention to his work, with the understanding that the fee be increased above the usual amount.

In the United States the solution is being forced by our corporate interests. This is an age of specialised and co-operative effort. Modern industry is subdividing its energies to the utmost. It puts definite metes and bounds to every man's labours, and exacts of each only the work for which he is best equipped.

The greater portion of our large architectural works are no longer promoted by private patrons. Corporations large and small are now in control. Their activities functionise the powers of the owner as well as the contractor, and frequently appear in both capacities. At the head of each of these enterprises is an expert in executive management. He knows to a nicety just what he requires of each unit under his control, and realises their limitations with exactness. He knows that as business counsellors his financiers excel. He appreciates fully that his mechanical experts are far more competent to advise in heating, in electricity and in engineering problems than his architect. But he knows further that no one is as competent as his architect to design and to assemble his multifarious technical forces. He needs the architect as a supervisor purely in an advisory capacity. He therefore insists that the architect should simply design and assemble the constructive parts, and he places the burden of the details of business, of mechanics and of science with those best fitted to render the maximum amount of expert service.

This is the system of the large corporations whose activities are becoming such a revolutionary force in the building trades.

Their programme is being imitated by the small corporation especially formed in order to finance one building, an arrangement so frequent that in our large centres of population the private owner is almost eliminated. The system is bound to reduce the power of the architect as a business force; but when he is shorn of many of those duties which now consume all of his working hours he will again have leisure to devote his abilities to his specialty. Thus the disease is its own cure, and the economic evolution which has forced the architect into a position alien to his art will in time restore him to his proper place. He will then be able to create, to construct, and, above all, he will again design. With the enormous energy and undoubted ability which is our national endowment, who can doubt that under these conditions the American architect will produce new types truly national artistically as well as constructively, and not copies of the forms and methods of older lands?

The Council of the Society of Arts at a meeting last week passed the following resolution:—"In view of the feeling which appears to have been aroused amongst some of the proprietors of the London Institution with regard to the proposed amalgamation with the Society of Arts, and the consequent probable difficulties of effecting a harmonious fusion of the two corporations into a single institution, the Council of the Society of Arts have decided not to take any further action in the matter, and hereby discharge the committee which, at the instance of the Board of Managers of the London Institution, they appointed to consider the scheme for amalgamation."

GENERAL.

Mr. G. H. Widdowes, assessor in a competition for the erection of a new boys' school at Buxton, has placed the plans as follows:—(1) Mr. Charles Swain, College Road, Buxton and Manchester; (2) Messrs. Garlick & Flint, Buxton; and (3) Mr. W. R. Bryden, Buxton. Mr. Swain's estimate was 4,000*l.*, and it was decided to recommend the adoption of his plans to the education authority.

An Exhibition of works left by the late Mr. G. H. Boughton, R.A., will be opened on Saturday, May 20, at the Leicester Galleries, Leicester Square. It will include oil-paintings, pastels and a collection of landscapes in water-colours. The exhibition will remain open for one month.

Mr. A. S. Parker, architect, Plymouth, has been awarded the first premium of 50 guineas in a competition for proposed extension of the police court and fire brigade dépôt in Bristol. The estimated cost of the scheme was 48,000*l.* The second premium went to Mr. H. Williams, Bristol, whose plans were estimated to entail an expenditure of 53,000*l.* Fifteen plans were sent in. The work has been postponed for three years.

The Death is recorded, at Scarborough, where he had resided for some years, of Mr. William Crozier, M.I.C.E., formerly surveyor for the county of Durham, a position now held by his son.

Sir Caspar Purdon Clarke, C.I.E., the director of the Victoria and Albert Museum, will be entertained at a public dinner prior to his departure to New York. The executive committee, which includes the Earl of Carlisle, Sir E. J. Poynter, P.R.A., Lord Balcarras, Sir George Donaldson, Sir L. Alma-Tadema, R.A., have proposed June 28 as the day.

The Committee of patronage for the International Art Congress, to be held in Venice in September, has been appointed. Great Britain is represented by Sir W. B. Richmond, R.A., Mr. W. M. Rossetti, Sir Aston Webb, R.A., and Lord Windsor.

The Cookham Rural District Council have selected Mr. T. Street, formerly surveyor for the parish of Hurley, for the post of district surveyor. There were more than 100 applicants.

The Home Secretary has decided that for the year 1905 the remuneration of the members of the Tribunal of Appeal under the London Building Act, 1894, shall continue upon the same scale as heretofore. Under this scale each member of the Tribunal receives three guineas for the first hour and two guineas for each subsequent hour of each day's sitting.

Brington Church, near Northampton, is to be restored when the necessary funds have been collected. The church is noteworthy as being the burial-place of the ancestors of George Washington and of the Spencer family.

Mr. G. McDonell, district surveyor, South-West Islington, having passed the age of sixty-five, has sent in his resignation as from September 30, 1905.

The Chichester City Council have received 123 applications for the surveyorship, although the inclusive salary is only 150*l.* The election will take place to-day.

The Leeds University Council have appointed Mr. James Gilchrist, B.S., to the lectureship in civil engineering vacant through the death of Mr. George Wilson. Mr. Gilchrist is a graduate in science of the University of Edinburgh, with first-class honours in engineering. He has had varied and wide experience as a practising civil engineer, and is at present on the staff of the engineer in chief of the Caledonian Railway.

The Council of the Edinburgh Architectural Association, at a meeting on the 11th inst., considered the terms and conditions upon which a parish council propose to elect an architect and superintendent of works. On the ground that the remuneration offered was far below the recognised scale of professional charges, the Council of the Architectural Society expressed disapproval of the same and resolved to communicate with the parish council on the subject, and to ask them to reconsider the conditions of appointment.

The Birmingham Art Gallery has been presented with a large landscape painted by Thomas Creswick, R.A.

The Window designed and made by Mr. John La Farge, of New York, and presented to St. Saviour's Cathedral, Southwark, by Mr. Choate, the United States ambassador, as a memorial of John Harvard, founder of Harvard University, will be unveiled by his Excellency and dedicated on Monday.

Cambridge University has received from Wilkin, of Wadhurst, Sussex, an offer to endow a scholarship in memory of his son, Mr. Anthony Wilkin, of King's College. The benefaction is intended for the furtherance of ethnological and archaeological researches, preferably for fieldwork among the more primitive peoples of Greece, Italy or Egypt.

The Church of St. Michael Coslany, Northampton, has not been used for the past seven years, is to be pulled down. The structure is in a ruinous condition.

M. Stehukine, a Moscow collector of objects of art, has given to the Moscow Historical Museum his collection of objects as well as the building and land on which they are stored. The value of the gift is estimated at four millions of rubles.

The Baldacchino over the high altar in the Cathedral of St. Peter will shortly be erected. It will cover a space of 31 feet by 15 feet. The central space over the altar will be covered by a vault 15 feet wide, supported by four columns of deep yellow Verona marble. All the columns will be placed on pedestals of green marble from Carrara. The bases, capitals, mouldings and carvings generally will be of ivory white marble, while the flat surfaces will be of variously coloured marbles, lapis lazuli, and gold. The vaults and ceilings are to be constructed of concrete and covered with mosaic.

Experiments on Nickel Steel have been made at the Watertown Arsenal, U.S. They demonstrate that the elastic limits and tensile strength, accompanied by ductility, result from the addition of nickel to steel.

Cheddleton Asylum is to be enlarged in order to accommodate 400 additional patients. The outlay will be a heavy addition to the expenditure of the Staffordshire Council.

The Provincial Association of French Architects held their general meeting at the Château de Blois, France.

The Woking Urban District Council have instructed a sanitary committee to "take into consideration the desirability of so modifying the building by-laws as to provide for the erection of cheaper cottages."

The French Minister of Fine Art has announced the disposal of 30,000 francs in premiums varying from 1,000 francs, which will be awarded to artists who have completed two years whose works in either of the said categories are considered to indicate ability that merits encouragement.

The Late Mr. Stanley Connor, an American sculptor, died last year in Florence, has bequeathed to the city of Florence one of his models.

M. Gustave Michel, the sculptor, has been appointed professor in the Ecole des Beaux-Arts, as M. Engelbert.

M. Georges Lefenestre has commenced a course of lectures in the Louvre on Sandro Botticelli and his contemporaries in Florence and Rome.

Mr. Holman Hunt's latest work, "The Lady of Shalott," will be on Saturday and afterwards exhibited at Tooth's galleries in the Haymarket.

The Visit of the Edinburgh Architectural Association to-morrow will be to Dundee, when the old buildings will be examined with the aid of members of the local Institute of Architecture.

Mr. H. Percy Boulnois, inspector of the Local Government Board, recently conducted an inquiry into an application by the Corporation of London to borrow money for connection with the new scheme of sewerage disposal. The Corporation were authorised under the Act of 1901 to borrow 290,000*l.* for this purpose, but the amount was found insufficient by 30,000*l.* An application was also made for the period of repayment to be extended from forty to sixty years, but Mr. Boulnois expressed doubt whether this would be granted. The whole of the work except the erection of the pumping station, is virtually completed.

French Delegates from the Council-General of the Department of the Seine, who are paying a visit to London for the purpose of studying the latest methods of purification of sewage in our large towns arrived from Paris last week. The members of the delegation were M. Grebauval (president of the Council-General), M. Moreau, Chenal, Jolibois, Parisot, Carnignac, Jacquemin, Thomas and Levée (councillors), M. (director), M. Bechmann (chief engineer), Dr. (director of the Pasteur Institute at Lille), MM. (engineers), and M. Garnier (secretary).



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INDEMNITY HOUSE, OLD BROAD STREET, E.C.
ENTRANCE HALL FROM DOOR.
HOWARD CHATFIELD CLARKE, Architect.

The Architect, May 19th 1905



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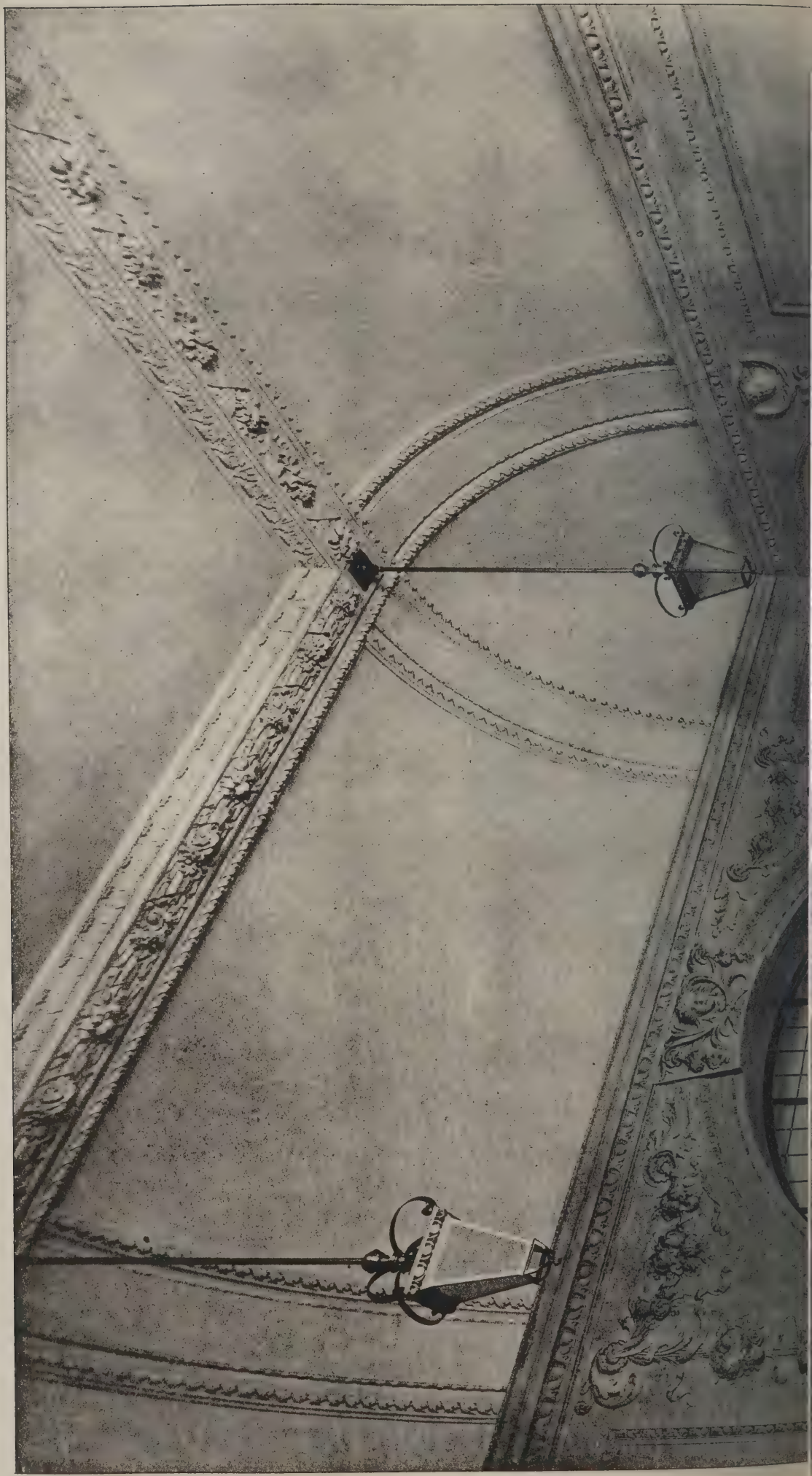
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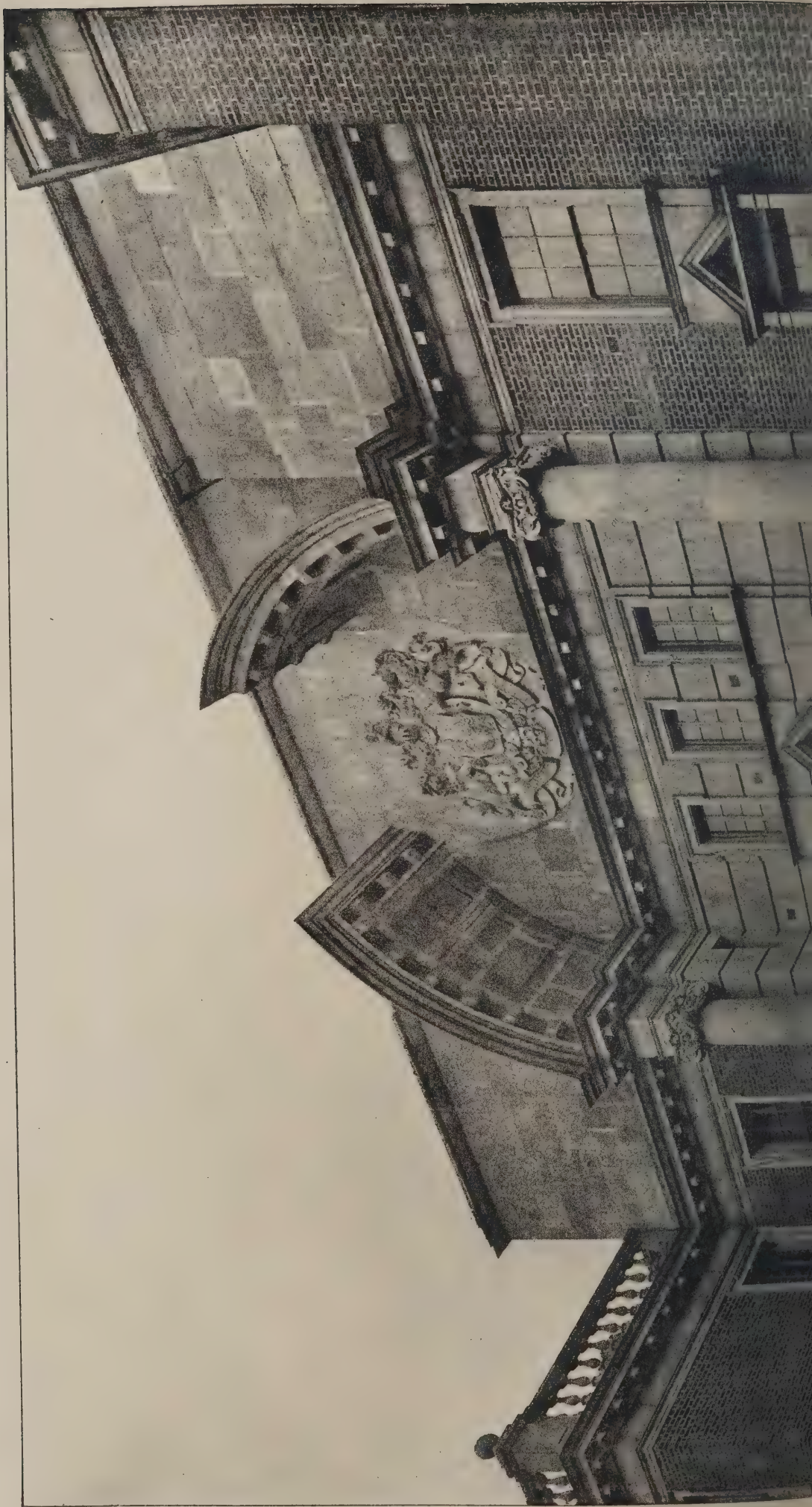


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STAIRCASE, COUNTY SESSIONS HOUSE, PRESTON
HENRY LITTLER, Architect.

The Architect, May 19th 1905





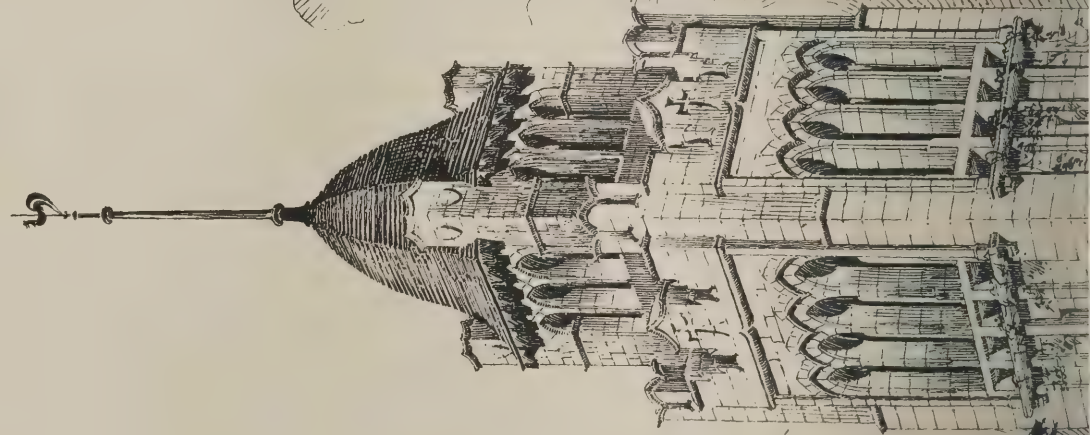
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SOUTHWARK POLICE COURT: EXTERIOR.

J. DIXON BUTLER, Architect.

Die Architektur, May 19th 1905.



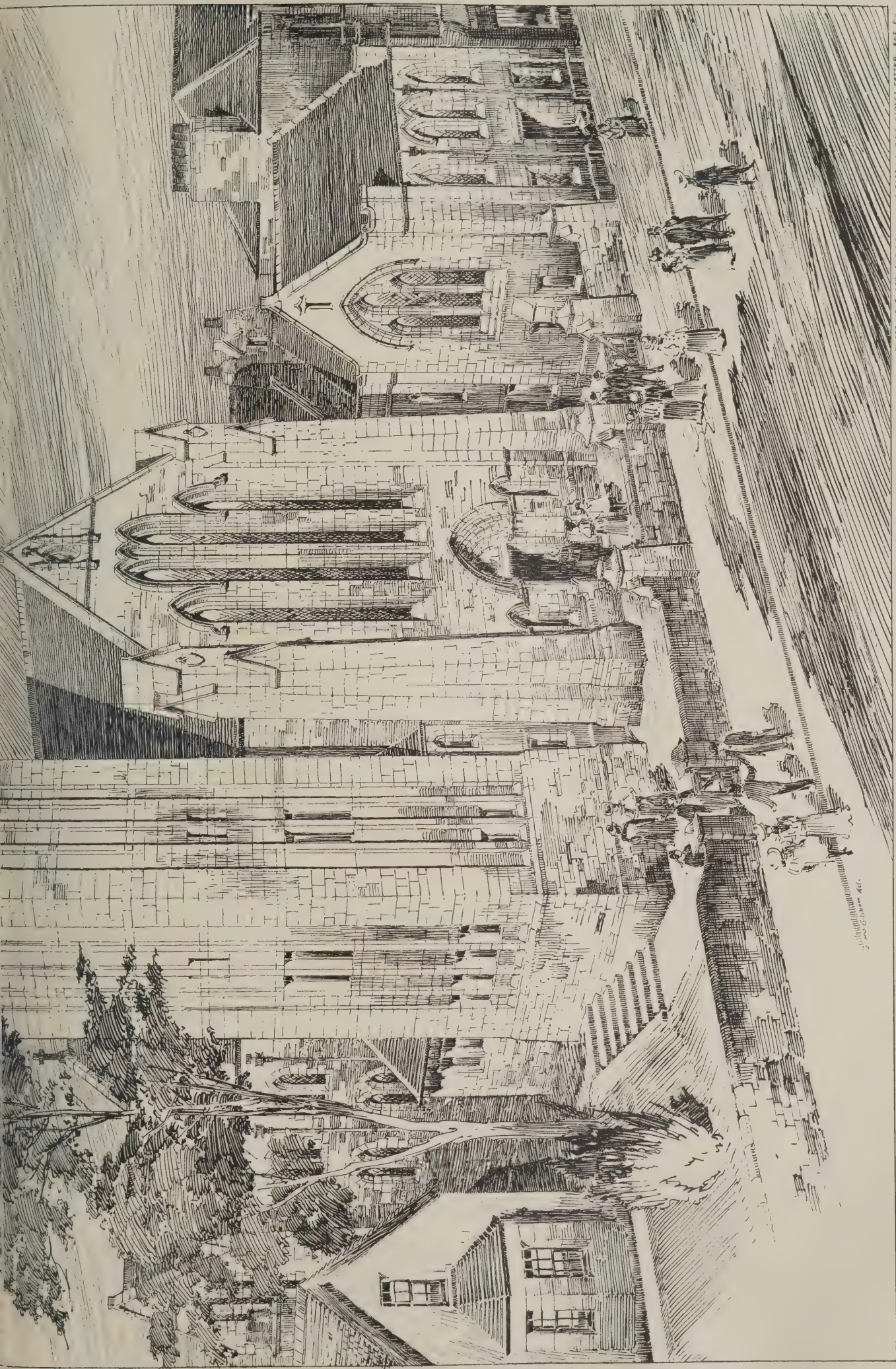


PHOTO LITHO. BY J. G. & CO. 455 EAST HADING STREET, FETTER LANE, E.C.

ST. DAVID'S CHURCH, BATHGATE.
J. GRAHAM FAIRLEY, Architect.

The Architect.

THE WEEK.

CUSTOM has, we suppose, dictated that a Bill for the Registration of Architects should be again introduced, although any Parliamentary agent would have pointed out there was not the least probability of it becoming an Act. Like its predecessors, it is presented by Mr. ATHERLEY-JONES, and it is supported by Sir WILLIAM CODDINGTON, Mr. WALLACE and Sir CHRISTOPHER FURNESS. The short title is the Architects Act, 1895, and it is assumed that it will take effect from January 1, 1906. It is proposed to have a general council of architectural education and registration, consisting of five persons nominated on the advice of the Privy Council, five representatives of the Royal Institute of British Architects, one of the Royal Academy, one of the Irish Institute, two of the Society of Architects, two of the Architectural Association, five of the provincial societies and nine of the registered practitioners. The members shall hold office for a term not exceeding five years. Registrars and other officers are to be appointed. Fees are to be paid to members of the general council as well as travelling expenses. Fellows and associates of the Royal Institute of British Architects, the Society of Architects or of any architectural society affiliated with the Institute shall be entitled to be registered on payment of registration fees. All applicants for admission after the passing of the Act must not be less than twenty-one. An apprenticeship entered upon after the passing of this Act must be served under indenture to a registered practitioner or practitioners. Any person not registered shall not be entitled to use the name of architect, and any such person who uses the name shall be liable to a fine not exceeding 20*l.*, and on repetition of the offence 50*l.* Qualifying examinations are to be held by the Institute or other body appointed by the Privy Council. None but registered persons are to be entitled to recover charges in any court of law for professional services, or to hold public appointments in which the preparation, examination, approval, or passing of buildings is concerned. An exception is made in favour of members of the Institution of Civil Engineers and of the Surveyors' Institution. The term "legally qualified practitioner" is to mean a person registered under the Act. Arrangements are to be made for the registration of colonial and foreign practitioners.

As Mr. Justice LAWRENCE impounded the documents used in *MEABY and Another v. Hearts of Oak Benefit Society*, and promised to hand them over to the Public Prosecutor, we cannot, of course, discuss the merits of the case, although it is one in which all architects will take an interest. But it throws a light on a system of obtaining business which it is to be feared is often employed at the present time. Everyone knows that one of the ways to commercial success is to erect an imposing building, and several benefit societies are expending large sums of money on new offices. The Hearts of Oak resolved to devote 55,000*l.* to the erection of premises in the Euston Road, in addition to 36,000*l.* for a site. There was a competition, and Mr. MEABY, the Society's surveyor, obtained the second place. Afterwards his plans were adopted by the Society. He calculated that at 1*s.* a foot the building could be erected for 46,048*l.* There was some alteration in the building-line, and in consequence a new set of plans had to be prepared. The plaintiff in consequence said he believed the old stipulations of cost were no longer binding. The Society, however, considered that the new plans would cost from 80,000*l.* to 90,000*l.* or more, and therefore held that the arrangement between the Society and the plaintiff was at an end. The plaintiff sought to recover 3,374*l.* for his services, while the Society counter-claimed 1,240*l.* 3*s.*, the amount paid to a surveyor for

taking out quantities from the plans. The plaintiff's evidence was of a kind that was unsatisfactory to his counsel. The jury decided it was not worth while listening to any more, and the Judge said that the matter was not one which could end there. The remarkable fact was that the plaintiff, although he was surveyor to the Society, and in such a position his capabilities should be known, was allowed not only to compete, but to receive the commission for an important building, although apparently his greatest architectural achievement was the erection of a house and shop. No doubt a competent man was obtained to prepare the designs, and we suppose he would also be competent to look after the erection of the building. But the whole responsibility would, of course, remain with the man who had served as surveyor. When ordinary individuals engage on schemes in an unwise manner the Courts can interfere on the application of their relatives. Members of benefit societies would do well to insure that their representatives who enter on large contracts for buildings have the assistance of architects, surveyors and builders about whose rectitude there can be no question.

It seems to be inevitable in this country that certain classes of public buildings are sure to be monopolised by a few architects. It is unquestionably an advantage to have specialists; but in an art like architecture anything useful which can be devised is sure to be imitated. When work is retained in a limited number of hands it is likely to become stereotyped, and there is an advantage in allowing several minds an opportunity for considering whether new solutions of difficulties cannot be employed. At a recent meeting of the County Councils Association the question arose about the economical gain of architectural monopoly. Mr. J. WILLIS BUND declared that there was something like a "ring" for the erection of asylums and hospitals. The Lunacy Commissioners preferred men who knew their requirements, and if a county council did not select one of those architects the members would suffer. The favoured architect, he said, was sure to have a preference for some builder. In that way, according to Mr. WILLIS BUND, the cost of one asylum ran up to 32*s.* a bed. Great extravagance was also seen in the erection of isolation hospitals. As a result it was resolved to call the attention of the Government to the matter.

THE most popular of DANTE ROSSETTI's paintings is the *Dante's Dream*, of which the Liverpool Corporation are the fortunate possessors. One proof of this fact is to be found in the number of applications for its exhibition in different places. Although in 1891 the arts committee of the Corporation came to the resolution that the painting was not to be again lent, it has not always been kept in the art gallery. At a recent meeting it was decided to send it away in order that it might be relined. Mr. HARFORD, who is a member of the committee, has objected to the proposal, for he considers the operation should be carried out in the Liverpool gallery under the supervision of experts. That travelling is not beneficial to ROSSETTI's work is suggested by one of its journeys abroad in order to be photographed. According to Mr. HARFORD, "When the picture arrived back in Liverpool it was discovered, to everybody's dismay, that during its absence it had been revarnished without authority from the committee. One is justified in asserting that something had been done to the picture, and that it was revarnished to cover it up. Everything now points to the fact that whatever the process was that it went through it necessitated revarnishing, and that the canvas has become weakened to such an extent as to cause the upper part to give way and leave the stretcher. This is most unusual in ROSSETTI's pictures, so profound was his knowledge of his materials."

THE ASSOCIATION SKETCH-BOOK.

THERE are so many successful examples in the series of volumes of the Sketch-Book of the Architectural Association, the contributors of late years can hardly fail to become emulous and produce plates which are superior specimens of draughtsmanship. It is, of course, easy to be fascinated by some examples of architecture and then to attempt picturesque representations of them. But for a student of architecture the process of measuring is more profitable as discipline than any freehand drawings such as the young painter would give. We are glad to see that the majority of the plates in the latest issue are the results of measurement rather than of sketching. It is also satisfactory to find that except in a very few unimportant instances there is no attempt to employ photography. Volume VIII. of the third series may therefore fail to be as attractive a table-book as some of its predecessors, but it is acceptable as an exact record of a variety of subjects, and evidence of sterling if unostentatious work.

The first example by Mr. E. GUNN shows the thirteenth-century font in Barnack Church; local stone was no doubt utilised, and the sharpness of the ornament is a testimony to the endurance of the old "rag." Mr. C. WONTNER SMITH has several views, including Burford Church, the west window in the tower of Campden Church, the Trinity Chapel, Cirencester, the tower of Fairford Church, part of Minchinhampton Church, Northleach Church, Pershore Abbey, Stow-on-the-Wold Church and fireplace in Upper Swell House. They are reproduced from freehand drawings in pencil, and are suggestive not merely of general effect, but of detail. Two plates of carving from Venice represent a different style of work, but are also characteristic of the original treatment. The curves in the panelling of the Frari Church are given with rare precision. All of them appear as if "knocked off" by Mr. SMITH *con amore*. The Queen's House at Greenwich is the subject of three plates by Mr. HORACE CUBITT. In the designing INIGO JONES, WEBB, his assistant, and WREN appear to have aided. It is Italian, but without much variety. Mr. C. H. MURRAY has selected the lady chapel at Lichfield, which from its size is a suitable subject for a page. The cloisters of Westminster Abbey have been shown on four sheets by Mr. F. WINTON NEWMAN and on two by Mr. BAXTER GREIG. The former are the more elaborate. The vaulting is skilfully delineated. St. George's Church, Hanover Square, has been selected by Mr. C. F. CALLOW. There was a time when JAMES's building would not be thought worthy of measurement, but by modern canons it is believed to have much to recommend it, and it is at least adapted for fashionable weddings. We cannot praise the drawings for neatness; lines are not uniform in thickness, and there is much carelessness in their junctions. The plates seem to be reproduced from tracings executed in a hurry. Two houses from Stamford are shown in measured drawings by Mr. EDWIN FORBES. They are good examples of seventeenth-century work, and are worth comparing with the house in Upper Westwood, Wilts, which Mr. A. D. THACKER gives. The latter is of somewhat earlier date, but it would be considered as not so well adapted for modern needs. The monument to Sir WILLIAM POPE, in Wroxton Church, is given by Mr. A. E. BULLOCK. From the figures and the quantity of the ornament the subject is difficult, and has been very carefully rendered. Details from Convocation House, at Oxford, have been selected by Mr. J. GILLESPIE, and are drawn in workmanlike style.

Scottish buildings offer a pleasing variety when introduced among English examples. Craigievar Castle, to which Mr. ANDREW ROLLO has devoted seven sheets, dates from 1610, but it might belong to an earlier period. The house occupies an area of not more than 50 feet by 40 feet, and yet from its height has an imposing appearance. The hall has elaborate carving; over the fireplace is a large carving of the arms of JAMES I., as king of

England and Scotland; the ceiling amidst the strap ornament presents portraits of ancient rulers. All the details are shown, even to the hinges. The west doorway of Jedburgh Abbey is treated skilfully by Mr. J. GILLESPIE. It is twelfth-century work, and exemplifies Scottish Norman, which sometimes was more interesting than any English varieties. Mr. J. M. KOTT shows a well canopy at Pinkie House, Musselburgh, which from its refinement must have been designed by an artist.

We may always expect foreign examples in the Sketch-Book. Mr. F. C. MEARS has taken the remains of the ancient house which are in the grounds of the museum at Rouen, part being modern restoration. It is easy to imagine from the drawing the attractiveness of the house when it was in habitable condition. In style it has the luxuriance of late Rouenese Gothic. Mr. P. J. MARVIN offers four studies of German and Swiss towers which he made in 1875. Mr. D. T. FYFE suggests the character of S. Abbondio, Como, and of the Palazzo Costabili, Ferrara. As a rule, people are content with the lower part of the sacristy of San Lorenzo, Florence, in which the great Medici tomb by MICHEL ANGELO is placed. Mr. A. NOBBS has had the courage to represent the whole structure to the cross above the lantern. It is an advantage to have so important a set of drawings, which, however, suggest that they were produced under difficulties. Sta Maria sopra Minerva is the only Gothic church in Rome. The tomb of Bishop DURANTUS, which is the subject of Mr. H. MORLEY's drawing, indicates the influences both of an earlier and a later time. Sculpture, mosaic and fresco are combined. The seated MADONNA recalls CIMABUE, but the attendant saints are less striking. The prelate was a Frenchman, who preferred an obscure diocese to the Archbishopric of Ravenna. The most important of the Italian examples is the noble church of the Madonna, in Podi, which used to be ascribed to BRAMANTE. FERGUSON said it is the only church wholly by him which now exists, and he adds, "though neither very large nor very elaborate in its decoration, it is a very beautiful church, and forms a perfect pendant to ALBERTI's church at Mantua; the one being the earliest and best type of the Basilican, as the other is of the domical or Byzantine form of the Renaissance." On the drawing the exterior is credited to COLA DI MATTEUCCIO DA CAPRAROLA, A.D. 1504 or 1508, and the interior to AMBR. DA MILANO and FR. DI VITO LOMBARDO, 1517-24; the dome was added in A.D. 1606.

Each volume of the Sketch-Book is evidence of the loyalty of the members to one of the institutions of the Association. If other circumstances permitted it would, we believe, be practicable to bring out volumes more often. It must be a difficult task where so many members are anxious to see their plates reproduced to decide upon a selection. Style as well as subject has to be considered, and it must be acknowledged that the endeavour to produce acceptable plates has had a beneficial effect on the draughtsmanship of this country. Mr. W. G. B. LEWIS and Mr. W. A. PITE can be congratulated on their success in obtaining so varied and excellent a volume.

THE RIGHT TO LIGHT.

BY A BARRISTER.

IT may perhaps be thought that when the House of Lords has pronounced an authoritative judgment such as that in *COLLS v. the Home and Colonial Stores*, and when it has thus laid down a definite principle for the decision of a certain class of cases, the uncertainty of the law dealing with such cases will at once be laid to rest. In reality it is not so. The very fact that a case is a leading case implies either that it lays down certain new and far-reaching principles, or that it sets old principles in a new light. Some time is needed both to familiarise the minds of lawyers to the new environment and to settle the exact application of the principles.

themselves. These general remarks are illustrated by the case of *KINE v. JOLLY*—a recent case upon the right to light which has divided the Court of Appeal. We shall state the facts of that case, and say something about the judgments delivered thereon, because it deals very carefully with the scope and interpretation of the principles laid down in *COLLS v. the Home and Colonial Stores*, and because it unfortunately tends, as we think, in some degree to obscure their application.

The judgment of the Court of Appeal was founded on the facts as found by KEKEWICH, J., and those facts, so far as they are material to the question which we intend to discuss, were as follows:—The principal cause of complaint was the obstruction of light to the plaintiff's morning-room. Before the obstruction it was an exceptionally well-lighted room, and even after the obstruction it was well lighted. The room could still be used for the purposes for which it was designed. But it had ceased to be so cheerful a room, and had thereby lost a great part of its special advantage and charm. The learned Judge, on these facts, came to the conclusion that the obstruction of the light was a nuisance. The Court of Appeal affirmed this judgment, ROMER, L.J., dissenting.

It was conceded on all hands that the question whether the obstruction to the light was a nuisance was the question to be determined; and that a man cannot complain of a nuisance unless, to use the words of VAUGHAN WILLIAMS, L.J., "that which has occurred is a substantial interference with his comfortable and profitable occupation of his dwelling-house or warehouse or house of business." It was clear in this case that the room was still sufficiently lighted for use for the purposes for which it had been designed, *i.e.* as a morning-room—that, in fact, it was still well lighted. It was equally clear that the room had less light than it enjoyed before the obstruction, and that in consequence the letting value of the property had been diminished. It was held by VAUGHAN WILLIAMS and COZENS-HARDY, L.J.J., that therefore the obstruction was actionable. Two short extracts from their judgments will show clearly the ratio decidendi. VAUGHAN WILLIAMS, L.J., said:—"They [the expert witnesses] say that the house has diminished in value to the extent of, I think, 20% to 25% a year; and even if it were taken at a less sum, I cannot doubt but that the house must have been made substantially less comfortable and convenient according to the ordinary notions of mankind by reason of the obstruction." "Is it any answer," said COZENS-HARDY, L.J., "to say that the room is still a well-lighted room? I think not, if the building makes the room less fit for occupation, and I do not think that we can bring in the phrase 'according to the ordinary notions of mankind' to cut down the effect which would otherwise result from a building of this nature. I for my part accept the findings of fact of KEKEWICH, J. He has found, as I read his judgment, that the letting and selling value has diminished, and that the plaintiff's morning-room is materially affected, so far as the comfort and convenience of the morning-room are concerned. That being so, I agree with my Lord that there is a good cause of action." If, in fact, the letting or selling value of a house is diminished, if the comfort and convenience of the occupier is affected, an action will lie, even though the room is well lighted and capable of use for the purpose for which it was designed.

ROMER, L.J., as we have said, dissented from the majority of the Court. He considered that the findings of KEKEWICH, J., really negatived the idea that any nuisance had been caused. The room was still well-lighted and capable of use for the purposes for which it was designed. It is true that the "cheerfulness" of the room had been interfered with, but that did not mean that its comfortable and profitable use as a dwelling-house had been rendered impossible. A deprivation of "cheerfulness" which leaves the room still well-lighted, still capable of comfortable use as a morning-room, is no nuisance in law.

It seems to us that there is much to be said for the view of ROMER, L.J. No doubt a deprivation of cheerfulness would diminish the letting or selling value of a house. No doubt it might in some degree affect the comfort of the occupier. The question is whether the plaintiff had a right to that especial degree of cheerfulness and comfort. If a warehouse has had the use of an extraordinary amount of light, and that light is diminished by an obstruction, the letting value of the warehouse would be diminished, and likewise the comfort of those who used the warehouse. But the great principle which *COLLS v. the Home and Colonial Stores* laid down was that mere diminution of that extraordinary amount of light would not be actionable unless it caused a nuisance (see *The Architect*, March 17, 1905). To infer a nuisance from the diminution in letting value and the diminution in comfortable user is to bring back again much of the old uncertainty which we thought *COLLS v. the Home and Colonial Stores* had set at rest. Such facts may, indeed, be evidence of a nuisance, but they are not conclusive evidence. If they are to be regarded as conclusive evidence of a nuisance we must modify our views as to the proper test of what is and what is not a nuisance. The test will no longer be, are the premises less fit than before for ordinary business or ordinary occupation? Rather it will be, are the premises less valuable and less comfortable than before to the present plaintiff? The view that a room can still be well lighted, and still be capable of being used for the purpose for which it was designed, and yet the obstruction of light can be a nuisance, seems to enlarge the conception of a nuisance, and to obscure the distinction between a "partial inconvenience" and a "real injury" upon which that conception rests. It is easy to see that many cases will arise in which the obstruction complained of is on the border line between these two categories. But we must confess that the findings of KEKEWICH, J., induce us to think, with ROMER, L.J., that this case should have fallen into the former rather than into the latter category. No doubt the findings of fact in this case created much difficulty. But, however that may be, we think that all those who have anything to do with building operations would be sorry to see the broad principle laid down by the House of Lords in any way obscured by subtle distinctions which tend to illustrate the cleverness of those who lay down the law rather than to promote the convenience of those who are bound to obey it.

THE THEORY AND CONSTRUCTION OF GIRDERS.*

THE invention of the wrought-iron beam is to be credited to WILLIAM FAIRBAIRN. The new support was only a development of the cast-iron beam, and the theory was of a very simple kind. The breaking weight was easily found as soon as the area of the beam, its depth and breadth were known, the constant being derived from experiments. But in the course of sixty years a beam has come to be looked upon in a different aspect to that in which it appeared to the eyes of the engineers who had constructed the early wrought-iron bridges. It is not to be concluded that the formulæ used were incorrect, for beams can still be made by their aid which will be enduring. But on the whole there is more economy when the modern system is applied. MR. ATHERTON'S book is essentially modern and practical. Instead of beginning with a consideration of an abstract beam, he treats of one under the form of a beam of a Cornish engine, or as

* 1. *An Introduction to the Design of Beams, Girders and Columns in Machines and Structures.* By William H. Atherton. (London: Charles Griffin & Co., Ltd.)

2. *Constructional Steelwork: being Notes on the Practical Aspect and the Principles of Design.* By A. W. Farnsworth. (London: Charles Griffin & Co., Ltd.)

one of the slides for a 68-ton gun or as a crane jib. In that way the student is at once made acquainted with actualities, and he comes to ascertain what forces are warring against the stability of a beam and how they are neutralised. In all beams it is supposed that there is a plane where the opposing forces die out and there is equilibrium. It is commonly said that in a section a point of the neutral axis corresponds with the centre of gravity. What Mr. ATHERTON remarks on the subject will suggest the spirit of the book:—

This rule is much too often stated without the slightest explanation or qualification. But we require a reason for it, as the justice of the rule is not obvious on the face of it. Why should the neutral axis pass through the centroid of the section of the beam? The reason assigned by one writer is, "Because there is then just as much metal above the neutral axis as below it." He adds that "this can only hold when the material is as strong in tension as in compression," thus implying that for beams made of such a material as cast-iron—which is far stronger in compression than in tension—the neutral axis does not pass through the centre of area of the section. As the assertion that the neutral axis does pass through the centroid of every section lies at the very root of the regular strength formulæ for beams, and as so many engineers seem to have no idea why it does, but are content to take the rule on trust, without troubling themselves about the rationale of the matter, it will surely be worth while looking carefully into the grounds of this assumption. Mere rules, divorced from principles, are to be distrusted, especially if they seem to be opposed to common sense. . . . The exact statement of the case is this. The neutral axis of a stated plane transverse section of a loaded beam will pass through the centroid of that section, provided that the tensile modulus of elasticity of the material composing the beam is exactly equal to its compressive modulus of elasticity, but not otherwise. In other words, the material must be such that

$$\frac{\text{pull per unit area}}{\text{extension per unit length}} = \frac{\text{thrust per unit area}}{\text{compression per unit length}}.$$

In the case of materials for which the tension modulus is less than the compression modulus, the neutral axis should be placed rather nearer to the compressed face of the beam than the centre of area of the section. But as a matter of fact, the shifting of the neutral axis due to this inequality is so small that it is commonly neglected altogether in practice. The whole question of the proper location of the neutral axis is one of considerable difficulty, and has given rise to much contention.

In the other parts of the treatise there is a similar endeavour to enable the students to realise the theory of girders, and not to be satisfied with accepting formulæ as if they were charms. Examples are given which show the applicability of the reasoning to girders of various kinds and sizes. Mr. ATHERTON is not, however, to be taken as a revolutionist who wishes to initiate a new system. He respects results which have stood their ground. Thus in speaking of the trade catalogues of rolled girders he says that some men prefer to ignore the tables. He, however, believes they can be used with advantage, but he warns the inexperienced that unless they know what factor of safety has been allowed in calculating standard tables serious errors are likely to arise. The book will be a most efficient means of initiating a student in the theory of beam construction.

It would often be interesting and instructive for architects' and engineers' assistants if they knew how their drawings of girders and columns were judged in the drawing-offices of manufacturers. The representations are useful for general dimensions, but in many cases they are not strictly followed in detail. A girder is, however, a comparatively simple object, and yet in the preparation of the drawings of one it is possible to make the cost of construction unnecessarily expensive. Manufacturers would often gladly supply the drawings without cost, and indeed those received have frequently to be, as it were, translated into a form which will be understood by foremen and workmen. Any draughtsman who has not had at least a short experience in

workshops should not attempt to prepare drawings until he has carefully studied Mr. FARNSWORTH'S volume.

He adopts economy as his guide, and he is not in sympathy with those who talk about making beautiful girders. Beauty, in his opinion, is "not a thing of patches, or holes, or curves only, but, according to our canons, of breadth of effect and disposition of form." He doubts whether railway passengers would pay a higher fare in order that the bridges over which they are carried might be more in keeping with the landscape. Steelwork he contends is engineering not architecture, and his idea of the chief duty of an engineer is to produce designs at the lowest possible cost. One of the first obstacles to economy he considers to be the ordinary specification. Let each of two engineers prepare one for the same set of drawings, and it is possible, he says, the prices will vary as much as 5% per ton. In America there are "manufacturers' standard specifications," which are generally adopted, and to them is owing in a large measure the fear we have of American competition. "The American has but certain fixed laws to follow, and his work must automatically become accepted; the Britisher has innumerable laws—for every job in his yard has a different set—and the added cost of clerical work and oversight alone must put him out of the race with his rival. Give the home maker the same or any other standard specification to work to, and a very different tale would soon be told." Another cause of expense arises from the time clause, for if the manufacturer has to accept the risk of heavy penalties he must discover some sort of compensation. As regards drawings, Mr. FARNSWORTH says that no sizes or dimensions ought ever be left to scale; figures should be placed everywhere, and every view should be dimensioned fully in order to obviate the hunt for a particular figure. The most common errors relate to rivetting, for rivets are often shown in positions where they could not be put in. The following advice is given:—

In commencing the drawing a faint rectangular outline of the girder should be first made, and on this the centre lines of all fixed points—centres of cross girders fishing in, and all connections—put in. Then must come the consideration of the stiffeners and rivetting pitch, and the aim must be to primarily obtain as regular a pitch as is possible. Generally the draughtsman seeks to place his stiffeners at mathematically correct centres apart. This is a mistake. There are few girders, especially those in buildings, of which the moving of a stiffener one or two inches either way would affect the looks. Certainly a symmetrical placing is pleasing to the eye, as also it fits in best (on evenly loaded girders) with theoretical requirements; but the eye cannot judge to an inch or two, and generally it is only this inch or two which is needed to give the rivets a regular pitch. It is a bad plan to place the stiffeners and then space the rivets between as best they will go. Perhaps at a given point a 4-inch pitch is desirable, and through this being done the pitch actually becomes $3\frac{3}{4}$ inches. Does the draughtsman ever think of the extra time required by the template-maker to set out a $3\frac{3}{4}$ -inch pitch over a 4-inch one? Somebody has to pay for that time, and it is not usually the maker. By slightly moving the stiffeners the 4-inch pitch might have been used, and the extra time and cost saved.

It is also an advantage for the designer to employ sizes and sections which are always likely to be found in stock. For instance, 4×4 inch angles can be delivered in a week, but $4\frac{1}{2} \times 4\frac{1}{2}$ inch might require from three to six weeks to be obtained. It is also economical to avoid insisting in trusses on diagonals fitting closely to the flanges. No harm would arise if there was a difference of a quarter-inch between them. Rounded ends for girders are wasteful. It is a very safe dogma, Mr. FARNSWORTH says, to beware of the fire. Any operation which depends on fire and heat is bound to be expensive, and is consequently to be avoided as much as possible. Rivet-holes are now preferred to be drilled, but it has no superiority over punching. "On some pettifogging span of 20 feet," says Mr. FARNS-

WORTH, "a British engineer will have a specification pages long, insisting, among other things, on 'all rivet-holes being drilled from the solid.' An American will make and confidently put up an Atbara bridge with a specification of only a few clauses, and no mention whatever of any method for making rivet-holes but punching." A kind of punching which the author condemns is that of piercing the webs of girders to obtain ornamental patterns; such work probably increases the cost by 5% or 6% per ton.

All we have referred to concerns the preparation of drawings in the office of the architect or civil engineer. The greater part of the book describes in detail the operations in the girder shops and smithies by which the steel structure is realised. Here Mr. FARNSWORTH shows himself a master, and the arrangements, which are all inspired by economy, are amply explained. For anyone who proposes to set up a business for constructional steelwork the author's conclusions will be found invaluable. There is no book which is so well adapted to serve as a guide under such circumstances. The two volumes by Mr. ATHERTON and Mr. FARNSWORTH, if taken together, reveal all the mysteries connected with the construction of steel girders.

THE SOCIETY OF ARCHITECTS.

THE twenty-first annual dinner of the Society of Architects was held on Friday evening last at De Keyser's Royal Hotel, Victoria Embankment, E.C., Mr. Walter W. Thomas, president, in the chair.

Among those present were:—Lord Stanley of Alderley, the Lord Mayor of Liverpool, Alderman Sir H. E. Knight, Sir R. Melvill Beachcroft (chairman of the Metropolitan Water Board), Mr. W. Watson Rutherford, M.P., Mr. C. McArthur, M.P., Sir J. Pulestone, the Very Rev. Canon Vere, Mr. L. A. Atherley-Jones, K.C., M.P., the Rev. Russell Wakefield, J.P. (mayor of St. Marylebone), Mr. A. Crisp (master of the Carpenters' Company), Mr. Austin Taylor, M.P., Alderman Fitzroy Doll (mayor of Holborn), Councillor Percy Gates (mayor of Kensington), Mr. F. Higgs (president of the London Master Builders' Association), Mr. B. Greenwood (president of the Institute of Builders), Mr. Cholton James (president of the Cardiff Society of Architects), Mr. James Jeffery, J.P., L.C.C. (mayor of Chelsea), Mr. W. E. Riley (superintending architect of the L.C.C.), the Mayors of Paddington, Greenwich, Finsbury, Deptford, Wandsworth, Lambeth, Hackney, Chatham, the Rev. A. Mercer, Dr. Lloyd Roberts, Colonel A. W. Holme, Major L. Whitehead, Major M. H. Hall, Messrs. G. Hubbard, Howard Colls, H. K. G. Bamber, H. Anderson, E. O. Sachs, A. W. S. Cross, J. R. Croger, G. A. Pridmore, G. Gard Pye (vice-president), A. A. H. Scott, C. Mason, S. C. Hanson, J. M. Frazer, L. F. C. Bell, H. Greville Montgomery, W. B. Bryan (chief engineer of the Metropolitan Water Board), J. R. Manning, R. de Burgh d'Arcy, H. Prosser, Alderman Viney, Alderman Skinner, Alderman Batchelor, G. E. Bond, T. Marcus Houghton, C. H. Rosher, W. Nightingale, R. Wellings Thomas, C. Day, W. B. Willmot, J. R. Featherby, W. Lees McClure, J. T. Wood, Owen Owen, C. W. Stevens, A. F. Fowler, B. R. Tucker, Philip Condry, Herbert Warren, F. Childe Warren, G. A. Child, H. C. W. Blyth, F. W. Macey, J. B. Corby, J. H. Champness, Anthony Scott, F. J. Byrne, A. Colman Scott, T. Falconer, S. Marsland, Ellis Marsland (hon. secretary), C. McArthur Butler (secretary), D. L. Fulton, C. Palmer, M. W. Tattershall, Walter C. Williams, E. J. Sadgrove, A. Burnell Burnell, A. Y. Mayell, Thos. R. Richards, A. A. Atkins, W. E. Wanmer, D. Morgan, T. J. Jones, A. E. Mullins, J. E. Burkmar, E. C. Beaumont, A. Paterson, R. A. Jack, C. Watkins, Herbert Knight, C. H. Mead, E. Carr, H. V. Milnes Emerson, G. H. Paine, C. L. Gibbs, M. Williams, W. D. Jenkins, A. P. Killik, A. T. Franklin, G. A. T. Middleton, H. H. Richardson, T. F. Tickner, W. Atkinson, R. Leighton, Adolph Curry, A. E. Pridmore (vice-president). After the loyal toasts the Rev. RUSSELL WAKEFIELD proposed "The Houses of Parliament."

Lord STANLEY OF ALDERLEY replied for the House of Lords.

Mr. C. MCARTHUR, M.P., in his response for the Commons said it was getting more difficult year by year

for Parliament to pass Acts because the House was overburdened by work, and it would be well if the House of Commons was relieved of much of the smaller legislation submitted to it. He was aware that the Society had a burning interest in Parliament, and he hoped their Bill for the registration of architects would have a short and successful voyage. It was a wise measure the Society had organised, since by registration there would be a guarantee that no one should use the honourable name of architect without being fully qualified.

Mr. W. WATSON RUTHERFORD, M.P., submitted the toast of "The London Local Authorities." He hoped it would be considered appropriate that he should propose the toast, because he was once Lord Mayor of Liverpool, and because that municipality was the largest in the kingdom. In alluding to his municipal experience, he said the evil effects of many of the present by-laws hampered architects. There was no doubt that at the present time architecture in England as regarded the greater and important buildings was distinctly improving, but as regarded the common dwelling-house there was deterioration. This he attributed to the by-laws in force in many districts which tended to bring about a uniformity that was squalid, a condition which was the greatest foe to art and to the advancement of comfort and convenience.

Alderman Sir H. KNIGHT responded for the City of London. Mr. J. JEFFERY, for the London County Council, said that body was desirous of giving architects all they desired. London was a more healthful place to live in than Brighton because the County Council had done their duty. He believed they would have true architecture, and was proud that the County Council was spending so much money in the improvement of the conditions of the Metropolis.

The Mayor of KENSINGTON spoke for the borough councils, and Sir R. M. BEACHCROFT replied for the London Water Board.

Mr. ATHERLEY-JONES, K.C., M.P., in proposing "The Society of Architects and Architecture," said the toast intimately concerned the Society assembled there that evening and the larger number of architects outside their membership, and, he might add, the British public. Reference had been made to the desirability of the devolution by Parliament of some of its vast labours. He cordially sympathised with the motive which inspired those remarks. Parliament really found a difficulty in passing useful legislation which in former years was successfully carried through by non-official or private members. The time of Parliament was monopolised by the Government in the promotion, not so much of useful and necessary measures, but of measures which tended to promote the interest of a political party. However useful a measure might be, and however desirable, it was impossible to carry it into law unless it was of a wholly uncontroversial character and unless it received the support of every member. He regretted to say that the measure he had the honour of introducing for the Society still lacked a place in the statute book. He was not insensible to the fact that they lacked co-operation in the promotion of that measure, and he regretted that the Institute of Architects had not supported it in securing a passage through Parliament. He believed the measure would be of inestimable value not only to the architects as a profession, but to the public at large. He hoped that at no very distant date the House of Commons would resume that control over public business which at present was assigned to a comparatively narrow section of the House, and that the small and useful measures which were desired by large sections of the community would receive attention, and which did more to contribute to the true welfare of the people than those measures which contributed to the rivalry of different parties.

The PRESIDENT, in his response, referred to the fact that they were celebrating the coming of age of the Society of Architects, and said he was glad to be in a position to congratulate the members upon the position which it had attained. They would like to know that during the past few months in particular the number of candidates for membership had been something like 50 per cent. in excess of previous years, and that both as regards finances and membership it was never in a better position to carry on the objects for which it was founded. The chief of these as they all knew was the question of the statutory education and registration of architects, with which the Society of Architects had been actively identified from the beginning—twenty-one years ago. It really seemed as though they

were on the eve of realising their object, seeing that, after strenuously opposing the matter for many years, the senior architectural institution, the R.I.B.A., was, it was understood, seriously considering the question of taking the lead in that important question. Indeed if their information was correct, a committee of the R.I.B.A. had the matter in hand, and were actually drafting a Bill on the subject for presentation to Parliament. As the members were aware, there was at the present time a Bill already before Parliament on the matter, promoted by the Society of Architects, and which was the outcome of many years' work. It had been carefully revised from time to time and was framed on thoroughly sound principles. Matters seemed therefore to have reached that stage when it was no longer a question as to whether the profession was in favour of registration or not—the Society of Architects settled that question by a poll of the profession, some years ago—but whether there should be two Bills before Parliament on the same subject, or whether there should be one Bill promoted by the senior institution and supported by the unanimous voice of the profession, including their Society. He would repeat what they had constantly said in public and in private, viz., that the Society of Architects was prepared to stand aside in favour of the Royal Institute, if that body was prepared either to adopt the present Bill or to substitute another one which should be of a character to satisfy the members of the Society of Architects that the principle which they had so long upheld should be adhered to. Their position was not the aggrandisement of the Society of Architects, but the promotion of a measure which should in some degree remedy the undeniable disadvantages under which the practice of architecture was at present pursued, affecting the public equally with the architect. What further proof of their *bona-fides* and sincerity could they give than to offer to forego the fruits of many years' work, and to let others reap where they had sown? The previous night they had had the pleasure of meeting two members of the R.I.B.A. and of discussing the matter with them, and they were hopeful that the discussion which took place would not be without good effect. They had carried their work to a certain point and were awaiting with interest to see what the R.I.B.A. proposed to do before they continued their active propaganda. The next move was with the Institute, and if they were in earnest in the matter it would be one which would enable them to approach Parliament with a united front. If, unfortunately, other counsels prevailed, the lead would be with the Society of Architects again, and they should not fail to take advantage of it. They were pledged to see the matter through, and were quite certain of success in the long run. In conclusion, he said they should like to see the profession a united body again, and if the Institute came to the front the Society of Architects would give them all the support they could, and he hoped they would go to Parliament shoulder to shoulder.

Mr. CHOLTON JAMES (president of the Cardiff Society of Architects) also replied to the toast, and said the architects in the provinces felt the need of registration more than those members of the profession practising in London. In the provinces they had to compete with men who had never served one hour even as articled pupils or as qualified assistants. It was in consequence of those untrained men that architecture in the provinces was deteriorating. There were large buildings erected, but Londoners competed and took the whole business. As many provincial men contributed to the Institute, they believed it only fair that they should have a voice in their counsels and seek registration, because without it they could only look forward in the future to increased competition from outside and unqualified men.

Councillor JOHN LEA (Lord Mayor of Liverpool) submitted the toast of "The Arts and Crafts Allied to Architecture," and assured them that Liverpool had done its full share in the promotion of architecture. Before London had awakened to the need for improvement Liverpool had to a large extent rebuilt its principal streets. Those men who followed the profession of architecture held a very high and honourable position among the people, and he was one who believed good building influenced the character of the nation and was an incentive to high morality.

Alderman FITZROY DOLL, who responded, said he earnestly desired that architects as a profession should be united. He believed it was owing to the want of unity among them that architects did not meet with the respect in England which such a great profession should command. There was a time when most architects had looked upon the builder and the craftsmen engaged on a job with the eye of

a policeman, believing it was the architect's duty to watch the interest of his client by being as severe as possible upon the builder. In the present time their sympathies were more with the builder and the craftsmen than they were before, because architects realised the difficulties the builder had to contend against. The lack of technical education among the English was deplorable, and in building work it meant that many of the details were supplied by foreign craftsmen.

Mr. A. E. PRIDMORE proposed "Our Guests." Mr. G. HUBBARD briefly responded.

REBUILDING THE QUADRANT, REGENT STREET.

THE Building Act committee of the London County Council report that they have considered an application by Mr. R. Norman Shaw, R.A., on behalf of Mr. J. F. F. Horner, a Commissioner of His Majesty's Woods and Forests, for consent to the rebuilding of the portion of Regent Street known as the Quadrant, and situated between Piccadilly Circus and Vigo Street on the south side, and Piccadilly Circus and Glasshouse Street on the north side, with the front portions of the upper floors of the new buildings carried over the entrances to Air Street on both sides of Regent Street. It is stated that the reason for desiring to carry the upper floors of the new buildings over the entrances to Air Street is to preserve unbroken the curved sweep of the upper cornice, and it is pointed out that the entrance to Swallow Street has always been similarly built over. Mr. Norman Shaw has expressed his willingness to make satisfactory provision on the second floor for the ventilation of Air Street, and also for that of Swallow Street, although the latter street does not come within the limits of his application. The committee think that the proposed rebuilding will effect a great improvement in the appearance of Regent Street, and in order that the Council may see what is proposed to be done, they have given instructions for the elevation submitted by Mr. Norman Shaw to be exhibited in the lobby of the Council chamber. It is recommended that the Council, in the exercise of its powers under sections 13 and 22 of the London Building Act 1894, but in no way otherwise than under such sections, do consent to the rebuilding of The Quadrant, Regent Street, with the front portions of the upper floors of the proposed buildings carried over the entrances to Air Street on either side of Regent Street, as shown on the plans (Registered No. S.A. 10,262) submitted with the application of Mr. R. Norman Shaw, R.A., on behalf of Mr. J. F. F. Horner, a Commissioner of His Majesty's Woods and Forests, such consent being subject to the following conditions—that satisfactory provision be made by means of an opening at the second-floor level in the buildings over Air Street, on both sides of Regent Street, for the ventilation of Air Street; that the buildings be commenced within twelve months and completed within two years from May 23, 1905; and that the buildings be otherwise erected and retained without any addition thereto and in exact accordance with the application for the consent and the plans and particulars which accompanied such application. That the applicant be informed that the above consent does not relieve the owners of the property from the necessity of obtaining any necessary consent from the local authority to the erection of buildings over the public way.

WOOTTON WAWEN.

THE antiquity of the church and the hospitality of the hall combined to make last Saturday's visit to Wootton Wawen, says the *Birmingham Post*, one of the most successful excursions in the history of the Birmingham Archaeological Society.

The carriages stopped at the fine old parish church of Wootton Wawen, where the Rev. F. T. Bramston (vicar) was waiting to welcome the archaeologists and to point out some of the interesting features of the building. Time did not permit of full justice being done to its historical and architectural treasures. Dating back to the period of the Saxon heptarchy, the church has passed through many vicissitudes, and each succeeding century has added something to the fabric. Some of the additions and alterations have seriously interfered with the symmetry of the structure, but they afford a rare opportunity of tracing the development of English architecture. The church contains

examples of Saxon, Norman, Early English and fourteenth and fifteenth-century work. The centre of interest is the Saxon tower with its four massive square pillars and remarkably small round arches. The original structure is almost surrounded by later additions. On the east side is a fourteenth-century chancel, and the south aisle has also been extended eastwards to form a chantry chapel. Here a stone slab marks the burial-place of William Somerville, the poet who wrote "The Chase." He lived in the neighbouring hamlet of Edstone during the latter half of the seventeenth century. The church also contains some fine monuments to the Smythes, Harewells and Carringtons of Wootton Wawen Hall.

Their historic mansion, which has recently been purchased by Mr. Capewell Hughes, a Birmingham manufacturer, is within a stone's throw of the church. The house is a very handsome and commodious one in the Italian style, and it stands upon an extensive and picturesque estate. Lord Francis Carrington rebuilt the hall in 1687. Tradition says that Sir Christopher Wren prepared the plans, and there is good reason for believing that Grinling Gibbons was responsible for the beautiful carving of the cornices. It is certain that Wren and Gibbons were concerned together in similar work at Arbury, and that Sir Christopher was living in Warwickshire when the building was commenced, though he did not buy Wroxall till 1713. The Wren family remained for 150 years at Wroxall, which is six miles above Wootton Wawen on the stream that flows past the hall into the river Alne.

The present owner of the hall has spent a great deal of money in restoring the fabric, renovating the interior and improving the estate. The house has been decorated and furnished in accordance with modern ideas of comfort, but with due regard to the historic associations of the hall. In planning the improvements Mr. Hughes has availed himself of the antiquarian knowledge and artistic skill of his friend and neighbour, Mr. W. J. Fieldhouse. There is striking evidence of Mr. Fieldhouse's ingenuity in the Italian pleasure-land that has been laid out in the walled garden. Here Mr. Hughes's collection of foreign and antique sculpture is displayed to advantage. When the creepers have covered the walls, the roses have entwined the rustic bowers, and water-lilies have grown in the ornamental pools, it will be difficult to imagine that this Arcadian retreat was not part of the original scheme. All over the estate one finds new work grafted on to the old in such a natural way that nothing but the newness of the stone is out of harmony with the setting, and that will soon wear off.

Mr. and Mrs. Capewell Hughes received their guests in the entrance hall, which has been used as a drawing-room for the last 100 years, but has now been restored to its original form and adorned with beautiful frescoes depicting scenes from Shakespeare's "Much Ado About Nothing," by Mr. F. W. Davis, a former student of the Birmingham School of Art. Under the able direction of Mr. John Humpries, the genial organiser of the Society's excursions, the party passed through the drawing-room, which is rich in tapestries, to the mezzotint galleries, where they had a glimpse of the study, in the oldest portion of the house, which contains several secret escapements. The house has been in Roman Catholic hands from the time of the Reformation, and there remains abundant evidence of its adaptation for concealing priests in time of persecution. Some of the hiding-places have recently been sealed up, but privileged visitors were allowed to peep into several secret passages and staircases in the thick main walls of the building. After admiring the oak panelling, carved with the Carrington crest, in the morning-room, the archaeologists ascended the staircase, at the top of which they noted the entrance to the priests' apartments. The powdering-room reminded them of the days when powdered wigs were the fashion, and the private chapel recalled the story of Father Bishop, who is supposed to have been hidden there for several years. Descending to the kitchens, the experts pointed out traces of another chapel. Below this they came to the old well, the crypt cellar and the subterranean passage, which is said to branch into two, one outlet being near the church and the other in the village. It is a well-preserved brick tunnel, but is flooded with rain-water. This fact induced the sceptic of the party to suggest that the tunnel was not made for an escape, but for a drain.

Passing through the billiard-room, the visitors saw the minstrel gallery, and in the dining-room they noticed the frames of family pews, indicating that this room was used as a private chapel 100 years ago. Up to the time when Mr. Hughes acquired the estate the Roman Catholics of the

district worshipped in the adjoining chapel, which is now called the music-room. By the generosity of the past and present owners of the hall, the local priest has been provided with a new church not far away.

Tea was served in the music-room, which is worthy to be ranked among the works of Wren. Before partaking of the delicacies provided by Mrs. Hughes, the company listened to a short address by Sir Benjamin Stone. The member for East Birmingham referred to the hall as one of the most interesting country seats in Warwickshire, and congratulated Mr. and Mrs. Hughes on the way in which they had restored their historic and beautiful mansion. The history of the hall was, he said, intimately associated with that of the parish church, and the ruined priory that could still be traced on the estate. Probably both ecclesiastical buildings grew out of a hermit's cell established by a missionary from one of the older monasteries on the Continent. The history of the priory could be traced back to the year 850, when it received a grant from Ethelbald, king of Mercia. After referring to the civil and religious disturbances that had left their mark on Wootton Wawen, Sir Benjamin spoke of Edward Arden as a connecting link between the family of Somerville and that of Shakespeare. He suggested that the tragic death of John Somerville, after his mad threat against the life of Queen Elizabeth, might have had something to do with Shakespeare's departure for London, which occurred about the same time.

Mr. J. A. Cossins (president of the Society) expressed the hearty thanks of the company to their host and hostess. He also referred to the fact that the excursion was the hundredth in the annals of the Society, and the first of the present season. The attendance was more than twice as large as usual.

Mr. Hughes, responding, referred to the evidences of Shakespeare's fondness for the Forest of Arden.

LONDON COUNTY COUNCIL SCHOOL OF BUILDING.

THE education committee of the London County Council have made inquiries as to the causes of the poor attendance at the classes in architecture at the school of building. When the school was established by the late Technical Education Board it was recognised that it would be necessary at an early date to appoint some well-known authority on architecture to act as director of the architecture instruction at the school, and to give courses of lectures on architectural subjects. Inquiries have been made with the object of finding some well-known authorities who would be prepared to undertake work of this kind. Of the gentlemen interviewed, Professor Beresford Pite, F.R.I.B.A., professor of architecture at the Royal College of Art, South Kensington, appears to be the most suitable candidate. He is prepared to give courses of lectures and direct the architectural work of the school for a fee of 300*l.* a session, which would include attendance at the school for three evenings a week. The lectures would deal with architecture as a building art with the purpose of practically illustrating the essential relation between building craftsmanship and architectural progress. Ancient architecture would be dealt with, Greek, Roman and Renaissance buildings being brought under review, not merely in historical sequence, but as practical illustrations of problems in design and construction. In connection with the work of the building craft classes, supervision and advice would be given to impart architectural character and usefulness to the work of the classes for drawing, stone and wood carving, decoration and decorative plastering. Assistance would also be given in arranging the several building craft classes into a complete course of architectural education. The education committee recommend that a director of architectural instruction and lecturer on architectural subjects be appointed at the London County Council school of building at a fee of 300*l.* a session, and that the appointment do include attendance at the school on three evenings a week.

The Executive Committee of the Bradford Exhibition have received a balance-sheet showing profits of nearly 15,000*l.* It was decided to hand over 5,000*l.* to the Corporation for disposal as thought fit, and about 10,000*l.* to the libraries committee for the purchase of pictures. The visitors to the exhibition numbered over two millions.

NOTES AND COMMENTS.

It is satisfactory to find that Mr. HOLMAN HUNT, although he has nearly reached his eightieth year, can still use his pencil like a master. In Messrs. TOOTH'S Gallery can now be seen his *Lady of Shalott*. No one will complain that he has treated the subject as far back as 1857, for the woodcut in Moxon's "Tennyson" corresponds in a large measure with the painting. The poem which TENNYSON published in 1832 was inspired by an Arthurian legend, and the most difficult of all the passages was selected by Mr. HOLMAN HUNT. The girl who afterwards was to figure as ELAINE, the lily-maid of Astolat, in numerous English paintings, is entangled in the threads of the magic web which she had been weaving night and day. In the painting as in the engraving she has seen LAUNCELOT riding down to Camelot, and she turns her eyes from the mirror. Her long hair appears to be under the same influence as the web, and seems as if about to envelop her. In the woodcut she is shown dressed in white, but in the painting her dress might be made of peacock feathers with a pink and white skirt. On the wall, instead of a painting of the Crucifixion, there is one of the MADONNA and HERCULES in the garden of the Hesperides. Mr. HOLMAN HUNT has been faithful amidst the faithless, and the *Lady of Shalott* is a resurrection of pre-Raphaelitism with its brilliant colouring and mysticism.

It appears that at the present time the members of the education committee for Kent transact the greater part of their business in London, which, as they have work of their own, is found to be convenient. But other members consider that Maidstone should have all the offices of the County Council. It was agreed at the annual meeting held last week to appoint a committee to consider the relative advantages of London, Maidstone, or elsewhere, and that such committee be empowered to spend such sum as may be necessary to obtain a report on the proposed site and plans for the building, and an estimate of the cost of erecting and equipping such building, and of the cost to be incurred in repaying a loan to meet such cost. Another proposition which was made at the same meeting by Lord HARRIS indicates the tendency of the time to consider county work as belonging to engineers alone, although some of the cases referred to were distinctly architectural. For instance, it was said that the public works business of the Education Department was in the hands of laymen who were without professional advice. If that is the case it is unwise, but the best remedy for it would be consultation with an architect. According to Lord HARRIS, the lunatic asylums were under one engineer, the police buildings under another. He therefore proposed, "That it be referred to a committee consisting of the chairmen of committees to consider and report whether or not it would be advantageous to the county to engage the services of a chief or consulting engineer." The Council, however, considered it was not prudent to increase the number of officials, and the motion was therefore rejected.

At a meeting of the Birmingham Corporation on Tuesday, Alderman KENDRICK, in presenting the report of the museums and art gallery committee, was able to announce that for fourteen successive years the municipal art school occupied the first place in the national competition. South Kensington must respect so promising an auxiliary, and in fact the authorities have yielded to the representations from Birmingham by admitting that craftsmanship or executed design should be eligible for awards instead of the drawing merely, as formerly insisted upon. The principal competitor against Birmingham used to be Glasgow. But that

school is now in the happy position of being independent of Government assistance or supervision, and can follow an independent course. Many towns in England must desire that they could follow the Glasgow example. It is necessary, however, to have liberal supporters, and they are not everywhere to be found.

ILLUSTRATIONS.

LANGWITH LODGE, NOTTS.

THIS house, situated about midway between Mansfield and Worksop, not far from Welbeck, has been built as a residence for the Duke of PORTLAND'S agent, on the site of an old house of no architectural interest, very inconveniently arranged and somewhat dilapidated. The position of the former building decided that of the present one, with its aspect due south and the domestic offices on the north and west sides, the new house occupying less space than the old one, but providing considerably more accommodation, being much more compact. The arrangement of the ground floor will be seen on the plan, and there are large cellars. On the first floor are five bedrooms, three dressing-rooms, day nursery, schoolroom, linen-room and bath-rooms, &c., and on the second floor eight bedrooms, box-rooms and bath-room, &c. The house is faced with red bricks of a quiet colour, with Anston stone dressings and green Buttermere slates, the wood-work being painted white. The staircase and principal doors on the ground floor are mahogany, and the floors of narrow pitch-pine boards with "pavodilos" joints. The walls of the hall, staircase and drawing-room are panelled, and the rooms have ornamental plaster ceilings by Messrs. GARVIE & SONS. The walls of the kitchen, lavatories and bath-rooms, &c., are lined with blue and white Dutch tiles by Messrs. M. VAN STRAATEN & Co., and those of the scullery and larder, &c., with white tiles. The house is lighted by acetylene gas, and partly heated by water on the low-pressure system. "Rational" grates are used throughout, and the chimney-pieces are of eighteenth-century style. The furniture is chiefly old, of the Chippendale and Sheraton periods. Mr. EASTWOOD, of Warsop, Notts, was the builder, Mr. HELLIS the clerk of works, and Mr. LOUIS AMBLER, F.R.I.B.A., of London, the architect.

THE RESTORATION OF MARK CHURCH, SOMERSET.—VIEW LOOKING N.W.—INTERIOR, LOOKING S.E.

NO. 1 COURT, COUNTY SESSIONS HOUSE, PRESTON.

A HOUSE AT SIDCUP.

WE give this week an exterior view of this house. Mr. F. T. W. GOLDSMITH, A.R.I.B.A., of London, is the architect. The drawing was exhibited at the recent Building Trades Exhibition held at the Agricultural Hall. The ground-floor accommodation is indicated by the plan, and has been slightly varied as regards the hall and staircase, which is all in oak. Local red bricks interspersed with black headers have been used for the elevations and Aylesford tiles for the wall-hangings and roofs. The work has been carried out by Mr. T. M. BRIGHTLING, builder, Sidcup.

THE whole of the beautiful marble and mosaic work which has been carried out in connection with Indemnity House, 1 Old Broad Street, London, E.C., and which was illustrated in our last week's issue, was entrusted to the Art Pavements and Decorations, Ltd., and was prepared at their new works, St. Paul's Crescent, Camden Town, N.W.

THE ARCHITECTURAL ASSOCIATION.

THE members' annual dinner of the Association was held on Thursday evening the 18th inst. at the Criterion Restaurant. Mr. E. Guy Dawber, president, took the chair.

There was a good muster of members and friends, and the evening proved a great success. Among those present were:—Messrs. H. L. Florence, H. T. Hare, Leonard Stokes, John Murray, J. S. Gibson, Louis Ambler, Maurice B. Adams, H. Stannus, Cole A. Adams, J. D. Crace, F. Hooper, W. J. Locke, H. P. G. Maule, Leslie W. Green, A. N. Prentice, H. Tanner, G. B. Bulmer, E. A. Rickards, A. Keen, J. MacLaren Ross, G. Northover, W. G. B. Lewis, P. L. Forbes, A. H. Belcher, H. H. Robinson, S. L. Crosbie, G. Leaning, C. W. Beaumont, N. Forsyth, W. A. Pite, G. H. Jenkins, J. B. Fulton, A. Campbell, F. G. Christmas, T. L. Dale, R. A. Jack, S. J. Tatchell, W. S. Dakers, Gilbert H. Lovegrove, H. R. G. S. Smallman, G. L. Elkington, H. B. Elkington, F. G. Newton, G. Drysdale, W. I. Travers, G. F. B. Daniell, Maurice E. Webb, F. R. Taylor, Alan Potter, C. L. Hampton, D. M. Wilson, V. C. Batalha-Reis, P. Tilden, J. Heron Watson, R. F. Wheatly, G. F. Webb, J. W. Denington, T. Frank Green, E. Gunn, C. R. Davy, W. Kerr, W. G. Green, B. H. Colcutt, F. H. Atkinson, R. Frank Atkinson, R. S. Balfour, T. O. Foster, A. N. Campbell, H. C. Ingram, Cecil G. Hare, A. O. Collard, Max Clarke, E. J. Gosling, C. H. Freeman, J. C. Tanner, E. Harding Payne, G. M. Nicholson, G. J. Morriss, Percy French, Walter Cave, F. T. W. Goldsmith, F. J. Potter, R. Harry Hale, R. Dircks, R. H. Weymouth, Stanley Towse, W. Paul, J. A. Rogers, H. G. Turner, C. E. Varndell, P. J. Westwood, W. A. S. Pettit, A. Cyril Caudwell, R. H. Dods, W. A. Webb, H. Gregory Collins, Alfred Cox, F. Dare Clapham, T. C. Yates, A. E. Munby, C. McJarrow, H. J. Worrow, L. J. Spragge, H. C. Willies, Frank Yerbury, H. L. Samson, J. H. Squire, H. M. Wakley, and D. G. Driver, secretary.

The first toast, "The King, Queen and Royal Family," having been loyally passed, the PRESIDENT proposed "The Royal Institute of British Architects." He regretted they had not the President of the Institute with them, but they had in his place one of its vice-presidents and an old member of the Association. The Institute was rather the parent of that body, and many members of the Association eventually joined the ranks of the Institute. Kindness had always been shown to them by the Institute, and for years past they had given an annual grant of 100l. towards their work. They had also very generously aided them in the Building Fund. The assistance, too, that all students received from officers of the Institute was most gratifying, and it gave him great pleasure to submit the toast.

Mr. H. T. HARE, in response, said the regret their Chairman had expressed for the absence of the President of the Institute was mutual, because he was sure the reply to the toast would have been better coming from the President than from one of the vice-presidents. As had been remarked, the Institute was very closely connected with the Association, regarding with the greatest sympathy all its work, and wishing to give it every support in the schemes for education. The ranks of the Institute had been, and he supposed they always would be, recruited from the Association and the Institute must look to it for members in the future. It would be the wrong time and place to introduce any question of politics, but, as they all knew, there was at the present time a considerable difference of opinion on certain questions concerning the profession, and it was doubtful whether those who held office in the Institute would be able to retain their positions. Still, whatever might be the outcome of the controversy, the members of the Association could regard it with the greatest equanimity. Every member of the Association was an educational enthusiast, and whatever qualifications might be imposed upon architects in the future in order to permit them to practice as such, they would not be felt by members of the Association. The movement would only be conducted against those unworthy members of the profession who did not wish to study, and it could not, therefore, affect trained men. In conclusion, he thanked them for the kind way in which the toast had been proposed and received.

The PRESIDENT, submitting the toast of the "Architectural Association," said it was altogether out of order for him to do so. He was sure that no words on his part were needed to commend the toast to them. The presence of such an assembly proved the interest they took in the work of the Association. During the last two years they had embarked upon two large undertakings. They had removed from their old premises to new ones in Tufton Street, and they had

established on a very firm footing their day school. Those two undertakings, which had been successful far beyond their wildest dreams, had not been done without a monetary outlay, and it was only within the last few weeks they had been able to find out how much those undertakings had cost them up to date. The actual cost and including legal expenses had been 10,211l. An enormous sum. A year ago they had collected a sum of 6,420l., leaving practically, when he came into office, 3,790l. to be collected. They would, perhaps, remember that a very generous friend at the beginning of the session made an offer to them of 1,000l. provided that the debt was wiped off by the end of the session. He was sorry to say they had not been able to wipe off the debt, but, notwithstanding that, he had had a letter handed to him in which, while expressing disappointment that the liabilities had not been paid off, their generous friend had decided to convert the offer into a gift. (Applause, and cries of "Name.") He was not at present permitted to divulge the name of their friend, but he thought the whole Association thanked the generous donor very deeply. The debt, therefore, was reduced to 2,790l., and since submitting the report in October last they had collected a sum of 1,631l., leaving a debt at the present time of 1,134l. When they came to think of it, he felt that was a record to be proud of. He did not like making appeals, and he was sure they must be perfectly sick of the sight of the letters that they had received. He felt, however, that the Association was indebted to the architectural profession for helping them to clear off that debt, and he should like to say that if those members who had not contributed anything would send only one guinea, the secretary had informed him that they might start the next season without debt. The Association had, as they knew, done a work that he felt they were all proud of without public or official recognition. They had established themselves firmly, and with a school that he felt was going to do a large amount of work in the future. On the other hand, he felt there was a slight rift in the lute, and he believed that in their anxiety to clear off the debt and put the educational scheme on a sound foundation they had rather forgotten the primary object of the Association, which he took it was the good fellowship and social life which should be cultivated among its members. They did not want the members to feel that 18 Tufton Street was a cramming establishment. They did not want people to think that education was the be-all and end-all. They wanted them to feel that the Association was an aid to the social side of their work, because he thought they would find in after life that the greatest friends were those of their youth. Yet if as members of the Association they held aloof from one another, and did not share in keeping it in the position it had gained, the work they had done in the past would be nullified. He would suggest that during the next year of office they should try to get up some social evenings and try and mix more than they had. For instance, during one evening in the autumn they might have an "At home," at which the sketches members had made during the holidays would be hung up and freely criticised. Another evening might be given over to the students to ventilate their grievances. There was another thing which he felt they ought to do. They ought to make their premises more attractive as a club. The state of the common room, with the few very hard chairs and just one or two professional building papers, was not likely to attract the student. He suggested that they should subscribe to all the foreign and American professional papers, and that they should take in all the papers that had any bearing upon their profession. The catering too would be improved. He asked members to remember that they had only been in their premises for one year, and it was difficult to get the building and arrangements into perfect working order in such a short space of time. He would like also to see more members join generally in the discussions at their meetings. He felt the Association had had a very magnificent past, and it rested with them to see that it had an equally magnificent future. If they looked round amongst the leading architects they would find, without exception, that the men who were doing the really brilliant work had either been or were members of the Association, and it was a fact they ought all to be proud of.

Mr. W. CAVE, in response, said it was a matter of congratulation that Mr. Dawber had accepted the presidency for the coming year. Mr. Dawber had dealt with the social side of the Architectural Association, and he thought there was another side which was perhaps of secondary importance, and that was the educational. He believed that the work the school was carrying out was some of the very best

done among the younger men of the day, and that they would look back to the foundation of the architectural teaching system as being one of the best arrangements the modern course of instruction could provide, and it was a matter which the Association might congratulate itself upon. The importance of a thorough grounding to students before they entered an office was of the greatest value to them, and anyone who had had to do with pupils would know that the system of scientific teaching was the proper training for architects. He thought the virility and enthusiasm of the Association was really remarkable in a body that was composed of 1,600 members. There was no place in the whole world where so much architectural work was going on as in London. It was practically being rebuilt, and there was a chance for every member of the profession to show his ability.

Mr. A. O. COLLARD submitted the toast of "The Visitors." Mr. P. L. FORBES briefly responded.

The PRESIDENT, in proposing the last toast, "The Health of their good Secretary, Mr. Driver," said no one took a deeper interest in the Association, and no one had done more to further the educational work they had organised.

Mr. DRIVER returned thanks.

During the interval between the speeches Mr. Percy French gave a refined and inimitable entertainment entitled "Chuckles in Chalk."

THE MONUMENTAL TREATMENT OF BRONZE.

SEVENTEEN years ago I had the honour of addressing this Society on the subject of "The Monumental Uses of Bronze." I then confined myself to illustrations of sepulchral monuments. Not many weeks since my friend Mr. Marion H. Spielmann also read here a paper on royal monuments, describing those erected and in process of erection to the memory of our great Queen Victoria and her mighty contemporaries, the Emperor William and King Victor Emanuel, all three builders of empires. There remains, however, a vast field to which not one but many meetings of this Society might be usefully devoted. Commemorative monuments, indeed, may be classified into five great groups—religious, sepulchral, allegorical, historical, iconographic—each a subject for separate treatment.

Those designed to honour divinities, lest unseen their awful power should be forgotten, are the earliest of which we have any knowledge. These were visible symbols if not actual habitations of the gods, or temples set apart for their cult. Later, temples were erected with more mixed motives, but always with the dominant, if unexpressed, idea of bettering the life to come. Associated with religious beliefs, they took the practical form of providing places of worship for the people and domiciles for the priesthood. The few other religious monuments, as fountains dedicated to the Virgin, or isolated statues of saints, are exceptions of slight importance.

Another group marks the burial-place and perpetuates the memory of illustrious dead. These sepulchral monuments assumed at times vast proportions, like the Pyramids, the Mausoleum, the Castle of St. Angelo, the Taj Mahal, the Medici Chapel, the cenotaph of Maximilian and the chapel of Henry VII. Like the Wellington monument in St. Paul's, and the Royal Mausoleum at Windsor, they denote the actual places of interment.

Another more fanciful and poetic group consists of impersonations of the forces of Nature, of the Attributes, Passions, the Past and the Future, as well as concrete things, such as rivers and people, by means of symbolic or allegorical imagery. The Greeks and Romans delighted in these, and they continue to appeal to the multitude even at the present day. With us no symbols are more popular than Britannia, the British Lion and John Bull. The series of seated statues of the cities of France around the Place de la Concorde in Paris, erected with no such motive, serve in no small degree to keep green the memory of the losses of the Franco-German war.

An equally imaginative group is the Historical, commemorating auspicious or important national events. These are for the most part set up in public places and take varied forms, the most usual being arches, columns, obelisks, cairns and allegoric statuary. These monuments, so important among nations of antiquity, had fallen into disuse in Europe until revived by Charles V. and Louis XIV. The

Columns of July and Napoleon, our own Monument, the Arcs de Triomphe and du Carrousel and the Portes St. Denis and St. Martin are conspicuous examples.

The last and by far the most numerous group is Iconographic, or erected to commemorate the deeds, virtues and appearance of famous personages. These were equally familiar in ancient Greece and Rome, but forgotten later until the Classic revival in the Italian Renaissance led to the production of monuments resembling those of antiquity. Our Nelson and the Duke of York columns and Alber Memorial are familiar examples, but such memorials more commonly take the less ambitious form of simple portrait statues.

We in England have shown little interest hitherto in monuments commemorating past events, however important, and few are of historic value unless sepulchral. The commemoration of our monarchs and greatest men in bronze or marble was never a national concern until late in the seventeenth century. The men themselves, or their immediate heirs, erected the monuments that exist, as well as countless others that have perished through fire and decay. Had the customs of Greece or Rome by good fortune been maintained, statues would have been set up to most popular heroes of the day, and the likenesses of hosts of interesting personalities preserved and now be familiar to us.

Setting aside sepulchral monuments, with which I do not propose to deal, the most ancient and the most touching is the series of stone crosses erected to mark the resting-places of the bier of the beloved Queen Eleanor, of whom we have fortunately a splendid portrait in bronze in Westminster Abbey. For the most part the crosses have long since crumbled away and been removed, but one especially is perpetuated for ever in the name "Charing Cross." The sentiment that dictated the erection of these and its mode of expression have remained unique. A long interval elapsed before any other commemorative monument was set up in London, and then it needed nothing less than the appalling destruction of the entire City proper, with all its churches and historic buildings, to awake in the English mind a sentiment that had been so predominant in ancient Greece and Rome. "The Monument," so called because there was no other, remains practically unique in England, and except in the naming of Waterloo Bridge and Trafalgar Square there is no visible sign that the nation cares to perpetuate the great events which have built up its history. But for the Guards Monument there is nothing publicly commemorating the Crimean war; there is no sign of any national monument in remembrance of our struggles for supremacy in South Africa; and even the arrival of "Cleopatra's Needle" failed to make us realise that in it we possess the most fitting memorial of our occupation of Egypt. Monuments of stirring national events should provide history written large and artistic object-lessons for the people. To ancient historic monuments we are indebted for our sole accurate knowledge of the actual arms and appearance of such mighty historic nations as the Egyptians, Assyrians, Medes, Persians, Dacians, Scythians, Greeks, Romans, Gauls, indeed of every nation that has made up the world's history. A Roman triumphal arch affords the only actual representation of the mystic seven-branched candelabrum of the Jewish Temple, while Trajan's column presents a minutely accurate representation of the chain-mail and weapons that proved as fatal to Crassus as to the English at Hastings a thousand years later. Our neighbours across the channel show a thorough appreciation of the value of grand commemorative monuments. The columns of July and Napoleon, their triumphal arches, the Trocadéro, the bridges and names of streets and places keep alive the national glories and chequered career of the great nation. Already most of these monuments are mellowing into historic value, just as in time to come even our indifferent Guards Monument will serve not only to preserve the memory of our first great struggle with our northern enemy, but will record the exact costume of those who fought the battles. How valuable contemporary monuments in bronze would be to us of the heroes and rank and file who won our historic victories. Our pride in our Empire should surely induce us to hand down the presentment of those of us who fight our country's battles, and also of their gallant foes, whether Zulus, Afghans or others. With no very earnest or successful antiquaries among our living sculptors, it is perhaps unwise to attempt to construct monuments commemorating anything but the immediate past and present, for certainly Boadicea, in her scythed chariot, and the warrior waving a sword in Palace

A paper by Mr. J. Starkie Gardner, F.S.A., read before the Applied Art Section of the Society of Arts on May 2.

Yard, with bronze bas-reliefs on the pedestals, do not appeal to us as historically accurate; but the great events of our own day, the union of the British Isles, the federation of the Colonies, and the consolidation of our Indian Empire, our political freedom and that of the Press, might be treated seriously if competitions were open to all British subjects. An Alfred Stevens may exist among us, or some scenic artist or poetic dreamer might give birth to ideas for the professional architect and sculptor to realise. My own experience is that the power to design and the power to execute do not necessarily or invariably occupy one cranium. The dearth of reasonable presentments of our historic worthies in the public spaces of our Metropolis has only been lessened of late by the portrait in bronze of Cromwell, and the Achilles in Hyde Park still remains our only symbolic statue against the scores set up in other capitals.

Contrasted with those of Paris, our monumental efforts appear insignificant indeed. Emerging a few days since from the Louvre on to the Place du Carrousel, I was at once faced by a series of superb monuments, including that to Gambetta. A few steps west led by the triumphal arch, with its bronze quadriga, to the Tuileries gardens, where I was confronted with a galaxy of statues and groups, comprising two fine groups of lions and rhinoceros and tigers in bronze. Continuing to the Place de la Concorde I found myself in the presence of the great Luxor Obelisk and two splendid fountains, around which are placed in solemn dignity the great statues emblematic of the noblest cities of France. Beyond, again, are other monuments, including the Marly Horses, the vista being closed by the great Arc de l'Etoile. Grand monuments meet the eye in every part of Paris, and, unlike ours, are effectively placed, and appear to be purposely designed to occupy the positions in which they are seen, frequently amidst trees and flowers. Our monuments, on the contrary, are generally designed before any position is allotted to them.

In our vast Metropolis—laid out for the most part to accommodate the high number of inhabitants by the great landowners, who parcel out the largest part of its area—there are fewer magnificent sites for monuments than in cities laid out by monarchs or powerful corporations. Most of the open places of London are enclosed squares and gardens closed to the public, each of which in Paris would be laid out with palms, plantains and flowers, and seats around some central fountain or artistic monument. At some not far distant time the happiness of the many may be regarded as more worthy and pleasing than the solitudes of which so few make use. Meanwhile several fine sites for monuments are available. A new and splendid façade to the National Gallery, with loggias and statues, and Trafalgar Square remodelled as a broad approach to it, could commemorate the federation of the Empire. Parliament Square, with its majestic surroundings, would also provide a matchless site for a noble commemorative monument. There are other less important sites, though it is unfortunate that the few commanding spaces at the intersections of main thoroughfares, created by our municipal councils, fit for the reception of beautiful objects, have been seized upon by the sanitary department for underground conveniences which a refined taste would have gladly relegated to equally accessible but less prominent situations.

It must be quite obvious that monuments that tell in London are not the ordinary portrait statues in garments which do not lend themselves to artistic treatment, and on which so many thousands of pounds have been expended without adding one touch of beauty to the town. Monuments to be telling in London must either comprise more than a single figure or be of larger size than the heroic size sanctioned by tradition, or, best of all, be equestrian. A rider on his steed assumes a dignity of pose embodying mastery of an animal many times more powerful than himself, which is most gratifying to humanity. Monuments might assume grander proportions were kindred spirits to be commemorated, associated in groups, or as parts of a whole. Britannia and some of her statesmen might symbolise the union of the British Isles; Neptune, with seamen and navigators, our vast maritime power; Victory and warriors a victorious reign. Allegories of Commerce, Science, Peace, Prosperity, Wealth, Fortitude, Charity, Justice, Mercy, Truth, are all capable of artistic treatment, and would elevate the thoughts of the gazer and passer-by, which I take to be the chief reason for setting up monuments, which are not erected merely for pomp and vain glory. Such might take the form of groups, or combine

with columns, triumphal arches, fountains or bridges—which will perhaps provide the most important sites we are likely to acquire in the near future under existing régimes. Mediæval bridges with their defensive gates, chapels and figures of guardian saints, were picturesque objects. In the cases of Blackfriars and Westminster, we have realised the difficulty of decorating bridges not designed for the purpose of receiving statuary; while visitors to the Paris Exhibition realised on the other hand the surprising possibilities afforded by bridges when designed to be commemorative. Instead of the commonplace pannier-like widening of London Bridge, it might have been converted into a glorious monument to the British navy; while the new bridge at Vauxhall might have been fitly made to commemorate the services of the Household Brigade in Egypt and South Africa, the purely utilitarian expenses being defrayed as heretofore, and the monumental features by subscription.

I fear I have trespassed on your time by this discursive preface. But the loss, all too recent, of a beloved and one of the greatest monarchs of our history, and the losses incidental to the far-reaching struggle in South Africa, have turned the thoughts of all towards the subject of memorials. The spirit of Empire too, seems in the air, beginning to stir the pulse of the nation, and perhaps ideas now sown may, like grains of mustard, produce large results in the future.

I shall now proceed to exhibit a very few examples of monuments of the past, limiting them to those of bronze which, in our climate, is the only material suitable for sculpture exposed to the elements. In the short time at our disposal these must obviously be limited to one or two minor groups. Objections and difficulties notwithstanding, it is unlikely that committees who manage these things will set aside the full-length portrait statue. We have no recognised embodiments of the powers of nature, like the Greeks had—Zeus, Athena or Apollo—to represent and idealise, neither do we commemorate victorious athletes in the nude, nor is the general attitude of the populace encouraging as yet. In ancient times it was one of eager expectancy, and general acclaim rewarded the sculptor when one of his triumphs was set up. This was so in the halcyon days of Greece, Rome, Italy, and it is still seen, to some extent, in France, as we saw at Bordeaux a few days since, when the unveiling of the Gambetta monument amounted to a national fête. Even Germany and other countries contrast favourably with the utter apathy of the English, who seem collectively to have lost touch with everything truly artistic. Added to this is the difficulty of modern costume, which proves an almost insurmountable and always distressing problem to the modern sculptor. If those he habitually commemorated were champion swimmers, oarsmen, football or tennis men, the matter would be otherwise; but, unhappily for art, those deserving of statues are great statesmen, like Joseph Chamberlain, scientists, benefactors and so on, and the costume in which we know them best, the tall hat and eyeglass, the immaculate frock-coat and well-stretched trousers, the starched waistcoat and stiff collar, must make artists despair, however well-knit and alert the original may actually be. Only the few can be portrayed in majestic draperies, like kings and German emperors.

With animals the sculptor is on safe ground; they present their natural grace and beauty unspoiled by art. The most venerable bronze in existence, still resisting the ravages not of centuries, but of millenniums, and yet retaining its ancient position in the hippodrome at Constantinople, where it was set up as a trophy when Christianity was in infancy, is the ancient Pythian tripod from the temple at Delphi. It is formed of intertwining snakes, now headless, and the monument is now sunk in a deep pit, a witness to the change in the level of the ground brought about during the centuries it has stood erect at Constantinople.

Once in near association with this and no less venerable are the four bronze horses of St. Mark's, removed from the hippodrome by Doge Dandolo in 1204. They originated in Greece, probably in the fifth century B.C., and after adorning several triumphal arches in Rome were transferred by Constantine to his new capital, whence they found their way to their present position over the porch of St. Mark's Cathedral in Venice. They formed part of a quadriga and were formerly gilt, and are said to be of pure copper cast extremely thin, hardly one-sixth of an inch in thickness, and are thus triumphs of the founder's skill, unless they are hammered work. The head and neck were cast separately, the junction being hidden by the collar. Parts of the horses, being ungilt, show where the

trappings formerly existed, and there are holes for their attachment. Their frequent removals have caused injuries to the lower parts of the legs, and some of the gilt trappings and ornaments disappeared after the French had taken them to Paris and been compelled to restore them. The bodies are round, the necks short and muscular, and the heads superb. A bronze horse of the same date, but mutilated, is in the Conservatorio at Rome. The third illustration is also of venerable antiquity and by far the most ancient bronze equestrian portrait statue in existence. It stands in the Piazza del Campidoglio at Rome, and was placed on its present pedestal by Michel Angelo in 1538. The figure is that of Marcus Aurelius, bareheaded and in simple drapery, seated in an easy attitude upon a saddle cloth or saddle of singular construction.

There is a long interval between this and the next equestrian statue, which is said to be of iron and not bronze. This is the St. George and Dragon in the cathedral square at Prague, made by Martin and George Clussenbach in 1373, and shows armour partly scaled and partly of plate. It was partially restored in 1562. There is a cast of it in the Victoria and Albert Museum.

There is mention of a cast of an equestrian statue of St. George being in England in the time of Richard II.

Equestrian statues were produced in Italy during the Renaissance, the earliest being that of Gattamelata, by Donatello, in the piazza in front of the great church at Padua. This celebrated commander of the Venetian army in 1438 is in the armour of the period, truncheon in hand. He is bareheaded, with curly hair and a slight beard. An enormous cross-hilted sword is slung at his side, and he wears the long rowelled spurs of the fifteenth century. The horse is short-necked and extremely powerful, the tail being twisted into a knot.

An even finer statue is that of Bartolomeo Colleoni, another captain-general of the Venetian forces, who died in 1475, and was one of the first to use field cannon in war. He is sheathed in richly decorated armour and wears the Venetian salade and short rowelled spurs. The horse, like that by Donatello, resembles those of St. Mark's, but with more vigorous action. The saddle is high, back and front, and richly decorated like the harness; the feet are in stirrups. The statue stands in front of the church of SS. Giovanni e Paolo, in Venice. It was modelled by Andrea Verrocchio, who, however, died in 1488, leaving it to be cast by Alessandro Leopardi, who completed it in 1496. This is probably the finest equestrian statue in existence; the pose is superb, and horse and rider present an irresistible force.

Passing over the French equestrian portrait statues, most of which were destroyed in the Revolution, we come to those of our own country. The only one still remaining of the seventeenth century is that of Charles I. at Charing Cross, by Hubert le Sueur, a French pupil of John of Bologna. It was cast in London in 1633, at the expense of the Howard family, and saved from destruction during the Rebellion by John Rich, a brasier, who presented it to Charles II., in whose reign it was re-erected in 1674. This graceful and commanding bronze statue has been erroneously described as of lead. The same artist commemorated James I. by a bust over the principal entrance to the Banqueting House, and both James I. and Charles I. by statues now on each side of the choir at Winchester Cathedral. An equestrian portrait of Charles II. was set up in the Stocks Market by Sir Robert Vyner in 1672, which had a similar fate to the George II., of lead, brought from Canons, the seat of the Chandos family, and set up in Leicester Square in 1754. The statue of George III. in Cockspur Street was not erected till 1837, and is by Matthew Wyatt, and the George IV. in Trafalgar Square was not completed till after the artist's (Sir Francis Chantrey) death in 1843. It would be easy to produce faithful representations of at least Elizabeth, Cromwell, William III., and Marlborough, and who would all form splendid subjects for commemoration in this manner.

Statuary was formerly rendered realistic by colouring, and the material chosen mainly for texture, more than one material being used for producing a single figure. Ivory for the flesh and golden drapery was most favoured, but Parian, Naxian and Pentelic marble, probably left white for the flesh, with coloured hair, eyes, &c., and drapery, were most often used for female figures. Sometimes the head and limbs only would be marble and the rest of porous stone filled in with stucco and strongly coloured. There can be little doubt as to bronze having been chosen to represent athletes and demigods from its colour re-

sembling the sunburnt bodies of these, and probably the original colour was carefully maintained. Otherwise the pallor of death given to Jocasta by alloying with silver, and the red blush of shame to Athamas by iron, as Pliny says, would have disappeared under the ordinary patina, even under Grecian skies, after a few days' exposure. We are accustomed to admire bronze for its patina, and to take pleasure in the varying shades of rich browns and greens it assumes everywhere away from our fuliginous cities, and cannot understand the obvious admiration of the ancients for the natural golden glint of the well-scoured metal, often replaced by actual gilding. But then we are equally unable to realise their love for polychromatic statuary, the idea of painting or staining marble being repugnant to us. We even dislike, or are slow to replace, the gorgeous blue, scarlet and gold decoration of the carved stone interiors of our Perpendicular churches and screens.

Admitting that art bronzes are to be patinated, the question of the best means of controlling and producing the tones becomes of interest. The Japanese excel in this. Our own empiric methods range from inhumation in a dung-heap to suspension up a smoky chimney—preferably where wood or peat fires are burnt, besides acids and alkalis and trade solutions, the components of which are secrets. The exhaustive researches on the cooling of bronze alloys carried on within the past few years shows that the metals remain separate and crystalline, but present structures as diverse as those of the porphyries, gneisses and granites, according to the rate at which they are cooled. The tones of the more delicate natural patinas would be considerably affected by the internal structure of the alloy. The chemicals useful for the purpose will be found chiefly among the muriates, ammoniates and sulphides.

The time remaining at my disposal must be given up to a form of monument which was practically never known in England, and the high symbolic import of which is even yet scarcely appreciated.

When not only palaces and pleasure-grounds, but every edifice, sacred or lay, and every city, was closed with defensible and well-nigh impregnable gates, the question as to whether these would be found open or shut must have been of the most momentous. The hope of the night's shelter, warmth and food hung upon the contingency, and oft the traveller must have been met with the stern rebuke, "Too late, too late; you cannot enter now." Inevitably the imagination fenced in the places to be desired in a future life with gates inexorably closed except to the favoured few. The keys of the gates of heaven or Paradise were committed to St. Peter, rarely to be opened to anyone without intercession, but the gates of hell and purgatory gaped wide. Open or shut gates were the focus of interest, and could not be approached in primitive days without awe, curiosity or emotion. It is hence not surprising that they were sumptuously and magnificently decorated. The Roman triumphal arch was only the apotheosis of the gate, recalling difficulties gloriously overcome. The question, figuratively, of the open or closed door to commerce is almost the only one about which civilised nations might still go to war.

In the days when iron was little used, the massive wooden doors were sheathed for protection from fire and for strength in bronze, and revolved upon massive bronze hinges. Upon these were sometimes pictured the mighty deeds of the monarch of the country. The bronze portions of two pairs of enormous doors were found many years since by Mr. Harmuzd Rassam in excavating at Balawat in Assyria. The city contained a palace standing in a long rectangular enclosure, with four entrances, near two of which the remains of the doors were found. The larger were about 22 feet high, 6 feet wide and 3 inches thick, each leaf being attached to a cylindrical post, about 18 inches in diameter, to which strong bronze pivots were fixed, working in stone sockets. Across each door seven or eight plates of bronze 11 inches wide were fixed by nails at regular intervals, these plates lapping round the post. On each of these plates are representations of the Assyrian army on its war path, and other events of the first nine years of the reign of Shalmaneser II. These are in two bands of repoussé work, executed with great fidelity and spirit and much freedom of drawing. Between embossed bands narrow spaces are left, relieved at regular intervals with the rosettes through which the nails are passed that fixed the plates to the woodwork of the doors. The "brazen gates" of antiquity were probably of this kind, and we are singularly fortunate in the possession of these splendid examples by our national museum.

Of the Roman period there are several bronze doors, but of a different type and not depending on wood for their construction, still preserved in Rome itself. These are the large central doors of St. John Lateran, decorated with foliage, and brought from the Æmilian Temple in the Forum and of about the date of Our Lord. Another pair, brought from the Baths of Caracalla, and of about the third century, close the oratory of St. John the Baptist, in the church of S. Giovanni in Fonte, the ancient baptistery in Rome. The vast bronze doors of the Pantheon remain in their original position, dating possibly from the time of Agrippa, 31 B.C. The doorway of marble, 39 feet high and 19 feet wide, contains their massive framing, consisting of two bronze pilasters, to which the doors are hinged, and the lintel over them, which is a pierced bronze scale-pattern grille. The doors themselves are not decorated in relief, but are of severe and dignified simplicity.

Next in point of antiquity are the Byzantine gates which revert to the partly wood construction of the East. Examples of these still exist in Constantinople, but the best known are the bronze doors to the vestibule of St. Mark's in Venice. Some of these were brought from Constantinople, it is supposed, from S. Sophia, after its reconstruction by Justinian, and may date back to the sixth century. Three of the oldest are divided into four panels of double arches, with crosses and foliage rising out of vases under each arch. The other two are in the later Byzantine style, the central one, of early eleventh century, divided into forty-two framed panels inlaid with figures of saints in silver, the heads of some in relief, and a lower row of six panels decorated with bosses only. The frames are broad and studded with bossed nails, and twisted pillars separate each row of panels vertically. The remaining door is treated similarly, but divided into twenty-eight panels with figures, and is older, since the inscriptions are in Greek characters. The frames of the panels are richly decorated with geometric and florid designs, and there is a central row of six lions' heads among the bosses. In the large central doors these are replaced by a row of eight lions' heads with rings, and the inscriptions identifying the prophets and saints are in Roman characters.

Next in age are the principal doors from the venerable abbey church of Monte Cassino, executed by order of Abbot Desiderio, later Pope Vittorio III., 1088. They also are inlaid with silver curiously reciting a list of the properties held by the abbey in 1066. The crosses at the base are like those of the earlier doors of St. Mark's. The cathedral at Amalfi has doors similarly ornamented; and the doors of the cathedral at Salerno, erected by Robert Guiscard, are also inlaid with silver, and were executed at Constantinople in 1099. Other examples exist.

The central doors of the cathedral of Benevento are divided into seventy-two panels, filled with bas-reliefs, except four containing lions' heads with ring handles. Those above represent scriptural scenes crowded with figures, and below are single saints under simple canopies. The framing is made of egg-and-tongue moulding, with large rosettes at the intersections. They are supposed to have been made in Constantinople in 1150.

There are exceedingly interesting bronze doors at Canosa closing the Mausoleum of Boemond, the son of Robert Guiscard; portions of the cathedral doors of Susa, of Byzantine eleventh-century work, are preserved in the treasury of that cathedral.

Bronze doors of Italian make first appear in the twelfth century, the earliest artist of whom we have definite records being Barisano da Trani. The bronze doors to Trani cathedral, made in 1160, are his work, and are divided into thirty-two panels of subjects in relief with rich scrolled borderings, and mounted on hard wood. The side doors of Monreale are by the same artist, but somewhat later, divided into twenty-eight panels with reliefs and excessively rich borderings. Even finer are the doors of the cathedral of St. Pantaleone at Ravello, by the same artist, and produced in 1179. The figures are very varied and of some merit, considering the date, and constitute a landmark in the history of Italian art. Equally celebrated for bronze work is Bonanno da Pisa, who produced the great central doors of Monreale in 1186. The entrance is arched and richly sculptured, and the doors are divided into forty small panels, with scriptural subjects in relief, and in plain frames studded with rosettes and separated vertically by bands of acanthus foliage treated conventionally. At the base are two lions and two griffins, and above are enthroned the Saviour and the Madonna with angels. To the same artist we owe the doors of the Baptistery at Pisa, less

important as to size, but more delicate in design and workmanship. To the last year of the thirteenth century belong the well-known openwork scale pattern doors of St. Mark's, Venice, inscribed "MCCC + Magister Bertucius Aurifex Venetus me fecit +." The details of these are noteworthy.

The doors of S. Zeno Maggiore at Verona are in the Italian style, but have been assigned to an unknown German artist, who produced them in 1178. They comprise forty-eight panels with scriptural subjects in relief and two with large heads, serving as knockers or closing rings. They betray a slight tendency to the grotesque, but the architectural details seen in the panels are of great interest, suggesting an Italian source.

With the appearance of Andrea Pisano in the fourteenth century we reach more familiar ground. He was commissioned in 1311 to make the doors to the baptistery of the cathedral in Florence, designed by Giotto, being regarded as the best artist for the purpose to be found in all Italy. They occupied twenty-two years, notwithstanding the assistance of his son and two fellow artists, Lippo Dini and Piero di Jacopo, and were cast in Venice by Master Leonardo del Avanzo, and finally gilded by fire in 1339. They were shifted from the northern entrance to make way for the gates by Ghiberti, and re-erected at the south. They consist of twenty-eight panels with scenes from the life of the Baptist in relief, placed in barbed quatrefoils with rectangular moulded framing, studded with bosses and lion heads in relief. When they were set up the Signory came in solemn state to applaud the artist and confer on him the dignity of citizenship. The architrave was added by Ghiberti, who made a corresponding pair of doors for the northern entrance in 1403, when he was but twenty-two. These occupied twenty-one years, though many assistants were employed, including his father-in-law, Bartoluccio, a great silversmith. They weighed 34,000 lbs. and cost 16,204 florins. Founded on the work of Andrea Pisano they nevertheless show marked progress in Italian art. In 1425 the same Lorenzo Ghiberti was commissioned to execute the central doors, spoken of by Michel Angelo as worthy to be the gates of Paradise. They mark an entirely new departure, a striving for pictorial effects, to an extent never before attempted. Ghiberti has left on record that he "strove to imitate nature to the utmost, and by investigating her methods of work to see how nearly I could approach her. I sought to understand how forms strike upon the eye, and how the theoretic part of sculptural and pictorial art should be managed. Working with the utmost diligence and care, I introduced into some of my compositions as many as a hundred figures, which I modelled upon different planes, so that those nearest the eye might appear larger, and those more remote smaller in proportion." Perhaps the novelty led to the somewhat exaggerated praise. The founding was commenced in 1440 and completed in 1452 at a total expense of 14,594 florins. They thus occupied twenty-seven years, or, according to Vasari, forty. The scenes are from the Old Testament, and fill the ten panels. The framing comprises twenty statuettes in niches and four recumbent figures, and twenty-four heads in the highest relief, among them one of the sculptor himself. The framing of the doorway, also of bronze, comprises foliage, fruit, flowers and numerous animals and birds, all in high relief.

Florence also boasts two small pairs of doors by Donatello for the sacristies of the church of S. Lorenzo, with ten panels in relief of saints and martyrs. These were produced in about 1457, eleven years before his death. There are also bronze doors to the sacristy of the cathedral by Luca della Robbia, executed in 1464, comprising ten panels of subjects in high relief, which have almost the finish of silverwork, and were highly commended by Vasari.

A pair of magnificent bronze doors were cast for the Triumphal Arch of the Castel Nuovo at Naples, erected by Pietro di Martino for Alfonso of Aragon, to commemorate his entry into the city in 1443. They occupied nineteen years, not being finished until after his death—a grief to a prince known as the Magnanimous, and a great patron of art. Guglielmo lo Monaco of Umbria completed the work in 1465. They are divided into six large panels, the two uppermost forming segments of an arch, all crowded with figures of mounted men at arms in battle array, with citadels in perspective in the background.

The art of bronze-founding had, no doubt, attained its zenith in Italy in the fifteenth century, yet to the sixteenth belongs the superb door to the sacristy of St. Mark's, Venice, by Jacopo Sansovino, produced about 1529, when he was

appointed architect and sculptor to the Venetian Republic. It is divided into two panels, with scenes from the life of Christ, bordered in the manner of the later Ghiberti gates, the portraits being, however, of great interest, since they are those of himself, Titian, Aretino, Paul Veronese, Giorgione and Tintoretto.

The front of the cathedral at Loreto has three pairs of most sumptuous doors, the central by Girolamo Lombardi, of Ferrara, and his sons, who worked on them from 1534 to 1560. They comprise six large and eight smaller panels, illustrating the story of Adam and Eve, with richly worked borders. The left-hand doors are by Tiburzio Verzelli da Camerino, of somewhat later date, but corresponding generally in design, and those on the right by Antonio Calcagni, each having employed several assistants.

The seventeenth century produced the three magnificent doors to the cathedral at Pisa, by John of Bologna, executed in 1602, evidently inspired by the later door of Ghiberti in Florence. The principal panels represent scenes from the life of the Virgin, and the borders comprise branches of laurel and of orange, roses, figures, &c., with a considerable tendency to realism. He employed several assistants.

The last of the illustrations shows the bronze gates of the Campanile Loggia in Venice, to our taste perhaps wanting in repose, but comprising some fine modelling. Gates of this sort are almost confined to Italy, and few exist anywhere wholly of bronze unless closing an arch or entrance. Little appears to be known of the artist—Antonio Gai.

It may have been noticed that the doors were originally modelled on the lines of the strongest form of wooden doors known, and the interspaces occupied by the panels are therefore necessarily reduced to very small dimensions. Ghiberti was the first to abandon the strongly constructional form and introduce larger panels, and these were generally adopted, until in the doors at Naples there are only three panels to each leaf.

In England we have rarely since Mediæval days, when splendid ironwork was laced over doors to give them strength, been conscious of the decorative value of metal for doors, though the Italian artists had for centuries lavished their finest work upon them, and many were famous *chefs-d'œuvre*. The oldest bronze gates we have close the entrance to Blenheim Palace. In London there are bronze gates closing both the Marble and Wellington arches, and there is a pair in the central arch to Buckingham Palace. Those for the Marble Arch cost 3,000 guineas.

There are many occasions when relatively small sums are available for commemoration, and many sites where beautiful gates, whether of iron or bronze, would add greatly to the importance and dignity of the scene. Memorial gates can be and are produced at from 60*l.* to several hundred pounds, in iron, and I have plans before me for bronze gates running into thousands. When these are executed it may be interesting to describe the process of manufacture from the commencement. A very fine pair of bronze doors for a Liverpool bank is illustrated in the "Encyclopædia Britannica" under Art Metalwork.

In conclusion, I have to express my thanks to Sir George Birdwood, our chairman, for his kindly introduction; to Mr. William Reid, of Lauriston Castle, Middlethian, who obtained for me during his recent tour in Italy the illustrations you have seen; and to Lady Theodora Guest for most kindly translating the descriptions of the gates which I have made use of, from the original Italian.

VALUATION FOR RATING.

A REPORT has been prepared by the local government, records and museums committee of the London County Council respecting the reform of the process of valuation for rating. In the speech from the throne it was announced that His Majesty's Government proposed to introduce legislation in the present session for amending the law with respect to valuation authorities and the procedure for making valuations. Several resolutions have been received from metropolitan borough councils in favour of the reintroduction, with modifications, of the Valuation Bill of last year, and as the Council has devoted considerable attention to the reform of the valuation system, and is largely concerned as representing the ratepayers in the county of London, it was thought to be desirable to ask the Local Government Board to afford the Council an opportunity of submitting its views; and a reply has been received, stating that the Board will be glad to consider any suggestions in writing which the Council may wish to submit.

The Council on February 25 and March 4, 1902, adopted a scheme for the reform of the valuation system in London, based mainly on the recommendations in the report of the Royal Commission on Local Taxation, and on June 21, 1904, passed various resolutions with respect to the Valuation Bill, which was introduced by His Majesty's Government that year.

The Council resolved:—"That each district committee should, with the concurrence of the county valuation authority, appoint an assessor to be paid out of the county funds, whose duty should be—(1) To prepare all valuation lists; (2) To act as expert adviser to the district committee."

The Valuation Bill of 1904 proposed that the local authority should have the option of appointing a person to survey and value any hereditaments, subject to the consent of the central authority, and also that the central authority, on the application of the local valuation committee, should appoint a competent person to act as assessor to the committee. The objections to both these provisions are twofold. First, the appointment of an expert was optional, and, secondly, if appointed he could only assist the valuation committee whose duty it would be to revise the valuation list, and not the Borough Council, which prepares it. In London, where over two-thirds of the rates are raised centrally by an equal pound rate over the whole county, it is very important that the same system of valuation should apply throughout the entire area, and the valuation of property by an expert would be likely to produce greater accuracy than one prepared under the existing system where no valuer is called in. To consult an expert when the list has been prepared, merely to advise the valuation committee in connection with the comparatively small proportion of cases in which objections are lodged, would be to considerably reduce the value of his assistance. It is most desirable that a skilled valuer, if retained, should be employed upon the work from the beginning, and should be responsible for the preparation of the valuation list in the first instance, as only in that way can the lists be prepared on a uniform and scientific system. It appears that the most satisfactory course would be for such expert assessor to be an officer of the Borough Council, and for him to attend the sittings of the valuation committee when the valuation lists which he had prepared were under consideration. The appointment of such a borough officer would tend to the convenience of the public and to secure economy of time and money. His office would be open to ratepayers for the purpose of inquiries and explanation, and in this way the number of objections would be reduced. As, however, the work of the assessor would benefit the county as well as the borough in which he was employed, it would be desirable that his appointment should receive the concurrence of the central authority, and that he should be paid out of central funds.

The Royal Commission on Local Taxation recommended that an independent assessor of railways should be appointed by the Local Government Board, the expenses of the office to be borne partly by the valuation authorities and partly by the railway companies.

One of the great defects in the Valuation (Metropolis) Act, 1869, is its failure to provide adequate machinery for securing a uniform basis for contributions to common expenditure throughout the county. The machinery for appealing against totals, which was probably intended to effect this object, has been rendered valueless by the decisions of the Courts. The Council's resolution on this point was as follows:—"After the valuation lists have been dealt with by the district committees the county valuation authority should revise the same, and after hearing any objection to the decisions of the district committees should fix the totals."

The Council's resolution with regard to the arrangement for hearing appeals was as follows:—"That the jurisdiction of both quarter sessions and special sessions as regards assessment should be abolished, and that appeals from the decision of the county valuation authority should be dealt with by a valuation court, constituted according to the provisions contained in clause 24 of the Valuation (Metropolis) Act approved by the Assessment Conference in 1894, and the valuation court should sit at the headquarters of each district, costs and fees to be on the lowest possible scale."

Every quinquennium which passes shows more and more the need of an expert tribunal to deal with the complicated questions which now form the subject of appeals to quarter sessions. The business of the Court of Quarter Sessions is mainly criminal, and the members are too numerous from the point of view of dealing with valuation

questions, and are unable to give the time required to studying the rating problems which come before them. Owing to the number and irregular attendance of members of the bench at the London Quarter Sessions it is quite possible for decisions on matters of fact (from which there is no appeal to the High Court) to be given on diametrically opposite bases, according to the views of the majority of members present. It is the practice at the present time to refer a large number of the more difficult cases by consent to a special adjudicator, whose decision ultimately becomes the finding of the Court. The experience of all such cases shows that a small expert tribunal continually dealing with rating cases would be able not only to save much public time, but also to build up a code of general practice which could be recognised and relied upon to an extent which would render it much easier than at present to forecast the probable result of an appeal, and thereby to reduce the amount of litigation.

The Council resolved:—"That adequate machinery should be provided for obtaining uniformity of valuation as between county and county throughout England and Wales." There was no provision for this purpose in the Valuation Bill of 1904. The point is important to counties like London, whose authorities own institutions such as infirmaries, asylums, industrial schools, pumping stations, &c., situate in other counties. The Court of Quarter Sessions of these other counties have a direct interest in putting the assessment of such properties at the highest possible figure, and there being no appeal from their decisions on questions of fact, the county owning such properties has no redress against an unfair decision. Such properties should, we think, be dealt with by an independent tribunal, which might be either the Railway and Canal Commission or a tribunal appointed by the Local Government Board.

The Council's resolution was:—"That the system of a quinquennial revaluation should be continued, but that each district should be subdivided into five sections, so that the revaluation may be spread over five years."

This suggestion was not embodied in the Valuation Bill of 1904, but its adoption in London would be of great advantage. All the officials and authorities engaged in the work are now overworked during a few months of the quinquennium, while for the rest of that period they have very small amount of work to do. Great economies could be effected by spreading the work over the whole quinquennium.

We are of opinion that the above suggestions, and also those contained in the Council's resolutions of February 25, 1902, and March 4, 1902, should be placed before the Local Government Board for consideration in connection with the proposed Bill for the reform of the valuation system.

ABUSE OF BY-LAWS.

THE extent to which a peculiar interpretation of by-laws can hinder building operations has been lately exemplified in South Stoneham on buildings of which Mr. R. M. Lucas is architect. It appears that by May 1 two good and substantial six-roomed dwellings should have been built and occupied, and their owner paying rates. For three months or so workmen would have been earning wages in building them. Money which now is to remain invested elsewhere would have been spent in the district. A building worth 500*l.*, permanent rates on two dwellings worth 7*s.* or 8*s.* a week each, three months' wages in the pockets of local workmen, all thrown away, refused for the district on the advice of Mr. Watts, the surveyor, whose last demand is for ventilation between the wood and the concrete of the proposed solid floor.

The circumstances are now fully related in the following letter which Mr. Lucas addressed to the clerk of the Council:—

May 1, 1905.

Proposed Double Cottage at Little Bassett Wood.
Dear Sir,—I shall be much obliged if you will be kind enough to bring this letter before your Council at their next meeting.

Three applications have been made by me on behalf of a client for your Council's permission to erect a simple and substantial dwelling for his coachman and gardener. The last application was rejected on the 11th of last month.

I beg to submit that this rejection was wrongful, as the design and the expressed intentions as to the construction of the building are entirely in accordance with the by-laws,

and that the reasons alleged for the rejection are, as I am advised, unsound and unreasonable, being due firstly to an apparently frivolous or grossly ignorant misreading of the by-laws, particularly those relating to walls and floors, and secondly to the disregard of my statements as to party-wall construction, &c., and the absence of cesspools and sinks (see my letters to Mr. Watts, dated February 18 and April 6).

When returning the plans to me the third time, Mr. Watts, in a letter dated April 12, made the following remarks as reasons for their rejection:—

1. "With regard to main external walls, where larders and w.c.'s adjoin, you know these walls must go up same thickness from the base." (Reply.) These portions of walls referred to are not external walls, as anyone can see, and they may in fact be omitted altogether, as by altering the words "larder," &c., to "cupboard," "recess," or "bay-window." By no definition whatever can the partitions of half-brick between the larders, &c., and the dwelling-rooms be made to appear external walls.

2. "Cesspool receiving bath and scullery waste must be 50 feet from the house." (Reply.) There is no cesspool. There are no sinks. This I had already told Mr. Watts in a letter. As to the bath water, it was to have run into the rain-water tank for garden use. Owing, however, to this unaccountable objection to a very desirable arrangement, the baths will probably be omitted. It is difficult to see how sanitation is likely to benefit through this objection having been made.

3. "Section C.C., not in duplicate and party-wall, must be shown right up to the ridge." (Reply.) This demand is *ultra vires*, for a third section cannot in such a case be required—in fact, Section C.C. was merely sent because, with the elevations, &c., it was on the sheet of working drawings from which one set of deposit-tracings was made.

4. As to party-wall and corbelling, ample assurance had already been more than once given that these would be strictly in accordance with by-laws.

5. "Ventilation under floors in accordance with by-laws." As to this, Mr. Watts telephoned to me two or three days before the Council met to consider the third application, asking for particulars, although the plans are perfectly clear on the point, and the same kind of floor exactly has been shown on each set from the first. I explained that the floors in question (the ground floors) were just the ordinary solid wood-block floors laid direct on concrete with tar, in short or long lengths. Mr. Watts replied that, in accordance with by-law 64, ventilation must be provided between the wood and the concrete. I pointed out that this by-law referred solely to hollow wood floors and that such ventilation would prevent the proposed floor being a solid floor—in fact, that such ventilation was impracticable altogether. It would be no more ridiculous to ask for ventilation under the tiles of a scullery or the asphalt of a footpath. In spite of my explanation of this simple matter of ordinary floor construction, Mr. Watts repeated that ventilation must be provided, and asked if he might take it that the floors would not contravene the by-laws. I replied that he might certainly do so. Yet the plans are again returned—a third rejection; but the first on this account, no notice whatever having been taken of these floors before.

Compliance with a request of this kind is, of course, absolutely impossible; and I respectfully ask your Council, sir, to put these three questions to Mr. Watts. (1) Whether he understands how to construct an ordinary solid floor; (2) whether he made his long-delayed demand for this ventilation ignorantly or maliciously; (3) why, in either case, he did not make it when commenting on the first and second applications showing this same floor? Mr. Watts's letter concludes with a very extraordinary request for a new set of plans, alleging that they have been "mutilated." Now, before replying to this request, I must call your Council's attention to the fact that my plans have been damaged and obscured, while in Mr. Watts's charge, by someone scribbling on them in several places and by tearing off and scratching up pieces of linen which had been carefully pasted down, and by pinning one piece on in a careless manner. Am I to understand that the alleged "mutilations" formed one reason for the return of the plans and the request for a new set? If so, and if such plans are still asked for, I shall certainly demand from your Council or their surveyor the charge to be made for preparing them.—I am, dear sir, yours faithfully,

R. M. LUCAS.

Mr. E. T. Westlake, clerk to the South Stoneham Rural District Council.



**The Edinburgh Architectural Association.—Proposed
Autumn Exhibition.**

SIR,—An exhibition in Rome of drawings and photographs of architectural "refinements," part of the research work of Mr. W. M. Goodyear, of Brooklyn, has recently aroused much interest amongst architects and antiquarians in Italy.

In view of the increasing recognition of the importance of Mr. Goodyear's investigations, and in the belief that a knowledge of them must be of high educational value alike to architects and amateurs, the Edinburgh Architectural Association desires to seize the opportunity of this collection being in Europe to hold an exhibition in Edinburgh during the months of August and September.

The trustees of the Brooklyn Institute of Arts and Sciences have been generous enough to offer a loan, not only of what is at present in Rome, but of the whole of their extensive collection, to which Mr. Goodyear himself most kindly proposes the addition of many valuable drawings which are his own property. A complete representation of the work so far achieved would thus be attained.

"Refinements" in Mediæval architecture are still under investigation, and this exhibition would commit neither the Edinburgh Architectural Association nor any one connected with it to definite views as to their origin or their intention. That Greek work is full of constructive curves is now accepted as a commonplace, and Mr. Goodyear contends that Egyptian and Roman remains show corresponding deflections from the straight line. The mass of evidence which he has collected, to indicate the linking on to classic tradition of the far more complex Mediæval building, is given to the public in the photographs and drawings now proposed to be exhibited. Apart from any conclusions one way or another as to their significance, the facts ascertained by Mr. Goodyear are of the greatest interest, and must act as an immense stimulus to more searching investigation and more accurate observation of the irregularities of Mediæval work. That America has led the way in this matter is no reason why we in the Old Country should lag behind, and the first step is to become familiar with the results already attained.

The expenses of freight, insurance, advertising, the printing of the necessary catalogue, and other outlays incidental to an exhibition are greater than the Association can meet alone, and it confidently appeals to those interested in architecture, archæology and education to assist its members in raising a fund of about £200. Cheques may be made payable to Colin B. Cownie, hon. secretary, Edinburgh Architectural Association, 17 York Place, Edinburgh.

A few subscriptions, varying from one to ten pounds, have already been received.

As it is essential that the trustees of the Brooklyn Institute have a reply to their kind offer this month, your attention to this circular before the 27th inst. will much oblige.—I am, sir, yours obediently,

HAROLD O. TARBOLTON,
President of the Edinburgh Architectural
Association, 117 George Street, Edinburgh.

GENERAL.

The Tate Gallery trustees have accepted, on behalf of the nation, the late Robert Brough's picture "Fantaisie en Folie." Mr. Brough made the provision in his will that if the picture was not accepted by the Tate Gallery it was to be given to the Aberdeen Art Gallery.

M. Allar has been elected to fill the vacancy in the sculpture section of the Academy of Fine Arts caused by the death of M. Emile Guillaume. He was born in Toulon in 1845, and is a former "Prix de Rome." Among his works are a "Jeanne d'Arc," "Les Adieux d'Alceste" and a "Sainte Cécile."

Government House, Cape Town, will shortly contain a gallery of portraits of all the representatives of British rule who have lived there since 1806, when the colony was ceded by the Dutch. The first of these replicas is that of the second Earl of Caledon. It is being executed by Mr.

Catterson Smith, Royal Hibernian Academy, from the original which hangs at the family seat in county Tyrone.

The Incorporated Association of Municipal and County Engineers will hold their thirty-second annual meeting in Norwich on June 22, 23 and 24, with Mr. A. E. Collins, Norwich city engineer, as president. The Association comprises about 1,100 members, including colonial and continental engineers. One of the important matters to be discussed at the Norwich conference is that of building by-laws.

M. Albert Besnard, the painter, has been selected to fill the vacancy in the Superior Council of Fine Arts caused by the election of M. Roll as president of the Société Nationale des Beaux-Arts. By virtue of his new office M. Roll is an ex-officio member of the Superior Council.

The Bucks. Archæological and Architectural Society's Jubilee Exhibition will be opened on July 5 at Aylesbury by the president, the Earl of Rosebery.

Mr. W. Banks Gwyther, architect, has proceeded to Simla, where he will be on deputation duty under the Department of Commerce and Industry for about three months, in connection with the scheme for the extension of the Indian Museum, Mr. H. H. Risley, representing the trustees, and Mr. E. B. Havell, of the School of Art, being associated with him in the preparation of the project.

"The Capture and Blinding of Samson," by Rembrandt, formerly belonging to Count Schönborn's gallery in Vienna, is about to be sold to the Städel Gallery at Frankfurt-on-Main for 16,750*l.*, the highest price a picture ever fetched on the German art market. It was painted in 1638, and is, after the "Night Watch," the largest canvas left by Rembrandt.

The Dutch Second Chamber have voted 58,300*l.* for the purchase of a site, measuring five hectares, in the park at The Hague known as "Zorgvliet," for Mr. Carnegie's Palace of Peace.

The Chichester City Council on Friday last elected Mr. Frank J. Lobley, surveyor of Hale, Cheshire, to the post of surveyor and inspector of nuisances, in place of Mr. Pym Jones, resigned, the inclusive salary offered being 150*l.* per annum. The three other candidates selected by the sub-committee were Mr. Thackeray, of Eastbourne; Mr. Chivers, of Eastleigh; and Mr. Percy Beeham, surveyor's assistant at Chichester.

Mr. J. Meikle Alexander, a partner in the firm of Messrs. F. W. Mayor & Co., architects and builders, of Tithebarn Street, Liverpool, died on the 19th inst. in his forty-third year. Mr. Alexander acted as president of the Liverpool Artists' Club.

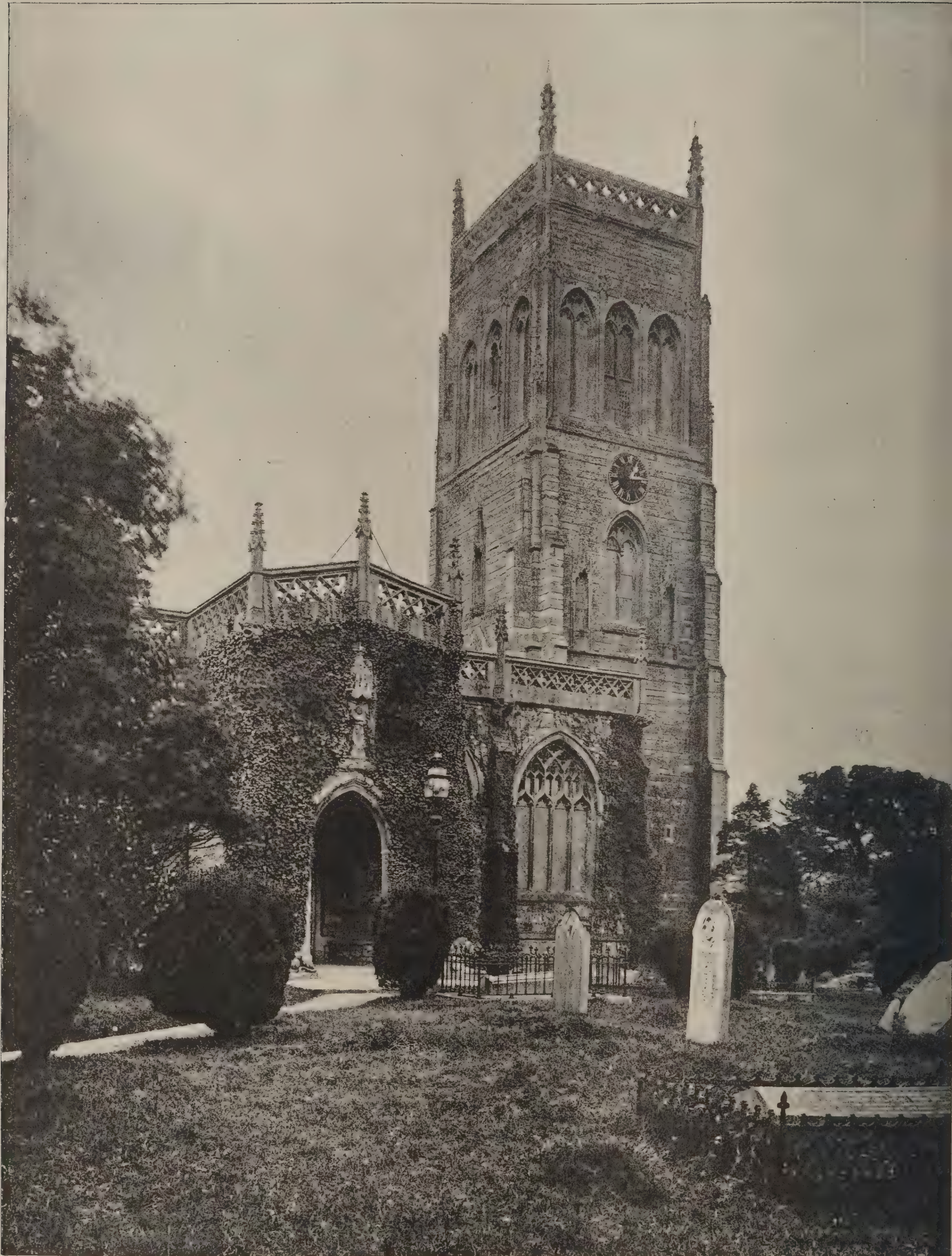
The Liverpool Institute, which includes the Blackburne House and the School of Art, was formally handed over on Monday to the civic authorities. These institutions, which are fully equipped, have an attendance of 1,100 or 1,200 students of both sexes. To the gift of the buildings must be added a very large cash investment, including a reserve fund of 20,000*l.* and a scholarship fund of 16,000*l.*, and a considerable area of freehold land, particularly in the case of Blackburne House, which was placed at the disposal of the Institute as a school for girls.

The North British Railway Hotel, in Glasgow, has been reopened. The building has been increased in height by the addition of an attic storey and the entire interior has been reconstructed. The hotel contains 105 bedrooms. The fireproofing of the entire building was carried out by Messrs. P. & W. Maclellan, Ltd., Clutha Works, Glasgow and London. The work has been executed in accordance with the designs of Messrs. Baird & Thompson, Baird Street, Glasgow.

The Visit of the Society of Architects to Chester and Liverpool will be on June 2 and 3. Applications for railway tickets from Euston only, with a remittance of one guinea for each person, must be made to the secretaries not later than May 29. Those joining the party at any other centre but London will make their own travelling arrangements.

The Baths Committee of the Bradford Corporation on Wednesday decided to recommend an outlay of 40,000*l.* on new baths.

Proposals are before the Senate of the University of Cambridge for the establishment of a diploma in forestry and the organisation of a scheme of instruction and examination on that subject, and a syndicate is to be appointed to consider the question.



"INK-PHOTO" SPRAGUE & CO. LTD. 4 & 5, EAST HARDING STREET, FETTER LANE, E.C.

THE RESTORATION OF MARK CHURCH, SOMERSET: VIEW LOOKING N.W.

EDMUND SEDDING, F.R.I.B.A., Architect.

The Architect, May 26th 1905



INK PHOTO SPRAGUE & CO. LTD. 4 & 5, EAST HARDING STREET, FETTER LANE, E.C.

THE RESTORATION OF MARK CHURCH, SOMERSET; INTERIOR, LOOKING S.E.
EDMUND SEDDING, F.R.I.B.A., Architect.



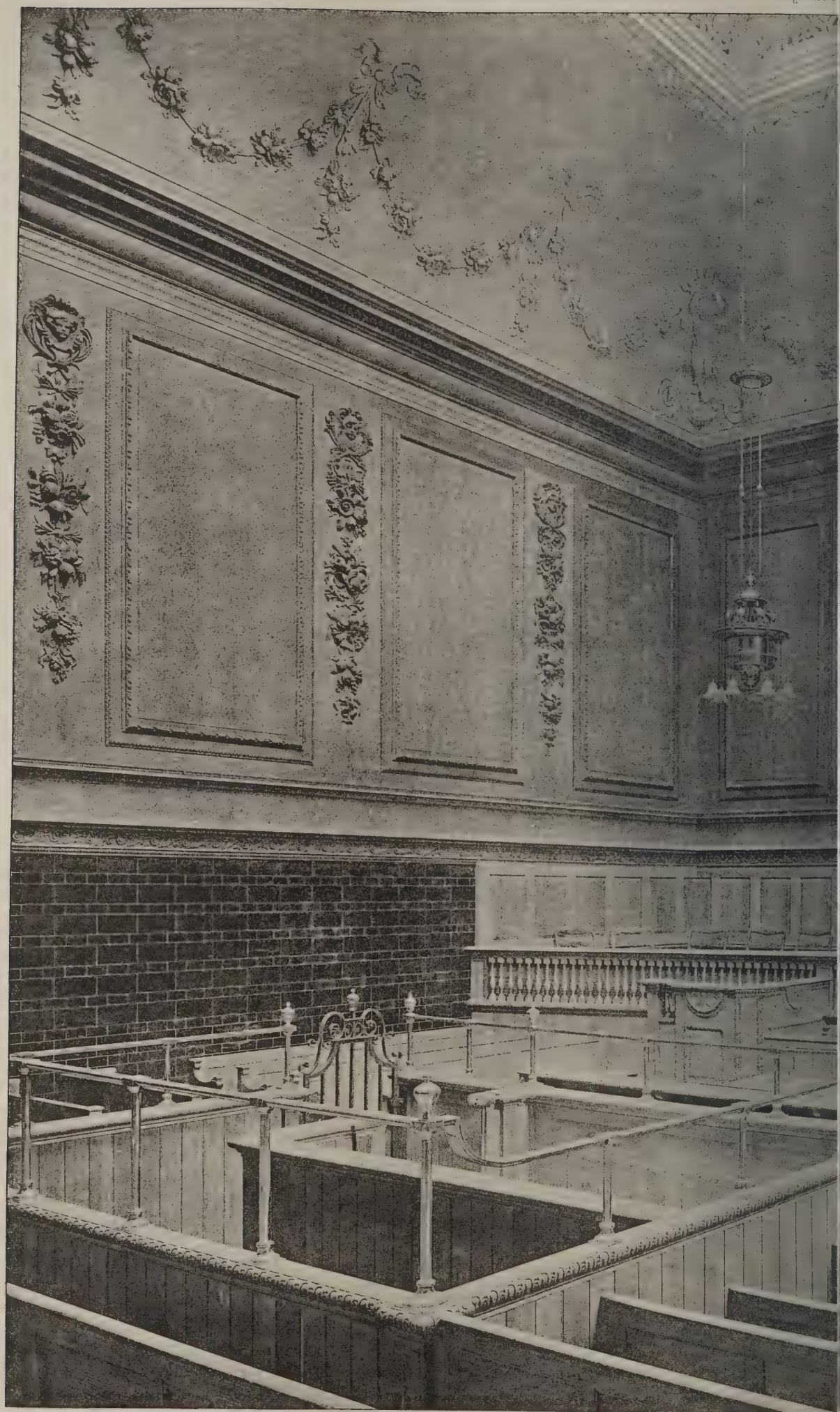


A HOUSE AT SIDCUP: FOR A. E. LEONARD ESQ.

FT. W. GOLDSMITH · A.R.I.B.A.
ARCHITECT.



10
5
0
10
20
30
Scale of feet.



PHOTOGRAPHED BY BEDFORD LEMERE & CO 147, STRAND, W.C.

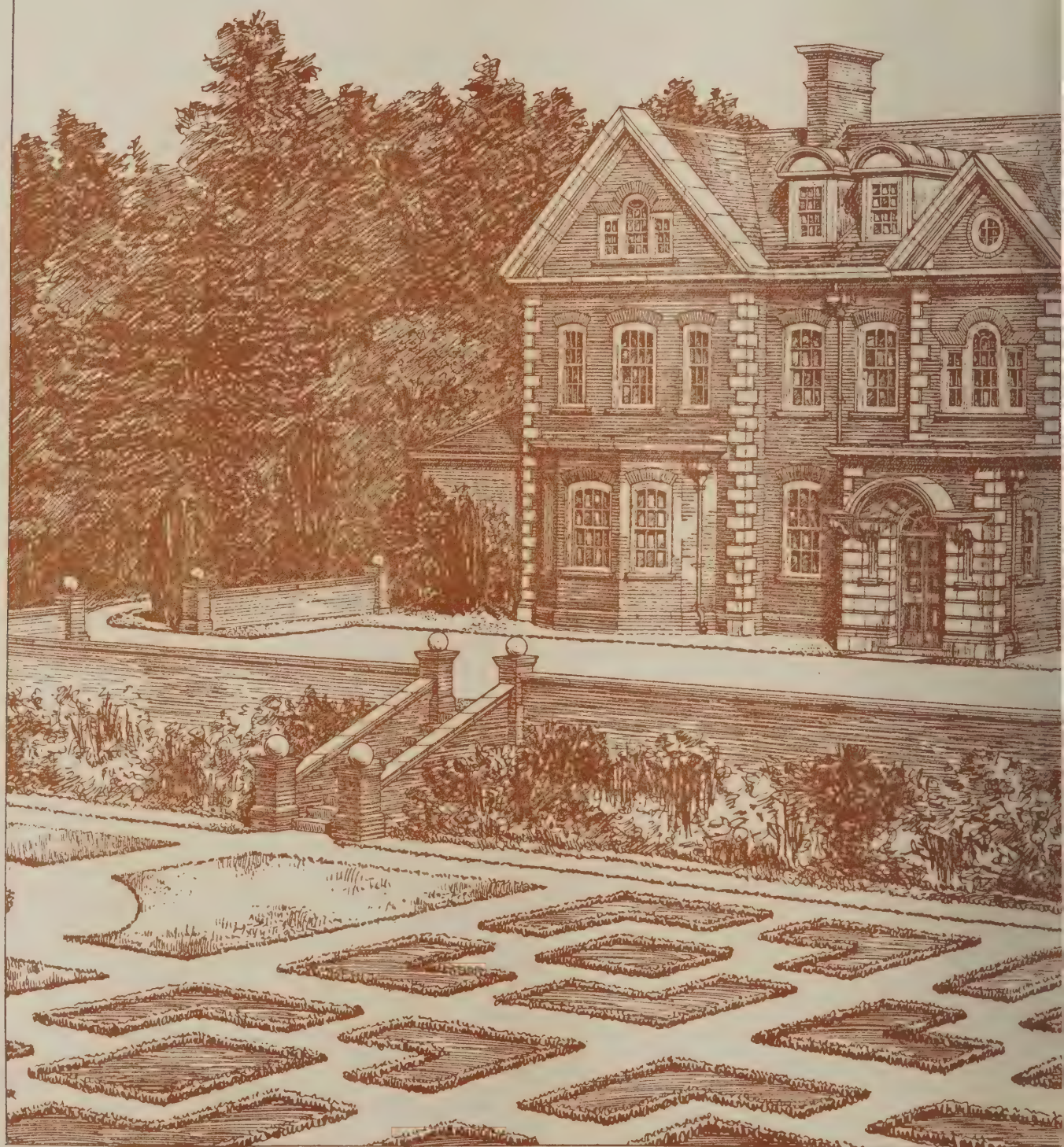
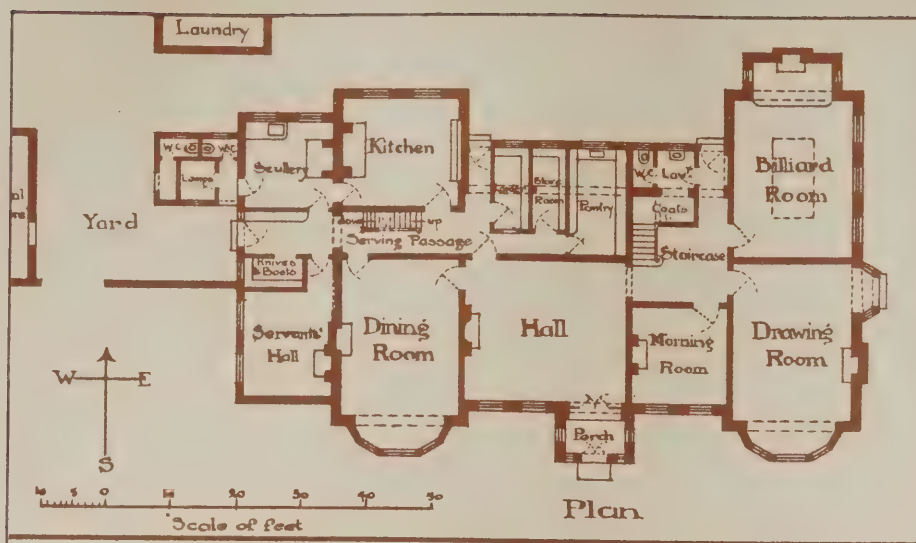
May 26th 1905



"INK-PHOTO" SPRAGUE & CO. LTD. 4 & 5, EAST HARDING STREET, FETTER LANE, E.C.

SESSIONS HOUSE, PRESTON

ER, Architect.



Langwith Lodge, Notts.
for His Grace The Duke of Portland, KC
Louis Ambler, Architect.



The Architect.

THE WEEK.

IN his charge at Portsmouth, Archdeacon FEARON, on Saturday last, expressed his surprise at the excellent condition of nearly all the churches he visited. "It was quite marvellous," he said, "and a cause for deep thankfulness, to see what admirable work of restoration had been done all over the county during a time of anxious trial and depression in the past fifty years. It was most touching sometimes to observe cases where both parish and clergyman were obliged to stint their personal needs, where money and care had never been stinted, to maintain the shrine of the highest aspiration in a condition worthy of its consecration. At present he should say, roughly, that of the 220 churches he had not seen more than six or seven which seemed to him urgently to need any large expenditure of money, while in most of these cases the necessary expenditure was already proposed." It is not often authorities are willing to testify to the services which architects and builders render in upholding churches. The financial difficulty affects them also; there is generally not merely a delay in payment, but in the majority of cases the amount received can only be a scanty remuneration for the work done.

THE competition for the new public library in Worthing has been decided in favour of Mr. H. A. CROUCH. Mr. BELCHER, A.R.A., was the assessor. Three additional plans were selected by the committee to send to Mr. CARNEGIE, who is supplying the funds for the erection of the library. They were by Messrs. LANCHESTER & RICKARDS, Messrs. RUSSELL & COOPER and Mr. J. O. GIBSON. There has been some delay in the final determination. Mr. CARNEGIE had been travelling in America and the plans were despatched to him. At New York they were retained by the Customs authorities, who imposed a duty of 19% upon the parcel. At length they reached Mr. CARNEGIE, who gave his preference to the design marked "N" (Mr. CROUCH's). Although separate tenders have to be obtained for the library, Mr. CARNEGIE insists on the Local Government Board sanctioning the borrowing of money for the erection of the technical schools, which should form part of the group. As the rate which can be levied, or a penny in the pound, will only bring in 610%, the financial position of the project is not considered satisfactory unless the West Sussex County Council will be sufficiently liberal in granting money towards building.

THE decision which was given by Mr. Justice FARWELL in HIGGINS v. BETTS is another revelation that an imaginative interpretation of COLLS v. HOME and Colonial Stores is not wise. The owners of opposite properties are not henceforth to be expected to allow buildings to be raised without restriction. Indeed, it would seem that the humbler the property and the narrower the street the more are old rights of light and air to be considered sacred. The plaintiff in the case was the occupant of a public-house having a frontage of 67 feet to Benjamin Street, which has a width of only 13 feet and has an outlet to Cow Cross Street, near the Farringdon Street station. A building on the opposite side which was only 30 feet in height was proposed to be increased to 38 feet, and the plaintiff's dining-room, which used to have 67 degs. of light, was left with only 32 degs. The bar and other rooms also suffered. An interim injunction had been obtained, but the operations were not suspended. Mr. Justice FARWELL remarked it was generally supposed that COLLS's case had caused a greater disturbance than it had. He said that any interference with the comfortable use and enjoyment of a house was actionable as a nuisance. Noises

or disagreeable smells were similarly actionable. The difference between the right to light and the right to freedom from smell and noise is that the former has to be acquired as an easement in addition to the right of property before it can be enforced; the two latter are *ab initio* incident to the right of property. The wrong done is in both cases the same, viz. the disturbance of the owner in his enjoyment of his house. But in the present case there was more than a mere nuisance, for the premises were materially affected with serious results to the plaintiff's business. Owing to the privation of light he could not carry on his business as beneficially as before the opposite building was increased in height. His Lordship in granting the injunction said he hoped that the architects on either side would be able to arrive at some reasonable arrangement, and so prevent the case coming back for consideration again in an inconvenient form.

UNDER Section 60 of their General Powers Act, 1898, the London County Council can "purchase by agreement buildings and places of historical or architectural interest or works of art, or contribute towards the cost of preserving, maintaining and managing any such buildings and places, and erect and maintain or contribute towards the provision, erection and maintenance of works of art in London." This power, which was obtained owing to the fact that the Council had no power to expend money on the *Boadicea* group, it appears only applies to buildings and places of historical or architectural interest or works of art. Although the Council have full power to purchase, erect and maintain or contribute towards the provision, erection and maintenance of works of art, it cannot spend money in acquiring or maintaining buildings in which to preserve and exhibit such objects. The records and museum committee consider that this state of things should be remedied without delay, in order that the Council may not be precluded from considering any offers which may be made to it. They accordingly recommend:—"That an application be made in the next session of Parliament for an amendment of Section 60 of the London County Council (General Powers) Act, 1898, so as to enable the Council, if it thinks fit, to acquire, maintain and manage buildings for the preservation of works of art, &c., or to contribute towards the cost of maintaining and managing any such buildings."

IN his articles on JEAN GOUJON which are appearing in *L'Art* M. HENRY JOUIN, the secretary of the Ecole Nationale des Beaux-Arts, has cast some light on the history of the French sculptor. There can be no question that tradition was correct in assigning to JEAN GOUJON many of the examples of architectural sculpture which are to be seen in the Hôtel Carnavalet, now used as the museum of Old Paris. The figures on the keystones of the arches and the charming escutcheon over the entrance were undoubtedly executed by him. But it is now believed that the figures of the Four Seasons, although designed by him, were carved by some other sculptor. There exists some doubt as to whether the sculpture was commissioned before or after the owner of the mansion appeared as one of the ambassadors from France at the Council of Trent. As there is an absence of ecclesiastical symbols it is likely the work was undertaken before his journey. LESCOT was the original architect for the Hôtel Carnavalet, but JEAN BULLANT also held that office. It is therefore inferred that LESCOT had to give up the appointment in order to devote himself to the work of the Louvre, in which case JEAN GOUJON would be likely to imitate him. It is, however, strange that, although the sculptor must have had workshops in Paris, no record remains of where they were to be found. There is a tradition that they were in the neighbourhood of the house of CLEMENT MAROT, the poet. In that case they would be near to the site of the Rue Racine in the Quartier Latin.

ASSESSORS' DUTIES.

A LARGE part of the latest number of the Journal of Proceedings of the Royal Victorian Institute of Architects is occupied with an account of an affair which has caused some excitement throughout Australia. In other words, there were discussions and voting as to whether two members had been guilty of conduct derogatory to their professional character, and whether they should not be suspended from membership for a period of twelve months. The two architects, Mr. GEORGE CHARLES INSKIP and Mr. WALTER R. BUTLER, were prominent members of the Institute, the latter having been a member of Council for no less than twelve years. The circumstances which brought them into disfavour were of a kind which should not be judged by local circumstances. The two members, who were partners, accepted a semi-judicial office in acting as assessors and advisers in a competition. The office is not one peculiar to Australia, and therefore should be judged by some general principle of action which is accepted in other countries where competitions occur.

It appears that over a year ago a Mr. SYME invited competitive designs for professional chambers. Architecture as a business has not been flourishing of late, and the invitation was responded to by other architects besides those in Melbourne. Mr. SYME, it appears, appointed Messrs. INSKIP & BUTLER to assist in the judging, and they sent in a report to him about the middle of May, 1904. The competitors were not informed of the result until July. The news, however, got abroad that Messrs. INSKIP & BUTLER had prepared sketches for chambers on the site. When the Council of the Institute heard of what was done it was resolved to hold an inquiry, and a committee of five members was appointed for that purpose. Evidence was taken, of what kind is not stated, but the conclusion was arrived at that the two assessors had been guilty of unprofessional conduct. They were informed that judgment would be pronounced at the next meeting, but, if they appealed, a special general meeting would be called. When it is considered how important is reputation to an architect the precipitancy of the Council, although it may have been a sign of zeal, was undoubtedly indecorous. It was, however, only another instance of that belief in their own absolute authority which is one of the characteristics of the councils of architectural societies.

Then it was heard that Messrs. INSKIP & BUTLER were acting under legal advice, which no doubt aggravated the alleged offence in the eyes of the Council. They also sought the help of lawyers and they discovered, what ordinary business men should have known before, that they were in error in delegating the duty to five members instead of three, and in deciding to hold an "inquiry" into the "conduct of the competition," instead of bringing a "charge" against a member. New tactics were adopted. The three members who had conducted the previous inquiry were entrusted with the duty of investigating the charge which was made by another member of the inquiry committee. As a result a report was prepared which was adopted by the Council and by which it was resolved that Mr. INSKIP and Mr. BUTLER should be suspended for a year. Meanwhile Mr. INSKIP resigned, and the Institute ascertained from their lawyers that it was doubtful whether he was amenable to them, and the intended judgment against him was cancelled. Mr. BUTLER resolved to face the proceedings in spite of the prejudice against him.

According to Mr. BUTLER's statement, the partners were appointed as advisers, and they advised Mr. SYME to award premiums to certain designs. Mr. SYME objected to award premiums, and his solicitor thought he need not pay them. Then he informed the competitors that he had sold a portion of the land. The first competition might therefore be considered a fiasco, and if there was any grievance among the competitors it should be charged to Mr. SYME rather than to his advisers. He next asked Messrs. INSKIP & BUTLER to prepare

plans for chambers on the restricted site. According to Mr. BUTLER, there was not an item in the competitor drawings they were asked to follow or had followed. There were only five possible ways of dealing with the light areas, and inevitably some similarity in all the arrangements for that end was to be expected. The meeting, however, was in favour of upholding the Council's determination, and by 11 votes to 6 it was decided that Mr. BUTLER should be suspended from membership for a period of twelve months. Whether by their success the Council have involved themselves in a serious responsibility is a question which deserves investigation by a court of law. For to declare that an architect has been guilty of conduct of an unprofessional character is a serious affair, especially when we remember that the *gravamen* of the charge is that Mr. BUTLER did not suggest to the owner to open negotiations or consult with the authors of any of the designs placed first, second or third, upon which they reported favourably.

If there existed an accepted code of ethics relating to professional practice by which an assessor was expected to become the champion of all the competitors, it might then be supposed that in the Melbourne case there was a departure from a well-established rule. But there is no such code, and English assessors at least have not hitherto acted in that spirit. Several years ago a very angry letter was written to *The Architect* by the late Mr. EWAN CHRISTIAN because an article had stated that he had acted as assessor in a competition for a church, although he was aware there was no money available for the erection of the building. A very large number of architects, between eighty and ninety, were attracted by his name, and believed that the competition was genuine. Mr. CHRISTIAN declared it was for them, not for the judge, to discover whether there were funds for the erection of the building. As regards the promoters of competitions, Mr. CHRISTIAN was no less indifferent. He acted as professional assessor in one of the competitions for new Government offices at Whitehall, although he believed the site was inadequate. A man in his position should have declined to take any step towards the erection of buildings in an unsuitable place. In both cases his attention was concentrated on the plans he had to examine, and it was left to others to consider subjects which were more important. If we find so honest a man excluding all other circumstances from his mind, it is too much to expect that assessors who have still to struggle for a living should be more chivalric and self-sacrificing.

In the history of English competitions cases can be found where public and other bodies, after a competition, gave the commission for the erection of the building to the assessor rather than to the author of the plan which received the highest premium. Clients are supposed to know their own interests, and if they pay the premiums which were promised, and gave no guarantee that any of the prizemen would be entrusted with the erection of the building, there is no law known to the English Courts to prevent them engaging whatever architect pleases them. It is undoubtedly hard that those who have had the trouble of preparing designs should all be disappointed. But the practice of architecture is attended by irregularities which are unknown in other professions.

There may be much else in the Melbourne affair which the Council of the Melbourne Institute have not reported. But taking the official statement as evidence, there seems to be no doubt that the Council wished to display their power as local rulers of the profession, and did not act with that deliberation which is necessary in a delicate case affecting an architect's honour. Clubs and societies are allowed a large amount of liberty in dealing with members, but the Council of the Victorian Institute have been at fault in handling so indefinite a subject as professional conduct just as if it were already expounded in detail in the regulations of the

Institute. It is a weakness of men to expect others to display more virtues than they would in a similar position. Messrs. INSKIP & BUTLER may not think much of their suspension, but they will confer a benefit on other architects by bringing the conduct of the Council under the notice of the Courts. The proceedings are worth attention, as they suggest the need of a clearer idea about an assessor's duties. If he is not under any condition to accept a commission to act as architect, that should be distinctly expressed when he receives his instructions to report on designs.

MODERN CONCRETE CONSTRUCTION.*

ALTHOUGH the revival of concrete must be credited to Englishmen who used it for foundations, military defences and other purposes seventy or eighty years ago, it seems strange that in any treatise on the recent developments of the material there should be no mention of English works. We have before us two elaborate volumes referring to varieties of construction in Europe and America. But the only English work referred to is that of a wharf at Southampton, which is carried on concrete steel piles and was constructed in 1898. As it was executed by a French company, there can be no claim to consider it as an English example. It might therefore be inferred that in Great Britain we have scarcely realised how wide is the applicability of concrete when it is aided by steel in one form or another.

It is true, concrete of the kind is occasionally employed by county councils and railway companies. But they have not at the present time gained a reputation for advanced construction. An American, German or French writer would therefore hesitate in accepting such instances as worthy of record. Not until concrete is used for the exterior of buildings, as well as for floors and partitions, can it gain any noteworthy position among English works. Cases are continually arising for which concrete appears to be the most eligible material, but so long as building regulations are inimical to it, the employment of it must be confined to structures which are beyond official control, or where the supervision is not rigorous.

The two books to which we have referred are by American engineers, and both display that thoroughness for which we suppose Americans are indebted to the German spirit which pervades all their scientific work. Messrs. TAYLOR & THOMPSON have been able to secure liberal assistance from experts. They say:—"To broaden the scope of the work and avoid personal inaccuracies, each chapter has been submitted for criticism to at least one, and, in some cases, to three or four specialists in the particular line treated."

The list of the engineers who have co-operated in the production of the book is long. In England it would be impossible to obtain such varied information, for if a man happens to make a discovery of a trivial kind in construction he is careful to keep it to himself. This is seen especially in the transactions of architectural societies, for however long may be the papers which are read, there is a careful exclusion of facts which could be turned to account by other architects. Messrs. TAYLOR & THOMPSON are therefore able to treat of concreting under numerous forms.

In reading their pages it is easy to understand why the subject should have more fascination than would seem to be possible by anyone who has witnessed the slovenly manner of dealing with concrete in building foundations in this country. As now employed con-

crete calls for an advanced knowledge of chemistry, and the forms given to the steel auxiliaries for strengthening it are so varied, the determination of their proportions is more of a test of mechanical science than the calculation of the ordinary elements of large bridges. Prejudice counts for much, and those whose experience is confined to the use of concrete in primitive forms find it difficult to realise how much delicacy is needed for the perfection of many kinds of work. The following extract from Messrs. TAYLOR & THOMPSON's book will suggest some of the methods adopted in America to impart finish to concrete:—

Concrete or mortar may be cast by special moulds into blocks of any desired size or shape, or moulded for ornamental decoration in designs which vie both architecturally and in durability with finely carved sandstone, limestone and granite. The colour may be slightly varied by mixing different kinds of crushed stone. Artificial colouring matter is apt to fade. Ornaments are run whole in a mould which is made in halves, or are moulded in two or three pieces and cemented together. Moulds of plaster of Paris, shellacked within, are commonly employed. Another method of moulding, similar to that employed for iron castings, is with fine, damp sand, which is sometimes treated by a patented process. A wooden core is made and sand packed around it, then the core is removed, and the mortar is poured in. The surfaces, after setting, may be rubbed down and floated. At the Harvard Stadium the wooden core, which was of the form of an L for riser and tread, was removed from the sand, reinforcing wire placed and thick grout of the consistency of cream run in from a box car. The proportions of material were about 1 part Portland cement to $2\frac{1}{2}$ parts fine crushed trap rock under $\frac{3}{8}$ -inch diameter.

The Harvard Stadium is by itself sufficient to exemplify the modern use of concrete in buildings. It is an American Coliseum which serves not only for games, but for the representation of Greek plays. An immense number of spectators can be accommodated, and there is no misgiving either as to the stability or endurance of the structure. But the uses to which reinforced concrete is applied in the United States are numberless.

MESSRS. TAYLOR & THOMPSON begin with a description of the materials which can be utilised in concrete, and they supply the tests which should be applied to them. There is perhaps less empiricism about the proportioning of concrete than in any other branch of construction, for experiments appear to be made in each important contract, and formulæ are modified accordingly. There are, of course, many rival systems, and it is to the interest of the promoters of each to establish their peculiar advantages. That can only be done by severe scientific testing. The following are the systems of reinforcement which the authors select as being extensively used in the United States, and which are often referred to in papers on construction:—

Bonad.—Metal of cruciform cross-section.

Chaudy and Degon.—Cross rods passing under bearing rods, but looped up between them.

Coignet.—Round bars in top and bottom of beam connected by diagonal wire lacing.

Columbian.—Vertical steel plates with horizontal ribs.

Cottacin.—Round rods interlaced in the same manner as in wire netting.

Cummings.—Bars of different lengths having their ends bent to an incline and formed into a loop to resist internal stresses.

De Man.—Undulated bars.

Donath.—Inverted T-beams or I-beams connected by horizontal diagonals of light flat metal on edge.

Expanded Metal.—Sheet steel, slit and expanded, so as to form a diamond mesh.

Habrich and Düsing.—Flat metal twisted hot.

Hennebique.—A combination of alternate straight bars and bars with ends bent up at an angle, with vertical U-bars; or stirrups, of flat iron passing around the straight bars and reaching nearly to the top of the beams.

Holzer.—Metal in form of I-beams.

Hyatt.—Flat plates or bars set on edge and pierced with holes, through which pass small round rods to form the cross reinforcements.

* *A Treatise on Concrete, Plain and Reinforced; Materials, Construction and Design of Concrete and Reinforced Concrete.* By Messrs. F. W. Taylor & S. E. Thompson. (New York: John Wiley & Sons. London: Chapman & Hall.)

Reinforced Concrete Construction. Part I. Methods of Calculation, by A. W. Buel. Part II. Representative Structures. Part III. Methods of Construction, by C. S. Hill. (London: Archibald Constable & Co., Ltd.)

Johnson.—Corrugated bars.

Kahn.—Horizontal flanged bars with flanges sheared up at intervals.

Lock-Woven Steel Fabric.—Steel wire mesh, locked at intersections.

Melan.—Steel ribs, either I-beams or four angles latticed, embedded in the concrete of the arch.

Monier.—Two series of round parallel bars at right angles to each other.

Parmley.—Bars with bent ends, to be placed in the sides of a conduit or the haunches of an arch to resist tension.

Rabitz.—Various combinations employing galvanised wire.

Ransome.—Square steel rods twisted cold.

Roebbling.—Flat steel bars set on edge, clamped to supporting beams, and held in alignment by flat bar separators.

Schüller.—Like the Monier system, except rods are placed diagonally.

Thacher.—Bulb bars.

Visintini.—Beams of concrete, cored out so as to form lattice girders.

Messrs. TAYLOR & THOMPSON have united the theoretical and the practical in their pages, and their book should be possessed by every architect who is likely to undertake concrete construction.

Messrs. BUEL & HILL begin by treating of methods of calculation for concrete structures, and they give applications of the results. The second part contains representative examples as shown by foundations, buildings, bridges and culverts, conduits, tanks and reservoirs, retaining walls, chimneys, &c.; while the third part describes the methods of construction which are most in favour. Without concrete it is difficult to imagine how the immense buildings which have to be expeditiously raised in America could be accomplished in other materials at so cheap a rate. An ample description is given of each work selected, and the illustrations are in the excellent style of the *Engineering Record*. The following relates to the dome of the Nassau County Court House, Mineola, New York, which was built in 1901:—

It consists of an outer or roof dome and an inner or ceiling dome, the two being carried on a pair of concentric rings, each supported by twelve columns. The ceiling dome is a segment of a sphere with an 11-foot circular skylight at the crown. Its shell is 2 inches thick and is stiffened by radial and circular ribs on the underside. The reinforcement consists of radial and circular $\frac{1}{4}$ -inch twisted rods in the shell and of four $\frac{1}{4}$ -inch bars in each rib. This dome is supported on a 4-inch cylindrical wall or drum $4\frac{1}{2}$ feet high, which has a 10 by 12-inch bottom ring or girder reinforced by two $\frac{1}{2}$ -inch rods. Outside of this drum and concentric with it is another 10 $\frac{1}{4}$ inches thick and 9 feet high. A flat annular roof $3\frac{1}{2}$ inches thick, and reinforced with $\frac{1}{4}$ -inch bars 18 inches apart, extends about 3 feet inward from the top of this drum, and is stiffened by 10 by 22-inch girder ribs on the underside. Each of these ribs has four 1-inch reinforcing bars. These ribs carry most of the weight of the roof-dome drum, 7 inches thick and 6 feet high. The oblique ribs under the circular annular roof are tangent at eight points to the drum-wall on centre lines, and carry part of its weight directly to the inner row of columns and to the large circular girder, while the remainder of its weight is supported by the cantilever action of the circular roof. The roof-dome has a solid shell 3 inches thick without ribs, and is reinforced by $\frac{1}{4}$ -inch radial and circular rods. The horizontal or circular rods are 12 inches apart, and the radial rods are 12 inches apart at the bottom of the drum. The radial rods are set $\frac{1}{4}$ inch from the outside surface for the first 7 feet in height of the dome and then cross over to the same distance from the inner surface, which they follow to the apex. All rods lap 18 inches at joints and are well wired together. The concrete of the dome was composed of Portland cement and unscreened $\frac{3}{4}$ -inch broken stone.

The dome being the most important of all architectural features, there may be objection to have it represented by what will appear to many architects as no more than a casting. In the same way the moulded concrete blocks, which assume the appearance of all varieties of dressed stone, will also be deemed to be

unworthy of the architect's skill. In these respects we are in a period of transition, like that which was seen when machinery first supplanted hand-labour. The great number of people have to be satisfied with imitation of products which were once to be obtained only by manual work. Such things are cheaper, and they are generally as useful as the more expensive varieties. The dome at Mineola affords a larger amount of a space to the court below. It aids in the lighting and was inexpensive. The only objection that can be made to it is that the art of construction has become a mechanical operation, and that ironworkers and labourers are employed instead of masons. There was no necessity for costly centring, and the concrete dome will serve as well for painting or mosaic adornment as if it had been imitated in its creation from one of the older domes of Europe. It is not in America alone similar construction has been adopted. A concrete dome having a diameter nearly 29 feet covers the mausoleum of FREDERICK III. at Potsdam.

There are other kinds of construction which are generally supposed to be outside the province of aesthetics, and for them there can be no objection to the employment of concrete. America insists on its use in tall chimneys, conduits, reservoirs, water towers, columns. The Russian lighthouse at Nikolaief, which is 132 feet high, is another prominent example. It is practically a single piece of reinforced concrete, and the interior spiral staircase is also in one piece. The weight of the structure is 348 tons, while a brick tower of the same dimensions would weigh 1,365 tons. The cost was 40 per cent. less than one of masonry or steel.

There are over 300 illustrations in Messrs. BUEL & HILL's book, and they are so neatly drawn they serve as well as if they were on a large scale. As a record of what has been done of recent years in the United States in the way of concrete construction the volume is invaluable.

THE NEW YORK MUSEUM.

BEFORE Sir C. Purdon Clarke left New York he was invited to a dinner of the New York Chapter of the American Institute of Architects. In introducing the new director of the Metropolitan Museum of Arts, Mr. G. B. Post, the president of the Chapter, said:—It is not so long since that an architect was regarded as a few degrees beneath the carpenter and bricklayer. The first job I was ever offered I never received. My client asked me to draw the plans of a house. I had hardly started when he told me that there was no need for my services; that the carpenter who was to do the building kept an architect of his own. It is with deepest pleasure that I introduce to you the architect who is to come to us from England—a man who is a living illustration of the evolution of the architect—Sir Purdon Clarke.

Sir Purdon Clarke, in reply, said:—"Brother Chips," I am really very grateful to you. I call you "Brother Chips" because in England architects are known as "Chips." I suppose this is because they were stonemasons not so long ago. I have been in your city now about ten days. Every time I have been introduced to a stranger here I have been asked two questions—what my policy as director of the Museum will be, and what I think of the New York skyscraper. To the first question I have answered that my policy would be to do my best for the Museum. To the second query I have to answer more in detail. I was in New York twenty years ago and it looked like any other great city. Now it does not. Your great, big sky-scrapers place the city in a class by itself. American architects have opportunities which are not enjoyed by their brothers in England. I don't know whether you are hampered with building laws as much as we are, but if you are not you will be. For myself, I am an Anarchist. I don't believe any man has a right to tell an architect how much light and air he must provide. It's arrant nonsense—an outrage I call it. Everything that is bad in architecture I put down to the building laws. There is one thing which has impressed me particularly since I have been in your city—the haste with which clients expect architects to do their work. A client will place an order and expect to have the

house by return post. In England, when an architect agrees to construct a house in a year everybody knows it won't be through for a year and a half. In America, when an architect says he will build a house in a year the owner keeps after him all the time to finish it in ten months. I sail for home to-morrow on the *Baltic*. I hope to be back with you soon and to begin my earnest work among you. I shall tell my neighbours at home of what I have seen, and congratulate them on the future which America is opening up for them.

KINGSTHORPE CHURCH.

A PARTY organised by the Archæological Section of the Northamptonshire Natural History Society, which is doing valuable work in calling attention to the many treasures the county possesses, spent an afternoon pleasantly in examining the beauties of Kingsthorpe Church. The building is one worthy of a shire which has particular reason to be proud of its spires, says the *Northampton Mercury*, and the party were fortunate in having as their guide the Rev. R. M. Serjeantson, a gentleman who has made himself intimately acquainted with the history of the edifice, and has written charmingly upon it. The church is popularly supposed to be of Saxon origin—a supposition which Mr. Serjeantson believes unfounded. There is nothing Saxon about the original windows which remain, and the herring-bone work found in the structure is commonly seen in buildings belonging to a later period. Consequently, the rev. gentleman inclines to the view that it was constructed soon after the Norman conquest. Its size was, of course, not then great, and an increasing population soon demanded its extension. Consequently, about a century after its foundation aisles were added to it, arches being cut through the walls of the building. From time to time the church continued to grow. Thus during the reign of Henry III. the next alteration was made. A chapel was added to the church, which was a beautiful specimen of Early English work. In the early portion of the following century the chancel was extended eastwards, while some time in the later half of the same fourteenth century a curious alteration was made. They pulled down the chancel arch and erected another further eastward, which remained until 1863. Somewhere between 1380 and 1400 the crypt was made, and the tower and spire built. Amongst the alterations made at the restoration in 1863 was the pulling down of the south wall and rebuilding in line with the south chapel. Documents contained in the church chest make a number of interesting disclosures. Kingsthorpe was a curiously constituted place, inasmuch as its lands were held direct from the Crown—a very unusual thing for a village. In the time of Henry VIII. the church was much troubled by the rabbit question. Accordingly, a communication was made to the king strongly complaining of the depredations of conies which emerged from Boughton Park and did much damage in the surrounding fields. Said the complainants:—“The fourthe part at the least of the corne and grass of the town is spoyled and destroyed by the said great number of conies remaining in the fields over and beside the destruction of their common, so that it is a great starving and famishing of their beasts, to the utter undoing of the said inhabitants; and this besides the loss of their corne.” Poachers would apparently have had little difficulty in securing booty. Obviously the trouble became acute, and the good men of Kingsthorpe decided that they could not tolerate it any longer. So in 1547 they sent three delegates to the Star Chamber. The fact that the journey took 34 days shows that the travelling arrangements of that interesting time were not very perfect; men could not then rush through space at 60 miles an hour. Still, according to the records yet existing the three delegates of old had a very good time and spent 9*l.* 4*s.* 5*d.*, which, representing about 100*l.* of the money of to-day, was a large sum. A simple method of raising cash was employed—the church plate was sold. In these days when religious organisations benefit financially by the holding of such things as teas, it is interesting to learn, as Kingsthorpe's records show, the less sober way in which the churches in the Middle Ages often raised funds—by the brewing of ale. The laws were framed to assist the Church, and provided that in case of such a brew all other brewers should cease brewing until the ale was drunk. This would have been an awkward time for beer-drinking dissenters. Obviously it was a case of Church ale or compulsory teetotalism.

A canon of 1603 ordered the wardens to provide in every church a comely and decent pulpit, and Kingsthorpe has a

rather good specimen of Jacobean work. The bells in the tower date from the early part of the seventeenth century. The first, dated 1621, has inscribed on it the unpretentious rhyme:—

Robert Atton made me
The treble bell for to be.

The altar-rails date from the time of Charles I. Dr. Clerke, the vicar of the parish between 1608 and 1641, was one of two commissioners appointed to compel the people of the county to erect altar-rails designed to protect the altar from profanation. They were to be “one yard in height, and so thick with pillars that dogs may not get in,” a provision which reads curiously in these times. The church also possesses its chained books: the “Paraphrase” of Erasmus, 1547, Jewell's “Apology,” 1609, and Fox's “Book of Martyrs,” in three volumes, 1641. The donor of the last-named inscribed in the first volume; “I desire that this book (called the ‘Book of Martyrs’) may be kept in the parish church in Kingsthorpe, and not carried to any private man's house lest it be spoyled, or be in time lost.” His desire has been respected. In the church hangs a dilapidated copy of an Act passed in the time of William III. for the suppression of profane swearing. It provided that on and after June 20, 1695, “every servant, day labourer, common soldier and common yeoman” convicted of swearing was to pay one shilling and every other person two shillings for each oath for the use of the poor of the parish. If payment were refused goods were to be seized, while if there were no goods the culprit was to be put in the stocks one hour for each offence. In April 1698 Samuel Witsey for swearing four times was set in the stocks for two hours, and on October 19 of the following year Peter Barrett was fined 10*s.* upon being convicted of profane swearing five several times and of profane cursing five times. Apparently they drew delicate distinctions then. Prosecutions for swearing in those times involved considerable arithmetical calculation. This is instanced in the case of one of the worst offenders mentioned locally, a Hanslope gentleman named Mortimer, who on July 5, 1729, was convicted of profanely swearing six-and-forty awful oaths. He was obviously a voluble blackguard, and was fined 4*l.* 12*s.* for the use of the poor of All Saints parish, where the offences were committed.

ARCHÆOLOGY OF THE SOUTH DOWNS.

A LECTURE was delivered on the 18th ult. by Mr. J. H. A. Jenner before the Brighton and Hove Natural History and Philosophical Society on “The History of the South Downs.” According to the *Sussex Daily Mail* he said it was once thought there were no men of the palæolithic age in Sussex, but the discoveries of Mr. R. Garraway Rice had provided evidence of his existence both at Portslade and Chichester. Neolithic man was known by his weapons, and these, Mr. Jenner reminded his hearers, occurred in enormous numbers on the Downs, and were much more carefully and finely made than those of the palæolithic age. He recalled the paper Mr. Toms had read on discoveries of flint instruments, observing that the great “Sheffield” flint knife and hammer factory of the South appeared to have been at Cissbury, from which site there were many specimens in the museum. At Cissbury the chalk was tunnelled to obtain the fresh flint, which chips so much more easily than that which has been lying on the surface. Other centres he had found were one west of Newhaven, where the flints were evidently obtained from the sea cliffs as well as from some pits, and the well-known district near Eastbourne. These flints appeared to have been bartered with natives of other parts, but from the amount of remains and debris that could even now be found the business must have spread over many thousands of years. Mr. Jenner also quoted from Professor Boyd Dawkins's “Early Man in Britain,” a reference to the activity and fine workmanship at Cissbury.

What language these people used, continued Mr. Jenner, we know not, but it is probable that they tilled the ground to some extent, and the Downs furnished suitable light soil for this. The Weald being covered with forest, they also hunted game and wild animals, as evidenced by their arrow-heads and spearheads, and as occasionally some of these have been found as far away from the chalk as Crawley they must have had an off-day's hunting and shooting at times. The question how these early peoples lived on our Downs without a water-supply had always been a puzzle, but probably, said Mr. Jenner—as is well-known of South African tribes, such as the Zulus—they

were exceedingly fleet of foot; and thought nothing of moving many miles in a day down to the nearest brook or river. Dealing next with a recently-published book on "Neolithic Dewponds and Cattleways," in which there are references to the Cissbury and Chanctonbury encampments, the speaker said that he did not doubt that dewponds may have existed in neolithic times, but he did not think there was any evidence. Also it was practically accepted that the hill camps he would next refer to belonged to the bronze age. The splendid ramparts at Cissbury had no reference whatever to the wonderful neolithic pits which were scattered widely both inside and outside of the more modern entrenchments. Some of the galleries which were explored some time ago passed right under the southern rampart.

There were many of these camps on various prominent parts of the Downs. They appeared to have been harbours of refuge for the civil population, as well as defences against enemies for the fighting population. They were in every case very cleverly constructed, with outworks covering the contours of the slopes. Cissbury, Chanctonbury, Ditchling Beacon, Hollingbury, Devil's Dyke, White Hawk Down, Seaford, Caburn, Birling, and others might be mentioned, and they seemed to have been placed in positions for easy communication by signalling—as was evidenced at the late Jubilee celebrations by the numerous beacon fires that could be seen from any given point. The ancient paths which lead up to these hilltops are often called borstalls, which is said to be derived from the British, meaning "hill path"; but the hills are covered with ancient paths leading in all directions—mostly grown over with grass—many leading to what is now "nowhere," but which may have been an important place in neolithic times. "Cattleways" they were termed in the book he had alluded to. Perhaps this was right, but not always. There is a very ancient path leading from Brighton to Lewes, and passing over Kingston Hill. It is called the "jugs road"—jugs being the colloquial name for the Brighton fishermen, who travelled that way with their goods to Lewes, &c. There are also natural tracks caused by sheep, which may be seen well on any steep hillside.

There were other marks on the Downs with which he might briefly deal—cultivation marks. They were very evident in many places, especially on the Cliffe Hill, at Lewes, also near Alfriston, and at Littlington. There were also some between Lewes and Brighton. These are supposed to have been caused by the continual ploughing of a furrow—literally beginning at the top of the holding and finishing at the bottom, and they also indicated the beginning of village communities, and what was now understood as allotments. He was inclined to think, however, that this was not a complete explanation. That these early traces, as well as the encampments, should be so evident after the enormous lapse of time was astonishing, and showed the very slow process of aerial denudation. At present Sussex did not seem to possess any early structure analogous to Stonehenge or allied to the solitary one in Kent called Kir's Coty House. But on the Downs at one time were many of the sarsen stones, derived from the strata above the chalk, and stranded at various parts. Many of these sarsen stones might be seen at Stanmer and Falmer, collected from their original sites. He had often wondered if any archaic inscription could be found upon them, such as the well-known cup-and-ball markings.

Having referred to ancient figures cut in the Downs, like the Wilmington Giant, which figures had always been a puzzle, he said there was on the steep slope of the Cuckmere Valley, below Hineover, a very rough cutting resembling a horse which is not recorded in books on the subject, but which was kept clean by youths of the past generation, showing that there must have been some tradition carried down about these things. For himself, he attributed these things to a very early stage of religious culture, but as a fact these hill carvings were mysteries, and they occurred nowhere else in Europe. There was a cross cut on the hillside above Plumpton, near Lewes. Some thought it was a record of the Battle of Lewes, but he saw no reason to think so. He must not omit to say that on the Downs we had remains of the burial-places of the early peoples who lived in the neighbourhood. Most persons who had walked the Downs had come across circular mounds (generally, unfortunately, with a depression in the centre). These tumuli, probably all of the neolithic age, enclosing the remains of some chieftain, were opened with very little scientific accuracy early in the last century. Urns and other things were found in them, but if more care had been

taken we should have learnt more of these early people. There were not many "long barrows" on the South Downs, but there was one above the Coombe, at Lewes, and one above the Wilmington Giant. These were usually supposed to be of the bronze age. He could not discover that anything allied to the dene holes of Kent had been found on the South Downs, unless the filled-up pits at Cissbury are of the same character; but, as the Society noticed a year or two ago, workings very similar were used for raising stone in the Weald of Sussex.

Succeeding the bronze age came the iron age, and iron was in use when the Romans landed in Britain and captured the Downs. Boadicea, we were told, had a chariot with iron scythes on the wheels. When the Romans arrived—those tactical Japanese-like adventurers—they seized the camps and best vantage grounds of the Downs. They ate oysters on Cissbury. The eating of oysters was a peculiarly Roman trait, and from the size of the shells they were not inferior. Traces of their sumptuous dwellings occur at Bignor, at Eastbourne, &c. Their burial-grounds occur at Seaford and in other places. He emphasised the remarkable way in which certain positions had been successively occupied. To begin with, it is a suitable place for a rallying of the savage tribe; after that of the semi-civilised and settled community with their religious ceremonies, on a parish meeting, and possibly a stockade; then, perhaps, the Roman villa of the commander, and after that first the Saxon and then the English church, or the Mediæval castle. In the time of the Saxons the Downs must have been much of a waste, except that their lonely valleys gradually accumulated a house and a barn or two. Before that time they were probably more covered with wood. The iron axe was more potent in clearing than the flint or even the bronze. Within living memory there had been a decrease in trees, but some of the old hawthorns, such as those at the base of Cissbury, seemed likely to live for ever. When we got down to Mediæval times the Downs were still interesting—the perhaps greatest event in English history took place on the Downs, the Battle of Lewes in 1264.

BATH ABBEY RESTORATION.

A MEETING of the Bath Abbey restoration committee, was held on Monday, the Bishop of Bath and Wells presiding. It was reported by the treasurer (Colonel Clutterbuck) that the total funds promised or paid were 2,280*l.*, and that, after paying for the urgently necessary work of strengthening the flying buttresses of the nave, there remained 230*l.* towards the cost of the pinnacles and other contemplated works.

Mr. T. Jackson, the architect, addressing the meeting, explained the unsafe condition of the four pinnacles on the tower and the two at the east end, which was discovered as the result of one being struck by lightning last August, and said the alternatives were—(1) to have no pinnacles; (2) to re-erect the existing ones, resetting the stone, cost 770*l.*; (3) to erect pierced pinnacles of lighter design and of less height, at a cost of 1,900*l.* He submitted a plan, which was greatly admired, of the new pinnacles as proposed, and Mr. E. T. D. Foxcroft moved and the Rector of Bath seconded a resolution authorising the removal of the existing pinnacles and the substitution of those proposed by Mr. Jackson.

The Rev. H. H. Winwood moved an amendment providing only for the removal of the old pinnacles, believing that the tower should first be seen without pinnacles; but he only found two supporters, and the resolution was carried.

A second resolution appealing to the generosity of Bath citizens, visitors and to the country at large for funds to carry out the work necessary to put the ancient and historic church into a state of thorough structural repair was also carried.

TESSERÆ.

Orazio Fontana.

THE one pre-eminent name in the majolica art is unquestionably Orazio Fontana. This really great industrial artist, celebrated in his own day above all others, was the Rubens of enamel painting. It is now possible to identify many of his works, and they fully bear out the assertions of Raphael, that he had no equal in the conception and vigorous execution of his painted subjects, in the invention and distribution of his colours, and in calculating the effect of the fire on his wares. Orazio should be considered rather in his capacity of ceramic artist than in that of a manufacturer of majolica; for his finest works

were most probably produced whilst working as a painter in the establishment of his father Guido. The Fontana were a race of Maiolicari, the art having been practised for generations amongst them. During the great epoch dating from the first quarter of the sixteenth century to the later years of that century, the family "botega" in Urbino seems to have successively been in the hands of Nicolo, Guido, Orazio and perhaps Camillo Fontana. The establishment of Guido, who was the father of Orazio, Camillo and another Nicolo, however, appears to have been the most famous. It was carried on probably from about 1540 till at all events 1565 by Guido and his sons conjointly, but in 1565 Orazio separated from his father and established a "botega" or pottery of his own, the father probably continuing his own separate establishment for a longer period. In 1571 Orazio died, and we have no evidence to show what became of his establishment. It is generally possible to identify the wares of this family or school with sufficient certainty, but it is only in comparatively rare instances that the pieces can be positively assigned to the respective establishments or individuals.

Roman Theatres.

The earliest theatres at Rome, as at Athens, were mere temporary buildings of wood, removed when the immediate occasion for them was over. Stage-plays were first introduced A.M. 391. For 200 years the Romans continued satisfied with standing room; for in the year 599 the Censors Valerius Messala and Caius Cassius, wishing to build a permanent theatre, were prevented by the senate at the instance of Scipio Nasica; and at the same time an order was made that no person should provide seats at public spectacles within a mile of the city, "that the manly habit of standing, combined with mental relaxation, might be the peculiar mark of the Roman people;" or according to Tacitus, "lest, if the people sat, whole days might be spent in idleness." Mummus, the destroyer of Corinth, transported the furniture of the Corinthian theatre to Rome, and at his triumph represented plays in the Grecian manner, for the first time, about the year 610. The first permanent theatre was built by Pompey and finished in 699. Up to that time the ædiles or other persons who exhibited theatrical amusements constructed edifices on purpose, at an enormous expense, and with such splendour as would have seemed meant to hand down the name and magnificence of the founder to the latest posterity, instead of serving merely for a passing pageant. But money lightly earned is generally prodigally spent; and extreme magnificence in works of ornament is seldom consistent with the happiness of those at whose expense in reality they are constructed. The immense wealth which supplied these costly entertainments was the fruit of unjust conquest, or the spoils of subject provinces, and was thus prodigally lavished merely to obtain favour in the people's eyes, and procure other and more lucrative appointments. Celebrated above all others are the theatres of Scæurus and Curio, which are minutely described by Pliny, and will show how far the prodigality and splendour of ancient Rome surpassed all that modern extravagance has ventured or modern means supplied. Pompey's theatre was constructed after he returned from Asia at the close of the Mithridatic war. Plutarch says that, stopping at Mitylene on his way home, he attended some dramatic representations there, and was so much struck with the building that he determined to erect one on the same plan but with greater splendour at Rome. It was not completed until his second consulship in the year 699, and even in that luxurious age either the ancient jealousy of permanent theatres still remained, or he was afraid of raising envy and prejudicing his popularity by giving his own name to so magnificent and proud a structure, for he built a Temple of Venus Victrix, the Conqueress, at the highest part of the cavea, and dedicated the whole to her, stating in the edict by which he summoned the citizens to the dedication that he had built a temple to Venus, "under which," he said, "I have placed tiers of seats to behold spectacles." It would contain 40,000 spectators. Subjoined to this building, and as it were a part of the establishment, were his own house, a portico, basilica and curia. It was in the latter that Cæsar was slain, after which it was shut up. It was splendidly ornamented with statues by eminent artists; among them were the images of fourteen nations, those perhaps whom he claimed to have conquered. Near it in later times stood a remarkable colossal statue of Jupiter, erected by the Emperor Claudius. Being injured by fire in the reign of Tiberius, it was repaired by Caligula, and was again burnt and restored by Claudius. It was burnt

a third time in the reign of Titus. Nero gilded the scene, the theatre and everything employed in the performance to make an exhibition of his magnificence to a royal visitor, Teridates, king of Armenia; the very awning was purple, studded with golden stars.

Wren's Mortuary.

Why the great architect's remains should be placed in such a humble and obscure spot as the crypt of his cathedral is not generally understood. There is a belief that the lines of the building do not correspond with those of Old St. Paul's. Although he destroyed every vestige of its splendour, yet the cross engraved on his gravestone is supposed to suggest that he was not a great enemy of the service celebrated in the former building, and the spot where his ashes rests corresponds with the position of the high altar of Old St. Paul's. John Carter, the architect, has stated that Wren's heart is enshrined in the intersection of the perpendicular and horizontal portions of the cross above the dome. He derived the tradition from his grandfather, who died in 1780, being then 102 years of age, and was known to Wren as well as to men employed in the erection of the building. The selection of so lofty a position sometimes occurred in Mediæval buildings. When the capstone of the spire of Salisbury Cathedral was removed in the early part of the nineteenth century a similar relic was found.

Early Conductors.

Buffon and Dalibard, at his suggestion in 1752, appear to have been the first persons who drew lightning from the atmosphere by means of pointed rods of metal. In the following year M. de Romas elevated a paper kite to the height of 550 feet for the like purpose; this was about twelve months before Dr. Franklin, without any knowledge of what had been done in Europe, performed the like experiment in America. The object of the French philosophers was merely to obtain by those means electrical sparks or flashes of fire; but it is to Dr. Franklin that the world is indebted for the idea of raising pointed rods in order to secure buildings from the effects of atmospheric electricity, and the recommendation was immediately adopted both for edifices on land and ships on the water. Soon after the first employment of conductors in Europe, an opinion prevailed that when their extremities were pointed they created a danger which did not exist before, and that they attracted lightnings which would, without the rods, have discharged themselves at a distance; and in order to diminish the risk, it was proposed to crown the summits of the rods with knobs or balls of metal. This notion was entertained by the Abbé Nollet, in France. In the Royal Society of London the question concerning the relative efficacies of pointed and knobbed conductors was agitated with great vehemence, chiefly through the obstinacy of Wilson, one of the Fellows, who, in 1778, made himself the head of a party in support of the latter kind of conductors, in opposition to the president. It is remarkable that both George III. of England and Frederick of Prussia placed themselves on the side of the opponents of Franklin; the first king giving the preference to balls over points, and the other, while he consented to have conductors raised on his barracks and powder magazines, prohibited the erection of them on his palace of Sans Souci. It is now admitted that the prejudice against pointed rods was entirely without foundation: those conductors have been found not only to protect buildings when struck, but also to diminish the number of shocks which in a given time they have experienced. An experiment which was made by Beccaria, in 1753, might have shown the superiority of pointed conductors over those with balls; for that distinguished electrician set up on the roof of the church of San Giovanni, at Turin, a metallic rod bent near the top and terminating in a point; the upper part was capable of being turned round by means of a silk line, so that the point could be directed upwards or downwards at pleasure, and the lower part of the rod terminated upon substances which were imperfect conductors of electricity. On directing the point towards the sky when a thunder-cloud passed over the church, electrical sparks issued in abundance from the foot of the rod; but when the point of the rod was reversed so that the bend was upwards, few or none were obtained. The conducting-rod set up by Professor Richman, at St. Petersburg, may be said to have been the cause of his death (in 1753); but the house would most probably have been struck if there had been no conductor. The immediate cause of the melancholy accident was that the rod led into the apartment, and the unfortunate professor was standing too near its lower extremity.

NOTES AND COMMENTS.

THE annual report of the medical officer of health for the City of London is always an important document. The City is now expected to atone for the past by giving such attention to sanitation as will be a guide and an encouragement to other municipalities. During the past year there was no incident to disturb the public mind, and the number of cases of infectious disease was the smallest recorded. Baths have been provided for the tenants of the artisans' dwellings in Houndsditch, and during eight months they were used upwards of 7,000 times. The valuation of the City is over 5,000,000*l.*, and with so large an amount of taxable property the City authorities should be able to undertake many sanitary improvements. It is curious that stables are to be found not only in the basements of buildings, but upstairs on first floors. They are all well kept, and the horses seem to be in excellent condition. There are thirty-six bakehouses in the City, twenty-seven being underground. During the year 203 inspections were made, and with four exceptions there was conformity to the standard required by the Act. Greater attention is given to the kitchens of restaurants, and 706 defects were remedied last year. Dr. COLLINGRIDGE has an arduous task, but it is evident that his labours are producing satisfactory results, although the Courts in some cases have not given the support that was desirable to sanitary proposals.

THE loss of Baron ALPHONSE DE ROTHSCHILD will be sincerely regretted by many classes of people in France, for, apart from the services he was able to render the country of which he was a naturalised citizen as a monarch of the world of finance, he was, as an individual, a benefactor to people of various classes. Artists especially must think of him with gratitude. The majority of patrons are intermittent in their purchases of pictures or statues, but with Baron ALPHONSE DE ROTHSCHILD the acquisition of pictures was conducted with as much system as directed his other duties. Every year he made it a rule to buy several works from the two Salons. He used as much discrimination as if he were engaged in speculation, but as a rule he gave the preference to works by young artists in which there were indications of genuine ability. His purchases were all made over to provincial galleries, and consequently proofs of his generosity and discernment are to be seen in all parts of France. His interest in art afforded him one of the chief pleasures of his life. He was a member of the Académie des Beaux-Arts since 1866, and he was one of the most assiduous of the Academicians at the periodical meetings.

WHEN it was lately announced that M. PAUL DUBOIS had resigned the direction of the Ecole des Beaux-Arts, and was to be succeeded by M. BONNAT, French artists and amateurs quickly concluded that the sculptor must have been seriously ill. M. PAUL DUBOIS was so well fitted by nature and training for his position, he would not have abandoned it unless he was convinced that he could no longer do justice to the students. The news of his death will therefore cause general regret in France. He was of the old school of artists, and was never happier than when at work in his atelier. He was born in 1829, and studied under TOUSSAINT. It was not until 1858 that he was admitted as pupil in the school which he directed till a few weeks ago. It was in 1863 he exhibited in the Salon the charming statue of *St. John the Baptist as a Child*, which at once captivated all visitors. It might be said that his figure of the Precursor and M. RODIN's are at the two extremities of the modern scale of sculpture. Two years afterwards his *Florentine Singer* appeared, and was immediately popularised. His masterpiece is the tomb of General LAMORICIERE in the cathedral of Nantes. The soldier made his reputation in Algiers, but he did

not accept Imperialism, and his defeat as commander of the Papal Zouaves made the end of his life a martyrdom. Statues of Charity, Meditation and Faith, as well as one of Courage, are placed near his reclining figure. He also produced an equestrian statue of JOAN OF ARC now at Rheims, and a noble figure of MONTMORENCY, which is at Chantilly. His paintings are so excellent, there can be no doubt that if he devoted himself to that branch of art, he would be no less successful than in sculpture.

FROM what is reported by one of the Consuls of the United States in China, the people are not in favour of the erection of large factories like those which are common in Japan. The "fung shuey" or doctrine of the "wind spirit" and "good luck" has a direct bearing upon the situation. It is believed that tall smoke stacks and high buildings interfere with this "wind spirit" and bring bad luck, and it is safe to say that no ordinary attractions of investments will lead the average Chinese business man into doing anything to conflict with his belief. The Consul suggests the use of gas-engines, and Stockport would, no doubt, be able to supply them. The majority of the mills which exist in the country were erected by the aid of British capital. It is anticipated that when the Japanese are able to turn their attention from war they will endeavour to demonstrate the advantages of the factory system under different conditions.

IN 1903 an exhibition of old miniatures was held by the Royal Hibernian Academy in Dublin. About a hundred examples were shown. Regret has been expressed that no illustrated record was prepared before the dispersal of the collection. Sir THOMAS DREW says that an Hibernian Academy issue of about forty illustrations by collotype process selected from that exhibition is now practicable. As another collection is unhoped for it has been suggested that some other owners of Irish miniatures might be considerate enough to offer them for addition to the forty examples ready for publication. It is very desirable that more examples of such fine Irish artists as COMERFORD, the HONES, CHINNERY, COOKE, ROBERTSON, ROACH, O'REILLY, LAMONTS, J. PETRIE, BURTON, and of fifty or more with names in the old catalogues, should be revived memories. The same care as before would await miniatures entrusted to Sir T. DREW, and with no contingent risks of public exhibition.

ILLUSTRATIONS.

ADMINISTRATIVE BLOCK OF NEW INFIRMARY, SHEFFIELD.

LODGE AND COTTAGES, OVERBURY, WORCESTER.

MAGISTRATES' ROOM, COUNTY SESSIONS HOUSE, PRESTON.

CATHEDRAL SERIES.—ST. ASAPH: THE ALTAR.

THE difference between the chancel of St. Asaph's Cathedral at the time when Sir GILBERT SCOTT undertook the restoration of the building and that which is now seen is very remarkable. In 1780 there was a renovation of that part, and plaster vaulting and a wonderful cornice were supposed to impart new beauty to the most important part of the structure. There were massive pews on both sides which were continued into the nave. The fine east window was filled with tracery of a nondescript character. Sir G. SCOTT made a resolute change, and although some may lament the loss of details which might have been designed by a village carpenter, the chancel is now more suggestive of a building which has had so long a history. The windows are memorials of Bishop HUGHES, Dean BONNOR, who was the moving spirit in the restoration, and Mrs. HEMANS, the poetess. The roof is of oak panelling, and the pavement is of tiles and Anglesey marble. The reredos is of alabaster and represents the procession to Calvary, and the altar is of carved oak.

ARCHITECTURE AND ITS PLACE IN A
LIBERAL EDUCATION.*

PART I.

ARCHITECTURE: SHOWING ITS CONNECTION WITH HISTORY.

THE connection between architecture and the humanities is one of the most entrancing and interesting of subjects, inasmuch as throughout the ages architecture has been the mirror of the history of each period, and has been an index of the social and political condition of the people, swayed by those great religious and historical events which serve as landmarks in the history of mankind. As we glance along the perspective of past ages we can find in the buildings of each period a lithic history which tells us of conditions of existence perhaps more truthfully than those written by men in more perishable materials. Architecture then may be said to be inseparable from and the result of history, because the work of man in each period is before us as we look upon the mighty structures of past civilisations. By studying the book of architecture we can tell of the condition, hopes, fears and the very thoughts of the peoples of bygone days as certainly, if not more surely, than by the contemporary written chronicles of each period.

One of the surest tests of civilisation is to be found in architecture, which presents so noble a field for the display of the grand and the beautiful, and which at the same time is so intimately connected with the essentials of life. The painter and the sculptor may display their individual genius in creations of surpassing excellence, but it is the great monuments of architectural taste and magnificence that are stamped in a peculiar manner by the genius of the nation. The Greek, the Egyptian, the Saracen, the Mediævalist, what a key do their respective styles afford to the character and condition of the people.

Prehistoric.—In prehistoric days man in his savage state required but shelter from the elements, wild beasts and human enemies. This he obtained by means of the natural cave, the huts of twigs and "wattle and daub," or the tent of the nomad; and the period between that far-off time and the earliest historic architecture has not yet been bridged by any discovered evolution of form. Architectural history can be divided into two main groups, viz. historical and non-historical.

Let us take the former, which mainly comprises Egyptian, Assyrian and European architecture, and see what it tells us of history, leaving aside the second group, which includes Indian, Chinese, Japanese, Peruvian, Mexican and Saracenic, as these have only exerted a limited influence on European architecture.

Egyptian.—In Egypt we find about 5000 B.C. the first great attempt at permanent constructions. Appropriately is the Sphinx at Ghizeh placed as a sentinel forbidding us, as it were, to know by what long stages of evolution has historic architecture come to life. The Pyramids, built nearly 4000 B.C., represent the governing idea of the Egyptian faith, viz. that immortality could be insured by the preservation of the mummy, secured in such everlasting mounds of masonry, the secret of whose construction even in these days of engineering skill is a wonder to the world. The strong belief in a future state, the powerful priesthood, the significance of the traditional, unchangeable and mysterious religious rites are what we glean from the pyramids, mastabas and rock-cut temples, such as that at Abou-Simbel. Herodotus informs us that the dwelling-house was regarded as a temporary lodging, the tomb being the permanent abode. The temples, their entrances made imposing by splendid avenues of sphinxes, in their mysterious planning, forbidding aspect, as Edfu, and painted hieroglyphics, tell us of the exclusiveness of the Egyptian religion, for they were not places of worship for the people, but rather sanctuaries for the kings and the powerful priesthood.

But these massive buildings would have been impossible without a despotic government and the forced labour of a vast and submissive population of slaves and captive foreigners, probably receiving no other pay than their food.

Western Asiatic.—The architecture of Western Asia tells us that the Assyrians and Persians were a nation of warriors, to whom warlike deeds or the conquest of surrounding countries were more congenial than the erection of stupendous tomb houses. Temples are wanting, sacrifices being conducted in the open air, but the thousands of prisoners taken in battle were employed in raising those

enormous mounds or elevated platforms on which the palaces of Nineveh, Nimroud, Khorsabad, Susa and Persepolis were constructed, a small space being reserved for those temple observatories, in receding coloured stages, from which the astrologer priests could consult the starry vault of the heavens.

Greek.—The architecture of Greece reflects the history of each period with remarkable accuracy, rising to its fully developed artistic height after the battles of Marathon and Salamis, for the national exultation of the Greeks caused by the defeat of the Persians was accountable for the fact that all the more important temples now found in Greece were built in the "fifty years" which succeeded the overthrow of their enemies.

In the Pelasgic and Mycenaean periods the buildings, as shown in the Lion's Gateway at Mycenæ, indicate the ruggedness and severity of the earlier inhabitants, but the Hellenic period introduces us to the most cultured architecture the world has ever seen, which has been a pattern to and has exerted an influence on all subsequent art, so much so that Greece must be regarded as the primary source of the best artistic inspiration, corresponding in a marked degree with her literary pre-eminence. In a climate remarkable for the clearness of its atmosphere, and in a country rich with marble—the most beautiful and monumental of all building materials—the Greeks evolved a type of architecture whose purity of outline and perfection of proportion has never been equalled. National games and religious festivals united them in reverence for their religion, inculcated a desire to erect stately temples, and gave them that love for music, the drama and literature, and that emulation in manly sports and contests which distinguished the race. The most famous and the most refined Greek structures, e.g. the Parthenon, were erected during the rule of the great Athenian Pericles (B.C. 444-29), marking the climax of Athenian prosperity, art and culture, and reflected in those world-famous structures on the Athenian Acropolis. In these the most delicate optical refinements were introduced, and the most perfect and refined sculpture executed during the history of mankind, e.g. the Panathenaic frieze, was employed in their adornment.

The principal Greek buildings are the temples, e.g. the Erechtheion, and these are directly in contrast to those of Egypt in being public as opposed to royal monuments. Instead of the high enclosing wall and mysterious halls of the priest-ridden Egyptian we find the small "cella" for the statue of the god, while on the exterior is lavished all the beauty of column, entablature, sculptured metope, frieze and pediment, brightly treated in many colours. The open-air unroofed theatres, e.g. Epidaurus, in which the plays of the great Athenian dramatists were produced, and the stadia and palæstra, with their lecture recesses, are the practical evidences of the Grecian love for the drama, philosophy and outdoor sports.

The power of Macedonia was paramount owing to Philip and his son Alexander the Great, and the latter in B.C. 334 set out on his great expedition for subduing Egypt, Persia and Northern India. His stay in these countries and the consequent introduction of Hellenic civilisation far and wide throughout Asia is made manifest in the architecture of Northern India, which is specially remarkable for its Grecian purity and for the influence it exerted on subsequent Saracenic styles of art, which a thousand years later were to spring up there.

In B.C. 146 Greece became a Roman province, and her architecture, truthful as ever, died with her as a national style, although, like her civilisation, it continued for a long period to exert an influence upon Roman art.

Roman.—The latter then displaced that of Greece, as did Roman civilisation, and we pass from the simple trabeated style to a complex type of arch, vault and beam, e.g. the tepidarium of the Baths of Caracalla. Roman development was influenced largely by the older Etruscan civilisation of Central Italy, so that in Roman architecture we find the blending of the beam of the Greeks with the arch of the Etruscans. The character and the history of the Romans is well shown in their architecture and the number and variety of their buildings. Temples, e.g. Maison Carrée, Nîmes, were still erected, but of a different type, this being rendered necessary as much for the protection of accumulated Greek spoils than as for Divine worship. In addition to the stately temple, finished and adorned with the finest sculpture, we now find buildings designed for many purposes and of complicated construction. Stately palaces laid out on an immense scale tell us

* A lecture by Mr. Banister Fletcher, delivered before the University Extension Guild at Kensington Town Hall.

of the magnificence and luxury of the Roman court, and the superbly decorated private houses of Rome and Pompeii, e.g. House of the Tragic Poet, of the important character of the "patria potestas," the basis of Roman law. The Roman love of justice is also petrified in their numerous basilicas or courts of law, while their theatres, e.g. Orange, indicate quite a different idea of the drama and its representation from that of the Greeks. The great thermæ, e.g. the frigidarium, Baths of Caracalla, of the later empire indicate the indolence and love of luxury which led to the final decline and fall of the empire, while the amphitheatres, e.g. Pompeii, and the circuses were the natural results of that love for the brutal sports between men and wild beasts, and that coarseness, yet boldness of character, which enabled the Romans to bring the whole of the then known world under their domination. The triumphal arches, e.g. Arch of Septimius Severus, form the permanent expression of Roman power and dominion, and are to be met with in various parts of Europe. The conquering legions of Rome during periods of peace were utilised as unskilled workmen in the formation of the great Roman roads throughout Europe. Further, by the universal use of a new material, viz. concrete, and the employment of the arch, vault and dome, the original architecture of imperial Rome was reproduced in all parts of the empire. Thus the Roman style of building, ever the faithful mirror of Roman civilisation, has been the foundation of all later European architecture.

The Augustan age of literature synchronises with the most magnificent period of Roman art, which enabled Augustus to say that, although he had found Rome of brick, he would leave it of marble.

But a climax was at hand—the end of a great chapter of the art—and Roman architecture and civilisation were displaced with the fall of the Roman Empire.

The new force in the world's history was Christianity, and as all roads led to Rome the very highways which formed the connecting links of the empire could be used for the propagation of the new faith. As Tennyson has said:—

A fuller light illumined all,
A breeze throughout the garden swept.

Early Christian.—In Rome the new religion resulted in the construction of over thirty churches of the Basilican type, e.g. S. Lorenzo fuori le Mura, which was preferred by the early Christians for many reasons, too numerous even to touch upon here. But the new faith was long in developing, and the churches indicate that slow development by the continued use of pagan Roman architectural features and arrangements, slowly modified by degrees to meet the requirements of the new religion.

Byzantine.—Another most important factor was the transference of the capital to Byzantium or Constantinople, resulting in a new style known as Byzantine. Away from the influence of old Rome, the architecture of "New Rome" developed features which were undoubtedly of Eastern origin, although carried out largely by Greek workmen, and of these the dome on pendentives, e.g. St. Mark, Venice, was the most important. This style reached its culmination in S. Sophia, Constantinople, and became the official architecture of the Eastern or Greek Church, which, like the orthodox faith it represents, has been strangely conservative even to the present time.

Romanesque.—How different was the course of architectural development in Western Europe, and how faithful to the changes and development of the Romish Church throughout the Middle Ages. Outside Italy architecture was dormant during the Dark Ages in Europe, for from the break-up of the Western Empire till the time of Charlemagne in the eighth century building was at a standstill. Charlemagne, however, in a great measure restored the arts to Western Europe, and his magnificent tomb house at Aix-la-Chapelle is one of the finest examples of the period. The rise and cohesion of the Gothic nations were a matter of time, and for three centuries (tenth, eleventh and twelfth) cathedrals, of which Durham is a fine example, and churches were erected all over Europe, bearing distinct resemblance to the later Roman architecture, although carried out by the new nations which had been spreading over Europe from the north and east. This is exceedingly interesting, as it shows us how far-reaching and how settled was the Roman civilisation, although the Romans themselves were being driven by the barbarians into their native country.

Till the Western European nations could get out of leading-strings they looked to Rome, but as time went on

they developed their own styles, and the formation of the European States and the religious enthusiasm of the period manifested in the Crusades were most important in giving the necessary impetus to the introduction of the second great type of architecture known as Gothic.

Gothic.—This pointed-arch architecture of the thirteenth, fourteenth and fifteenth centuries in Europe was in great measure an ecclesiastical one, causing the construction of an immense number of important cathedrals, to say nothing of innumerable parish churches. The prominence of the clergy, in consequence of their learning, and the wealth and power of the monastic orders, caused the Church to be the one great avenue for advancement in the Middle Ages, and this, aided by the religious fervour of the times, was responsible for the great outburst of church building at the commencement of the thirteenth century. It is necessary to remember that throughout this period, although militarism was an important factor in the social régime, the builder's art was the great occupation, as the Church was the great profession. The historic development is shown very clearly in these Gothic churches. The priest gives the character of the plain and somewhat ascetic treatment of the Early English or thirteenth-century style—e.g. Westminster Abbey choir; the noble, the more florid treatment of the Decorated period—e.g. Wells Cathedral choir; and the merchant the matter of fact, yet occasional showy character of the fifteenth century—e.g. Winchester Cathedral nave—characteristics which were surprisingly similar in all the countries of Europe.

Gothic cathedrals are very faithful exponents of Mediæval civilisation and Church history. Their place in the national life was all important, for in the absence of printed matter they formed the history books of the period, their sculptures, e.g. Chartres south doorway, and beautiful stained-glass windows, e.g. Bristol Cathedral, reflecting the incidents of Bible history from the Creation to the Redemption, and forming also the grand chronicle of secular history in which kings and nobles, knights and commoners were represented. They took the place now occupied by the school, free library, museum and picture gallery. The worship of relics of local saints—as St. Thomas at Canterbury—the periodical pilgrimages, the introduction of Mariolatry, the necessity of aisles for processional purposes, the introduction of chantry chapels for masses for the dead, e.g. Winchester, Bishop Waynflete's chantry, and other changes of ritual had their influence on church plans and ornamentation.

Another important cause for the extraordinary size and beauty of the Mediæval cathedral was the concentration of the artistic energy of the period on these works instead of being frittered away, as so often happens nowadays, on a variety of buildings.

Mediæval architecture was an evolution of the Romanesque style, and was an architecture of stones in small pieces representing the disintegrated state of European society, instead of the universal concrete of the Romans, thus symbolising in a remarkable way the breaking-up of the Roman Empire into small independent States. The Gothic masons heaped up their small stones in towers that rose on open archways through the lofty roofs of the surrounding naves, and pointing heavenward tapered away in shell-like spires, e.g. Norwich, embroidered in a fretwork of elaborate tracery.

The fortified and frowning castles of the nobles form an eloquent though silent testimony to the feudal system of the Mediæval period and the militarism of which they are the expression, and are exemplified in the cathedrals and castles already mentioned.

Gothic architecture closed with the Mediæval period at the commencement of the fifteenth century in Italy and the sixteenth century in the rest of Europe. It had, like the Mediæval civilisation, run its course, and it was overturned by a succession of historical events which in the succeeding centuries were to alter the face of Europe.

Renaissance.—Looking backward we can see the influences which were slowly paving the way for that great upheaval of art and literature known as the Renaissance, and which, aided by national enthusiasm and the uncovering of Classic buildings which had been buried for centuries, endeavoured, like a bow unstrung, to revert to the old Roman magnificence and ascendancy.

As we should expect, the return to Classic ideals naturally commenced in Italy, and the way for it was paved by the writings of Dante, Petrarch, Boccaccio, and later still Erasmus, who helped to crystallise the revolt against Mediæval thought and art. This was also aided by the newly-discovered MSS. of Greek and Latin authors, of

which the books of architecture of Vitruvius—who lived in the time of Augustus—were most important. Especially was this so in Florence, due in large measure to its commercial prosperity and the enlightenment of the Medici family, and in Italy generally, where Mediæval art had never felt at home in the same sense as in Northern Europe.

But other causes—such as the invention of printing, which aided the spirit of inquiry and diffusion of thought; the discovery of gunpowder, which changed the whole method of warfare; and the mariner's compass, which led to the discovery of the New World—were important factors in the propagation of that freedom of thought and action which characterises the period. One great historical event, viz. the capture of Constantinople by the Turks in 1453, and the consequent influx of Greek scholars and artists to Europe, had an important influence in an age ripe for an intellectual change, and in which it became for a time the fashion to talk in Latin—an evidence of the close connection between the architecture and literature of this period.

But all these influences might have been futile if they had not been sown on fruitful ground, and in a period when such decorative artists as Della Robbia, Ghiberti, Brunelleschi, Alberti, Donatello, Bramante, Peruzzi, Sangallo, Raphael, Vignola, Michel Angelo, Sansovino, the Lombardi, Palladio, and a host of others were as giants in the land. In the Lives of the Architects by Vasari, we learn of the personal influence exercised by the architects and artists on the arts and crafts of the Renaissance period. The character of the architecture as represented in the new churches, e.g. St. Peter, Rome, and the palaces, e.g. the Cortile of the Palazzo della Cancelleria, Rome, and the Palazzo Vendramini, Venice, faithfully reflects all these great changes in favour of the ancient Roman traditions, by the banishment of the Gothic pointed arch, intersecting vault and vertical features, and the employment in a modified form of the Roman orders of architecture, clothing plans derived from the Roman circular dome supported on a square base by means of the Byzantine pendentive.

France, England, Germany, Spain and North-western Europe felt this wave of Roman rejuvenation, though the effect on each country was delayed by the distance from the fountain-head and influenced by various social and political events.

In France, rich with the most splendid piles of Gothic architecture, the new style did not entirely displace the old, but was grafted upon it in a most delightful and picturesque fashion, being mainly utilised in the palaces of the kings and the hôtels de ville and large country houses of the nobility. Amongst examples of these the Louvre, Paris, and Azay-le-Rideau are interesting specimens. The immense number of churches of the Middle Ages long sufficed for the spiritual needs of the people. We cannot justly trace the influence upon France by Italy, unless we take note of the invasions of the latter country by Charles VIII. (1494) and Francis I. in vindication of their claims to the thrones of Naples and Milan, because their return marks the distribution over Europe of Italian artists and workmen such as Leonardo da Vinci, Cellini, Serlio, Vignola, Rosso, Primaticcio, and others who followed in their train.

Many historical events, such as the meeting of Henry VIII. with the French king on the Field of the Cloth of Gold, and the return to England of Italian and French architects, paved the way for the Renaissance in England, which synchronised with the Reformation; while the suppression of monasteries in 1536 caused the diffusion of vast revenues which were distributed amongst the courtiers of Henry VIII. This led to the erection of residences for the new courtiers, e.g. Wolsey's palace at Hampton Court, displacing the obsolete castles of the old nobility destroyed in the Wars of the Roses, and the erection and endowment of grammar schools and colleges which played an important part in the movement, and paved the way for the great literary activity of the Elizabethan era, rendered famous by the writings of Spenser, Shakespeare, Burleigh, and Sir Philip Sidney.

The Elizabethan period, when church building was at a standstill, is notable for the influx of Flemish and German workmen and the immigration of Huguenot craftsmen, due to the massacre of St. Bartholomew in 1572, and is remarkable for its numerous domestic mansions, e.g. Wollaton Hall, the design of which was influenced very largely by this immigration. The newly revived Classical details were used with such caution and delayed by such conservatism, as we should expect of the English character, and the buildings possess many special features—such as

the great hall, e.g. Hatfield; long gallery, e.g. Hatfield; broad staircase, e.g. Blickling Hall; and large mullioned windows, all inherited from the previous periods. The mansions are generally found in a perfect setting formed by the beautiful formal gardens, e.g. Montacute, indicative of the Englishman's love of country life, and are designed on generous lines illustrating the scale of hospitality which obtained in the spacious times of Queen Elizabeth.

The Jacobean architecture felt more strongly the Classical influence, which was not, however, introduced in its purer state till the time of Inigo Jones, e.g. Banqueting Hall, Whitehall, and Wren in the latter half of the seventeenth century, e.g. St. Paul's, London.

At this period many churches were erected in London for the Protestant religion which gave prominence to preaching, thus bringing in galleries and congregational planning in the place of the long drawn processional aisles of the Mediæval period.

In Germany and North-west Europe the Reformation—supported by Martin Luther (1517-46)—accompanied or rather preceded a fresh building era, but with the exception of the period of Charles V., the existence of a number of independent petty states sometimes at war with each other, and each having its own government and capital, prevented any national effort, as in France. On the other hand, ecclesiastical, commercial and municipal buildings tell of the flourishing condition of this part of Europe.

Spain, powerful, owing to her discoveries and vast possessions in the New World, and untouched by the Reformation, was always influenced by the Moorish style of the southern provinces, and even the fall of Granada in 1492, which marks her consolidation and the beginning of the Spanish Renaissance, did not remove the influence of Moorish craftsmen, who gave a special ornamental character of richness, intricacy and refinement to the Renaissance architecture of the country.

Architecture was traditional generally till the nineteenth century, which constitutes the age of revivals of all styles, brought about by numerous causes, not the least being the facility of travel, the ease of illustration and the break-up of traditional schools of craftsmen. Still architecture continues to be a reflection of the thought of the day, of the social needs and aspirations of the people, and an index of the civilising forces at work. Such may be seen in the erection of novel types of buildings—museums, Board schools, public libraries, public markets, hospitals, swimming-baths, drill-halls, colleges, picture and art galleries and scientific and benevolent institutions. It is scarcely possible that architecture may resist all revivals and fashions and develop again into a systematised style, because architects having eaten of the tree of knowledge of all past periods will continue to be swayed as regards mere decorative forms by passing fancies helped by literature and accentuated by sentiment.

I have endeavoured to show that the historical study of architecture has principles and special evidences of its own that enable one to interpret the moral, artistic and religious character of humanity, and that a special insight into the profoundest characteristics of a people is to be obtained by a study of the remains of their buildings, so that the thoughts, habits and instincts of the times are clearly laid bare to us without the possibility of deception, such as is the case by the writings of an inaccurate historian.

(To be concluded.)

EARTHQUAKE-PROOF BUILDINGS.

THE following from Mr. J. H. Stephens appears in *Indian Engineering*:—There has been a good deal said about the late earthquake in all the papers, and its effects on buildings. Its effects on all descriptions of buildings seem to have been disastrous, but more particularly so on those of a more solid character. The rules of the storms seem to apply to earthquakes. The bending willow escapes, whereas the unyielding oak is taken up by the roots. Whether the earthquake be volcanic or tectonic, the effect on buildings seems to be very much the same. Also it is no respecter of persons. It enters palaces and huts and damages both, showing its powers more forcibly on the larger rather than on the smaller constructions. If houses in India could be built in wood they would suffer less by earthquakes. If of rubber or other elastic material they would probably not suffer at all. But what if we could rest the foundations of our buildings on a cushion of

rubber, water, or sand? Would the shock of the earthquake be less?

It has been found that when a building rests on a bed of clay it is liable to continual motion. In the wet weather the clay expands and the building is raised upwards. In the hot weather the clay contracts and the building is lowered. The result is that such buildings, however well constructed, are very much cracked. The clay bed seems to have lines of least resistance, which can be traced for miles in the hot season by open fissures in the surface of the earth. Where a building intercepts such a fissure in the surface of the clay bed there is a large crack in the walls and roof of the building. However good the quality of the construction, nothing can save the building from cracking, and the opening is invariably in line with the cleavage in the bed of clay. In a town like Madras, where houses are pretty near to each other, and the line of cleavage in the clay cannot be traced, it is yet found that buildings on a clay subsoil, however substantially built, invariably show cracks in the walls as the seasons change from hot to dry, and in some cases that the walls also take a slight tilt to one side. This has been going on to my knowledge in several very fine houses in Madras for about twenty-five years without any other harm or danger to the houses. This is due entirely to movement in the clay subsoil.

To counteract this movement in building on clay subsoils in Madras, Mr. Chisholm, Mr. Irwin and myself always went down to permanent moisture in the clay subsoil, filled the trench with 2 or 3 feet of compressed sand, and started our foundations on this sandy bed. Such building, though erected on clay and subjected to all the variations of expansion and contraction in the clay subsoil, yet never cracked. Is this due to the cushion of sand below the foundations? If a cushion of sand can protect a building from the motion due to the contraction and expansion of the subsoil, can it also, in a certain degree, protect a building from the motion due to an earthquake? Do you not think that the matter is worth experimenting on? In Calcutta and in the North generally, where earthquakes have already done so much damage, I am not aware that any attempt has been made to protect buildings or to do anything to mitigate the evil. It is hopeless perhaps to do anything to existing buildings. But I understand that large building schemes are in the air, especially the grand Victoria Memorial. Can nothing be done to protect these? A good cushion of sand has been frequently tried down South, and has resisted the motion in the subsoil caused by expansion and contraction. It is true that this motion is slow compared to the motion in the subsoil caused by an earthquake, but what has done complete good in one case may do a little good in the other. At any rate, it ought to be worth experimenting on. There may be ways of using this or any other material by which half the shock of an earthquake may be averted.

I would like to see this matter fully discussed in your Journal. I do not pretend to know more than others regarding the manner in which an earthquake accomplishes its work of destruction. But after late experiences, I do feel that the whole profession should assert itself, and bring all its varied experience in the past to fight the powers of the earthquake. And if every engineer and practical scientist does his little best in this direction, I am sure that we will succeed. Vibrations in the air, caused by the firing of heavy guns, and its destructive effects on buildings, can be, and have been, in one case, effectively stopped, and similarly, vibration in the subsoil, possibly, can be stopped so far as it effects a building.

MODERN LIGHTNING CONDUCTORS.*

IT has been pointed out by Sir Oliver Lodge that lightning discharges are of two distinct characters, which he has named the A and B flashes respectively. The A flash is of the simple type which arises when an electrically charged cloud approaches the surface of the earth without an intermediate cloud intervening, and under these conditions the ordinary type of lightning conductor acts in two ways: first, by silent discharge; and secondly, by absorbing the energy of a disruptive discharge. In the second type, B, where another cloud intervenes between the cloud carrying the primary charge and the earth, the two clouds practically form a condenser; and when a discharge takes

place from the first into the second, the free charge on the earth side of the lower cloud is suddenly relieved, and the disruptive discharge from the latter to the earth takes such an erratic course that no series of lightning conductors of the hitherto recognised type suffice to protect the building.

On May 28, 1904, a demonstration of the action of A and B flashes respectively was given by Sir Oliver Lodge before members of the committee and others interested in these researches. A thin sheet of metal mounted on non-conducting standards represented the cloud, which was charged at will from a Leyden jar. The "cloud" was so arranged that the model lightning conductors could have their points brought nearer to or further from its under-surface by shifting their positions on the table. Conductors of copper, iron and wet string were experimented with. The disruptive discharge to the copper proved to be by far the loudest and most intense of the three. The iron took the flash with less noise, the wet string with hardly any, yet when the discharge passed through it the other and apparently better conductors were not affected. The experiments tended to demonstrate that iron is in many situations a very useful material for lightning rods, as the effective energy of a flash of lightning is rapidly dissipated in iron. This metal, however, unfortunately oxidises rapidly in towns and smoky districts, and the use of copper is still recommended for main conductors in relatively inaccessible positions as a material for lightning rods.

In Germany two kinds of strokes have been recognised for some time, one as Zündender ("fire causing"), probably analogous to what Sir Oliver Lodge terms the B stroke, while the other, known under the name of Kalten ("not causing fire"), is the ordinary A flash.

The committee [of the Royal Institute of British Architects and the Surveyors' Institution] remark that it is probable that, with few exceptions, buildings in this country are not in reality efficiently protected against the effects of a B flash, although in many cases the lightning conductors may be said to have at least partially fulfilled their purpose by carrying off the more violent portion of a discharge, and without them greater damage would have occurred in many of the cases reported.

Some of these observations throw a very interesting light on the effects due to the oscillatory character of lightning discharges. For instance, a discharge takes place over a lightning rod which may be in contact with, or approach closely to, the metallic portions of a roof. Powerful electrical oscillations are set up in the latter conductors, and dangerously high electrical pressure may be generated on the distant ends of these conductors. If at these points they were connected to earth the pressure would be relieved and the discharge harmlessly dissipated. Without this safe path the discharge may break away into the down pipes, or may pierce the roof to reach internal conductors. Cases which appear to indicate successive or simultaneous flashes may be due to a single flash setting up these oscillations.

In some cases the damage done to a building by an A flash is not necessarily due to the primary discharge. A lateral discharge occasionally occurs, which frequently causes minor, though in some cases serious damage, owing to falling materials.

Many of the reports of damage to unprotected buildings show that the lightning discharge followed the path of wire ropes, metallic pipes and other conductors, and that the damage to the structure occurred at the breaks in continuity at the upper and lower terminals respectively.

It may be considered that a lightning conductor of the ordinary type, if properly constructed, affords an undefined area of protection against A flashes, but it cannot be said to have any protective area against B flashes.

Absolute protection of the whole of a building could only be assured by enclosing the whole structure in a system of wirework—a contrivance, in fact, of the nature of a bird-cage. This should be well connected at various points to earth, as nearly all buildings have gas and water pipes and other metallic conductors in their interiors which are likewise earthed. For structures intended for the manufacture or storage of gunpowder and other explosives, the adoption of this bird-cage protection would be justified on the score alone of public safety. Architectural considerations prevent the adoption of such a method in its entirety for ordinary buildings. There is no doubt, however, that practically perfect protection may be assured by a judicious modification of the existing practice of erecting single lightning rods, especially in the case of extensive and lofty buildings that project well above surrounding structures, or that stand isolated in the open country.

* From a paper read by Mr. Killingworth Hedges, M. Inst. C.E., hon. secretary of the Lightning Research Committee, at a meeting of the Society of Arts on May 24.

The characteristics of a flash of lightning which more particularly concern us are:—(1) Surging, that is due to the oscillatory character of the spark, which, unlike the currents employed for conveying electricity to a distance for lighting cities or driving tramcars, is a disruptive discharge, sudden and violent, more like the blow of a hammer; (2) self-induction, a property which gives rise to counter force or choking effect, noticeable in straight wires, but which is much more pronounced in coils of wire; (3) side flash, the result of self-induction. A disruptive discharge will often leave what would ordinarily be called an excellent conductor and side flash through the air to other much worse conductors; for instance, the lightning rod may be struck, but instead of following the course provided, a side flash may select its own path through a wall of brick or stone to a neighbouring gas-pipe or bell-wire. The often-quoted example of this danger is the accident at All Saints Church, Nottingham, about 1870, when the discharge passed from the lightning conductor through a solid wall of masonry, $4\frac{1}{2}$ feet thick, to a gas-pipe. A photograph appeared in one of the magazines a short time ago showing about twenty oxen lying dead along the line of an iron-wire fence, thus practically illustrating the surging effect of a lightning flash which may cause great damage. That these cattle were killed by a side flash from the line of the fence may be inferred from an incident mentioned at the discussion on lightning conductors before the British Association in 1888. A number of horses placed in a row were struck, the first and last of the row being killed and the others not touched by a lightning discharge.

Unquestionably, wire fences as now constructed serve as death-traps to cattle in many countries. The director of the Iowa, U.S.A., Weather Service, in September, 1898, says:—"These reports show that of the 256 head of livestock killed by lightning, 118 were found in close contact with wire fences, and also that as there were no ground wires to the fences, over 44 per cent. of the losses were caused by contact with the wire charged by a lightning stroke which struck the fence at a considerable distance from the point where the stock was killed."

A later report mentions that a number of deaths have occurred to persons who have been, during a thunderstorm, placing or removing clothes from the wire which takes the place of the clothes-line in the Western States.

The principal causes of the failure of the usual style of lightning rod, as fitted on the buildings investigated, appear to be due to the following:—(1) Insufficient number of conductor and earth connections; (2) the absence of any system of connecting the metallic portions of the buildings to the lightning conductor, especially the interconnection of the finials, rain-water pipes and gutters. In the author's opinion the frequent damage by side flash from the conductors might be lessened by running a horizontal conductor along the ridge or along the parapets of all the roofs, somewhat after the method which is almost universally adopted in Central Europe.

The lightning strokes may be divided into three classes:—(1) Those where the conductor conveyed a portion of the flash to earth, but the side flash to other unearthened metallic conductors damaged the building; the practice of running the conductor round the projecting masonry, often taking sharp bends, doubtless facilitated the deviation of the current from its direct path to the earth; (2) in several observations a metallic roof of large area received the flash, consequently became highly charged, and the single conductor failed to convey the whole of the stroke, a portion of which took a circuitous path, for instance, through a speaking tube and an electric-bell wire; (3) a flash struck the building at two points simultaneously, a lightning conductor taking one part of the stroke, but damage was caused by the other portion selecting an unprotected part of the roof.

Modern Lightning Conductors.

To carry out the recommendations of Sir Oliver Lodge, who, in his paper read before the Institution of Electrical Engineers in 1889, stated that "sharp bends and roundabout paths to earth should be avoided, and that a lightning conductor detached from a building is safer than one in close contact to it," the author has designed special clamps or hold-fasts, which project from the wall or position where the conductors are run and hold them away from the same, and facilitate the cable being strained so as to avoid the projecting masonry. The conductor is then firmly held by a special grip at the end of the clamp, which only requires one screw. The joints used in the system in order to secure perfect conductivity are made by pouring solder or

pot-metal over the loosely spliced, previously tinned conductors, which are laid in a box that can be used either for two, three, or four-way joints. Similarly, if it is required to connect the cable to a plain point, it is either inserted in a socket or in a box which is fitted with a socket to receive it, and molten solder completes the electrical connection.

Elevation rods are made in a similar way. Here are shown three forms for either tape or rope. The multiple points are not screwed in, as the threads deteriorate with age, and they are liable to drop. Therefore they are secured to the centre point by means of the sleeve, which has recesses in which the points are secured, and the box is filled with solder. If required to be packed, the points are kept closed together, and afterwards bent to shape. The continental practice of running a horizontal conductor along the ridges of all the roofs has been adopted by the author in all the important installations he has specified, with the double object of interconnecting the different elevation rods, which are fixed on the higher points, such as the chimney-stacks, and also to offer a good path for the lightning, should, as is often the case, side flash take place. From this conductor smaller wires are taken to the rain-water guttering, which in its turn is connected to the rain-water pipes, and thence to earth. At Westminster Abbey, and on other buildings where the roofs are very long, aigrettes are fixed to the ridges at intervals, the conductors passing through them.

The above is a description of existing practice, but it is quite possible to shield a building in a very different manner by the use of iron wire; a suitable size is seven strands known as a seven ply galvanised cable about $\frac{3}{8}$ inch diameter. Here is some of the material, and as it is very cheap, one may use a lot of it and more nearly approach the ideal "bird-cage" advocated by Clerk Maxwell. If economy is an object, air terminals or elevation rods need not be used; the vertical iron conductor is carried up so as to project above the various chimney-stacks and pinnacles or points, and can be opened out so as to present a number of points. The general appearance of a building protected in this manner is shown by the slide which represents a pumping station and chimney-shaft. In actual practice the wires which form the cage over the building will hardly be noticed from the ground level. The number of barbs shown in the slide can be modified; in fact, where there are many finials, or if there is iron cresting it would only be necessary to have a few points on a horizontal wire which runs along the ridge, and this can be either armoured by twisting round it short pieces of steel wire; the lower legs will keep the conductor away from the roof. A more durable way of holding the conductors is by means of a special device which the author has designed for use in almost every position where stranded wire is employed. You see that it is a triangular, malleable casting, furnished with a spike when used horizontally; the lower legs can be turned over to grip the ridge of the roof or be fastened to the lead flat, and for vertical conductors the same casting does without the spike. A simple and efficient method of joining the cable to the casting is accomplished by a specially designed lead ferrule, which is inserted and closed up by a tool; it can also easily be removed if the system has to be disconnected.

In all cases where rain-water pipes are used as conductors, care must be taken to bond the joints, so as to insure a good electrical connection, that is, if one does not care to risk the cracking of the sockets which form the path of the discharge.

Continental System.

With the exception of Belgium, where the Melsen system of having a network of copper conductors over the buildings, connected at the roof to a number of copper rods made up in bundles of eight and spread out like a feather, is often employed, iron is the material in general use.

In France the standard rod or tige is 6 metres high, the diameter at the base about 0.060 metre, tapering to a sharp point; this rod is firmly connected with the ironwork of the roof, and the iron down conductor is fixed at the base. Usually the tige is connected to the horizontal rod which runs along the ridge or round the eaves, being kept away about 18 inches from the roof. The down conductor is sometimes of stranded iron cable, but more often a solid rod three-quarters of an inch to one inch in diameter, bolted together at the joints.

The earth connection is often made by leading the rod into a well. In one form in use in France surface is obtained by plaiting up galvanised iron strips so as to form

a basket which contains a sort of grapnel attached to the conductor, the basket being filled with coke.

The German rules of the *Electrotechnische Verein* may be summarised as follows:—

"Special attention is drawn to the fact that the conductors of the buildings must be in metallic connection with the earth, and that they ought to go round the building, especially round the top of the roof, and, if possible, on all sides of the roof, and then lead to the ground in the shortest possible way, avoiding all sharp curves. Metallic parts in the building and masses of metal, especially those in contact with the earth and offering large surfaces, are to be connected together as much as possible and to the conductors. In order to decrease the cost, consideration should be given to utilising the pipes upon the building, and all metallic parts should be made use of where possible. Conductors of iron are generally used, and should have a sectional area of not less than 50 square millimetres if interconnected, and not less than 100 square millimetres if unconnected. If the conductors are of copper half these sections is sufficient. All connections to have a metallic contact surface of not less than 10 square centimetres. Conductors must be repeatedly tested."

Many local boards in Prussia insist upon lightning conductors being fitted on public buildings, such as schools, town halls, hospitals and churches. The regulations vary with the different local authorities. In Frankfort the municipality have the following:—

"The erection, alteration and repairs of lightning conductors must be in accordance with the scientific rules now in force. The conductors must be of pure copper, and of not more than seven strands. House-owners must have their lightning conductors examined at least every two years, and an examination is also required in the case of the erection of or alterations or repairs to a lightning conductor which has been struck. Designs and specifications of proposed erections must be submitted to the local board, and for the accuracy of the same the house-owner is responsible."

How to Protect a Building.

Before going into the question of what accessories in the shape of lightning conductors are to be erected, it is necessary to study the disposition of all the external metal-work—the material of the roof, the finials and all ordinary guttering, flushings, rain-water pipes and connections, drain ventilators, telephone, electric and bell wires. Having made a rough plan of these, arrange that the conductors are run from the highest points to earth; but in the case of a church, where the vertical conductors arrive at the main roofs, a horizontal conductor must be placed, so that besides being in connection with those from the tower, it runs along the ridges of the roofs, whence it is connected to all salient ironwork. From it descend other conductors, which are connected to all the guttering and rain-water pipes. In many cases these can be used as down paths to earth, but it is well in the case of a building of considerable area also to run the branch conductors direct from the roof to the earth.

As regards air terminals, it is not absolutely necessary to let these project much above the highest points. If there are many chimneys or spires, each should have a pointed rod, and for a church or other long roof aigrettes fitted to the horizontal conductors which run along the ridge are advisable, in order to discharge the electricity which will accumulate during a storm all over the building and be collected at many points on the roofs.

Earths.—No rule can be given as to the number required; it greatly depends on the nature of the soil. For instance, a church on the top of a hill on hard limestone would require a great many more earth connections than one in a valley. An earth to be of use must be of low resistance; that is, only obtained permanently in moist ground, and if this is not easily obtainable the best way to keep the earth connection damp is to run a small pipe from the nearest rain-water pipe in such a manner that some of the rainfall is diverted directly to the metal plate which forms the earth.

This portion of the lightning rod has hitherto received the least attention mainly because architects and others have drawn their specifications so loosely. Here is an extract from one recently sent me which referred to some large schools:—"The conductor to be connected at base to a copper earth-plate 3 feet by 3 feet and 1-16 thick, buried 6 feet deep in earth at a distance of not less than 8 yards from the wall at base."

Nothing is said as to where the earth-plate is to be

buried, or whether the soil is rock or chalk; the consequence is that one finds earth-plates, almost insulated from the ground in dry weather and quite ineffective. The connection between the copper plate and the lightning conductor is also often faulty; the latter often gets rough usage, and consequently becomes disconnected from the plate. When asked to test an "earth," I generally pull the conductor, as in several cases I have found it disconnected entirely.

At St. Paul's Cathedral the conductors had been originally laid in a brick sewer which passed round the building; this became unused, and was consequently left dry. When I discovered them some were placed inside and others were outside the drain pipes which took the place of the sewer, and were quite insulated and consequently useless. The example is not quite so bad as the one in a northern city where the conductor was insulated in a ginger-beer bottle, which had been duly buried to act as an earth. The cathedral is surrounded by the foundations of the previous structure, which rendered it difficult to make a deep enough hole for a plate earth; this led to the design of the tubular earth, which has now been largely used. This is made in two sizes, and consists of a strong perforated steel pipe, either 1½ inch or 2 inches diameter, and furnished with a sharp spike, which will cut its way through chalk or gravel. At St. Paul's Cathedral it was easily driven through the broken stone which marks the site of the previous structure, destroyed by lightning long before Benjamin Franklin's discovery of the lightning rod. The end of the tube having been protected by a thick driving-piece, which is screwed on temporarily, it is easily sunk by means of hammer or mallet, and if there is an obstruction the pipe is moved by a bar inserted in the holes of the driving-piece. Lengths, connected by a special form of socket, are added until moist ground is reached. The conductor is threaded through the cast-iron top piece, and dropped to the bottom of the tube, which is filled with finely granulated charcoal. An electrical joint between the conductor and the cast-iron top is now made by pouring lead or pot-metal into the socket through which the conductor passes, and tamping it in the same way as if it were the joint of a water-pipe. The earth connection is now complete; but, in order to make it permanent, and to keep the moistness which is essential, a small piece of pipe is led from the special hole in the casting either to the nearest rain-water-pipe, or, if this is not available, it is allowed to project above the ground, so that water can occasionally be poured down. The cast-iron cap is, last of all, inserted on the top of the tube, and serves to mark the position of the lightning conductor—a useful precaution, as conductors are often cut by workmen who have no idea of their existence. The system of tubular earth is favoured by architects, who naturally object to the deep holes necessary for the usual earth-plate being made near the foundations of a building; it also has the advantage of being considerably cheaper than other forms of equipment.

I will now put on the screen a view of a cemetery chapel at Thirsk which was struck in April 1900. It is an unprotected building, but was quite in the shadow of the large parish church of St. Mary's, which had a lightning conductor. You will see how the flash divided over the building, and where it ran to earth there are small upheavals of the ground. In this case the stroke divided up and earthed itself fairly quietly, but in some cases—there is the one of St. Paul's Church, Bedford, which you have seen—the great destruction which took place then was occasioned by there not being adequate earth connections to take the flash, which spread all over the roof.

This slide represents a ground plan of St. Paul's Cathedral, and the lines running to the various circles are the conductors running to the numerous earths. Originally I found that the dome alone was protected and the west towers. To shield the building more completely a conductor was run all round and furnished with aigrettes, as shown by the small circles, and from this the main down conductors ran to earth and others upwards to the various pinnacles and statues.

The Lightning Research Committee received reports from Germany, also from Hungary, where Dr. Moritz von Horn, of the Royal Joseph Polytechnic University, strongly recommends barbed iron wire, and states that cage lightning conductors are largely in use, both on town buildings and on farms and barns. A very interesting report has quite recently been received from Dr. Van Gulik, of Haarlem. It was made at the request of the Dutch Academy of Science. He also favours the use of iron for conductors,

and suggests that the high terminal rods should be abolished. Tables are given to show the number and extent of disasters to protected and unprotected buildings, and particulars of the rebate allowed by some insurance companies where buildings are fitted with lightning rods. The total amount of damage by lightning in Holland settled for by insurance companies is given as 84,000*l*.

United States.

A visit paid by the author to the eastern cities and Canada was reported to the Lightning Research Committee as follows:—

"The general opinion was that owing to the very inefficient protection which had been afforded in the past by the contractors who had installed lightning rods on many public and private buildings, it was gradually dropped out of architects' specifications, and at the present time few new buildings are protected at all. They are often struck, but as the insurance policy covers the loss little notice is taken, although deaths occur either by direct stroke or from chimneys or masonry falling. I was informed that the present conditions were thought to be unsatisfactory, and that architects and engineers generally would like to be advised as to what protection they should adopt. That large amount of damage by fire caused by lightning does take place is shown by the reports of the fire commissioners. The action of lightning when striking those high steel buildings known as sky-scrapers is peculiar, and is worth investigation, as examination does not show in what direction the current flows to earth. In many cases in New York the buildings are insulated from the ground by the fact that the foundation is blasted out of the rock which forms the island on which the city is built."

A slide is shown which illustrates a portion of the framework of a steel building. The author recommended that the roof should be in good electrical connection with the framework and the top, and that the supporting columns should be interconnected at their base by conductors which were led to a number of permanent earths.

Subsequently I went to Canada, and on the day after my arrival in Toronto a severe storm took place, which caused several fires from gas ignition, and a flash struck the tower of the fine modern City Hall, shattering the roofing and doing considerable damage. No lightning conductor was installed, but as I was asked to give my opinion, I think the building has been protected in the way I recommended.

The Lightning Research Committees.—Practical Suggestions.

It is interesting to note that the English committee are not alone in attaching great importance in this matter. Their general conclusions agree closely with the independent reports of the various continental authorities and committees, some of which have been quoted above, therefore the following suggestions are put forward as not only the results of their own investigations, but also as the practical opinions of all those who have been similarly engaged.

The suggestions appear in the report of April 10 as follows:—

"1. Two main lightning rods, one on each side, should be provided, extending from the top of each tower, spire, or high chimney-stack by the most direct course.

"2. Horizontal conductors should connect all the vertical rods (a) along the ridge, or any suitable position on the roof; (b) at or near the ground line.

"3. The upper horizontal conductor should be fitted with aigrettes or points at intervals of 20 or 30 feet.

"4. Short vertical rods should be erected along minor pinnacles and connected with the upper horizontal conductor.

"5. All roof metals, such as finials, ridging, rain-water and ventilating pipes, metal cowls, lead flashing, gutters, &c., should be connected to the horizontal conductors.

"6. All large masses of metal in the building should be connected to earth either directly or by means of the lower horizontal conductor.

"7. Where roofs are partially or wholly metal-lined they should be connected to earth by means of vertical rods at several points.

"8. Gas pipes should be kept as far away as possible from the positions occupied by lightning conductors, and as an additional protection the service mains to the gas meter should be metallically connected with house services leading from the meter."

It is hardly necessary to repeat the rules drawn up by

the committee, as they are set forth at length in their report, which gives some of the details necessary to carry out their suggestions. Some of those which were issued by the Lightning Rod Conference in 1882 are retained, and the new recommendations are principally the horizontal conductor on the ridge or summit of the roofs, and the down conductors, which are connected to this and to all metal-work, and again interconnected near the ground level. The necessity of increasing the number of the earths in proportion to the ground area of the building is also pointed out.

The insurance offices appear to disregard the question of adequate protection, and are quite content if the single conductor, which has not prevented serious damage, for instance, to a church, is replaced, and, moreover, they take no steps to have the earth connection tested periodically. The few unconnected lightning rods erected on our national museums, picture galleries and other public buildings, contrast most unfavourably with the more scientific methods adopted on the Continent, more especially in Germany, where in some districts the local authorities have issued rules as to the erection and testing of lightning conductors, to which the various public bodies have to conform. In some cities householders are subject to penalties if the system is allowed to get out of order.

It appears anomalous that large sums of money should be spent on the protection from fire of our museums, while the question of protection from lightning is simply ignored by the department in whose care they are placed. For instance, the Victoria and Albert Museum has one conductor (it was struck in 1900, but fortunately the damage was confined to the destruction of an electric main, which served as a lightning rod, as it was laid on the wall separating the Imperial Institute from the museum). The National Gallery apparently had no conductor until the flag-staff was erected, and this is the only approach to safeguarding the building from lightning stroke, although many thousands are being spent to buy up the adjoining property. How very differently public buildings are treated abroad is shown by the view of Le Faculté, one of the public buildings in Paris, and of Notre-Dame Cathedral. The British Museum authorities rely on the copper roof for protection, and the flagstaff was on my visit unprotected. The Tate Gallery appears to have inadequate lightning conductors, and the system on the Houses of Parliament, originally installed with great care, is said to require attention (the Victoria Tower was struck in 1868). The ecclesiastical authorities are, with some exceptions, indifferent, and having had some rods put up haphazard suppose that they act as a fetish or charm, or as a quack specific to cure all lightning plagues. I have visited some dozen cathedrals in the provinces, and in only one was there any attempt to protect the whole of the structure, and that was at Canterbury, where the arrangement of the conductors was faulty, in that a stroke of lightning which had travelled through perhaps half a mile of space would not, as the generality of lightning-conductor makers expect, tractably follow the copper tape, some of which had almost right-angle bends. However, Canterbury stands at the head of the other cathedrals which were inspected, in that the conductors had recently been overhauled and re-jointed and the earth connections tested.

At Chester the conductors were insulated and led into loose sockets close to the ground, so that any passer-by could disconnect them from earth. Time will not allow a criticism of all the buildings visited, but I must point out that the well-preserved Minster at York had only three conductors, which, according to information received, had not been tested or overhauled for many years. Our cathedrals and museums are of national importance, and if it is found necessary on the Continent to have a thorough system of protection and frequent inspection, surely it should be done here, as the initial expense could be spread over a number of years, and the annual upkeep would be sufficiently provided for by a 1 per cent. rate on the sum spent for structural repairs. The amount of damage to property by lightning stroke is enormous. Unfortunately, owing to the reluctance of the insurance companies to publish details, no figures can be stated. Most people think that almost every church has a conductor, whereas not 10 per cent. are so provided. In fact, although there is sometimes a recommendation from the archdeacon that the churchwarden should put up a conductor and see that it is kept in order, if the vicar wishes to safeguard his church the cost usually has to come out of his own pocket. The insurance offices do not seem to care whether a building is protected or not, as no individual office likes to insist on the erection of lightning conductors for fear of diverting business to its rivals.

EXCAVATIONS IN ROME.

SIGNOR BACCELLI, a former Minister of Education, who did a great deal for archæology, complained during the debate in the Chamber of Deputies on the Education Estimates (writes the Rome correspondent of the *Morning Post*) that too much is being spent on the Forum excavations and too little on archæological investigations in other parts of Rome. "The present director of the Forum excavations (Commendatore Boni) must be made to understand," said this critic, "that for the present it is not necessary to seek for the mouse-holes of prehistoric mice." The criticism is too severe; but perhaps undue prominence is being given at present to prehistoric discoveries rather than to those connected with the Royal, Republican and Imperial periods.

UNIVERSITY OF WALES.

THE Council of the University College of South Wales and Monmouthshire have issued an appeal for subscriptions to the funds for the new buildings, the foundation-stone of which is to be laid by the Prince of Wales on June 28. The whole building scheme, according to the plans of Mr. W. D. Caröe, F.S.A., will cost 234,000*l.*, to which is added a capital sum of 46,800*l.* for maintenance and 10,000*l.* for furnishing and fitting, making a total of 290,800*l.* It is proposed, however, to defer for a long period the construction of a great hall included in the plans, thus reducing the proposed expenditure to 251,500*l.* The site, which is valued at 25,000*l.*, was given by the Corporation of Cardiff. The Council have secured 67,500*l.*, including a grant of 20,000*l.* by the Government, 15,500*l.* from the Worshipful Drapers' Company to erect a library, 2,000*l.* from the Glamorgan County Council for a public health department, 1,000*l.* under the will of Alderman T. Williams, and subscriptions and interest to the sum of 29,000*l.* The buildings are planned in several departmental blocks, and the immediate intention is to proceed with the erection of the block devoted to arts and administration, which, it is expected, will not only exhaust the 67,500*l.* in hand, but involve an additional expenditure of 35,000*l.*

GENERAL.

Lord Windsor, the First Commissioner of His Majesty's Works, wishes to state that the term "Processional Road" has been erroneously applied to the avenue leading from the Queen Victoria Memorial to the Admiralty. The King particularly desires that the historic name of "The Mall" should be retained as heretofore.

An Exhibition of modern works in wrought-iron and copper is now open in the Musée Galliera, Paris.

Mr. Alfred Savill, of Chigwell Hall, Chigwell, head of the firm of Savill & Sons, 39 New Bond Street, architects and surveyors, who died on March 24, left estate valued at 149,812*l.* Legacies ranging from 500*l.* were left to his office staff.

The New Convalescent Home for men at Little Common, Bexhill-on-Sea, was inspected on Saturday by the promoters, the Metropolitan Convalescent Institution. The present accommodation is for seventy-one patients, which will be eventually increased to 118. The building has been erected from the designs of Messrs. Rowland Plumbé & F. M. Harvey. The total cost, exclusive of site, was 19,650*l.* The contract was let to Messrs. Holloway Bros., Lambeth.

The Society of British Sculptors have elected as honorary members Mr. H. H. Armstead, R.A., Mr. Alfred Gilbert, M.V.O., R.A., and Mr. J. S. Sargent, R.A., the following sculptors being elected ordinary members:—Messrs. S. Nicholson Babb, G. Bayes, F. Bowcher Benjamin Clemens, Harry Dixon, J. H. M. Furze, H. Hampton, C. L. Hartwell, H. Montford, P. Montford, A. Bertram Pegram, Sir W. B. Richmond, K.C.B., R.A., Mark Rogers, R. Stark, F. M. Taubman, A. Turner, Oliver Wheatley and George Wilson.

The Northern Polytechnic Institute will receive applications for the appointment of chief assistant in the architectural and building trades department with a salary of 125*l.* per annum until the 19th inst.

Mr. Allison, who is seventy years old and who graduated at Missouri University in 1852, has re-entered the university in order to take a special course in surveying.

Memorial Tablets are to be placed by the London County Council on No. 64 Duncan Terrace, Islington, where Charles Lamb resided, and 31 Baker Street, the residence of Edward Bulwer-Lytton.

Mr. G. H. Willoughby, of Manchester, has been appointed assessor in the competition for the Radcliffe public free library to be erected in Stand Lane. Forty-eight sets of drawings have been received from architects in open competition. The premiums offered were 50*l.*, 30*l.* and 20*l.*

The Improvements Committee of Aberdeen Town Council on Monday resolved to ask Sir Benjamin Baker, the consulting engineer, to visit the city with a view to inspecting Union Bridge and reporting on the proposed widening. The two schemes suggested are to increase its width by granite masonry, or to throw out steel girders as supports to the footway.

Mr. J. P. Fraser, master of Gray's School of Art, Aberdeen since 1885, has now been relieved of the duties of that position, for which he received a salary of 355*l.* a year. He has been appointed assessor in connection with the awarding of diplomas of the school at a salary of 150*l.* A considerable amount of fresh teaching power will be necessary, and for the advanced department two teachers of painting and sculpture will be appointed, at salaries amounting in all to 280*l.* per annum.

Mr. Alfred Drury, A.R.A., has been commissioned to execute a marble bust of the Prince of Wales, to be placed in the Cartwright Memorial Hall, Bradford, the exhibition in connection with which was opened by His Royal Highness last year. The Prince has placed a room in Marlborough House at Mr. Drury's disposal for the sittings.

Mr. H. T. Steward, the outgoing president of the Surveyors' Institution, said on Monday that the Council have been occupied during the year with the consideration of schemes for extending the scope and raising the standard of professional education by bringing the advantages of university training within the reach of such students as are desirous of acquiring systematic training in some of the scientific subjects cognate to their profession. A scheme was agreed on between the Council and the Senate of Cambridge University with regard to scholarships open to students of the Institution.

Lord Reay, at a meeting of the British Academy on Monday, reported the receipt of an appeal to the Government from the British School at Rome, asking for an annual grant of 500*l.* The principals of the school said they felt it would be something to be deplored if the work were crippled for want of a small sum yearly. Assistance from the State would place the school on a level with its foreign neighbours. His Lordship said he was sure the appeal to the Government would have the hearty support of the Academy.

The Essex Archæological Society have passed a resolution expressing great regret at the Local Government Board's proposal to alter the boundaries of Essex, and suggesting that if change is necessary for poor law purposes, it should be confined to that alone, and that the name of Essex be retained.

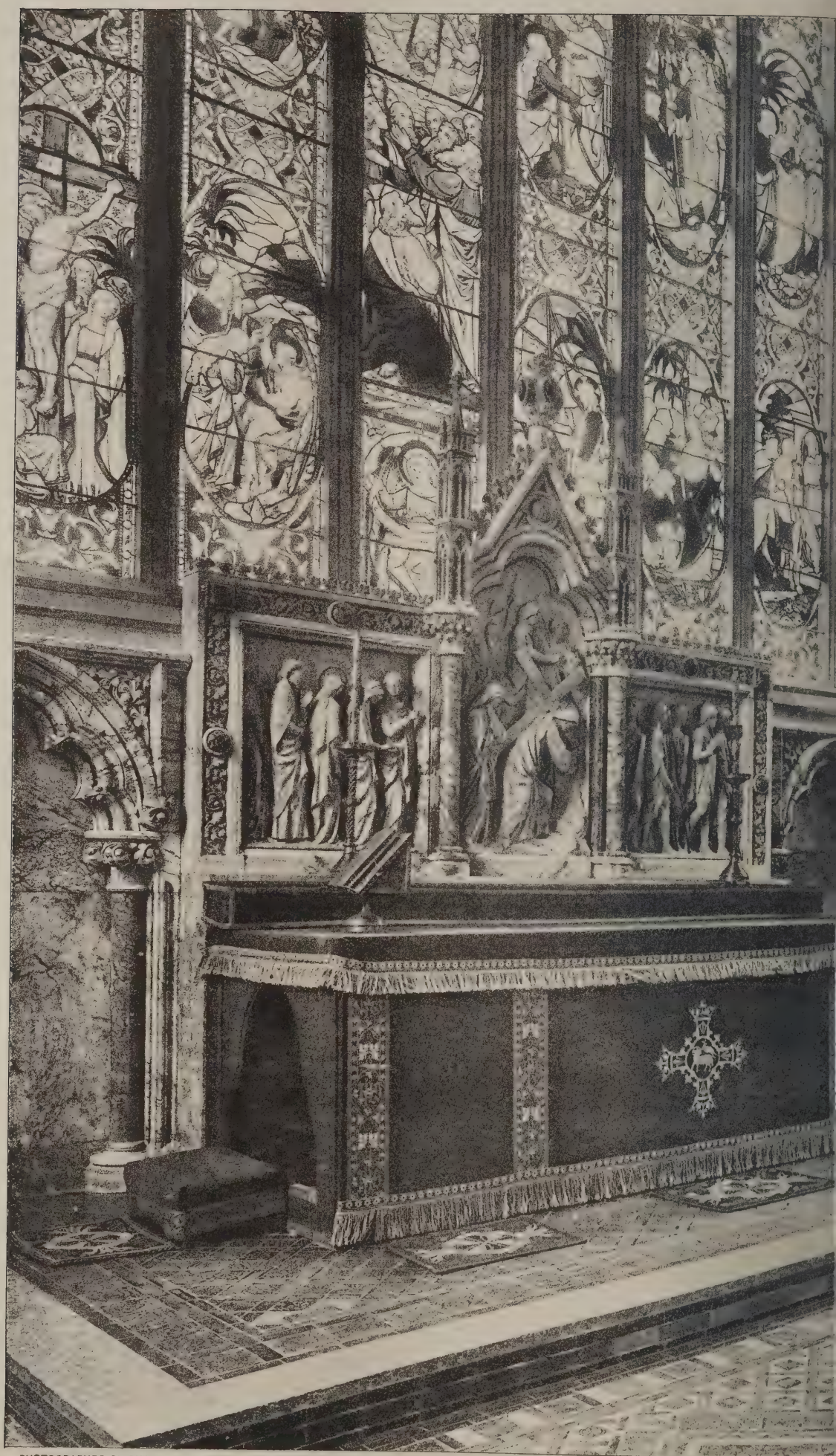
The Metropolitan Water Board will establish, as soon as practicable, a central laboratory for the examination of samples of water, and appoint a director of water examinations at a salary of 1,000*l.* per annum. The works and stores committee have been instructed to report, after consultation with the director, as to the best available site, and submit plans and specifications, with an estimate of the cost.

The Dulwich Picture Gallery will, by order of the Governors of Dulwich College, be open to the public, free of charge, on Sunday afternoons during the months of June, July, August and September, between the hours of two and five.

The Cardmakers' Company have published particulars of their forthcoming annual competition. The "H. D. Phillips prize," of 10*l.* 10*s.*, is offered for the best special design for the backs of playing cards intended for presentation by the company to its guests at the inauguration-banquet of the master and wardens; while three other prizes of 5*l.* 5*s.*, 3*l.* 3*s.* and 2*l.* 2*s.* respectively are offered for the three next best designs.

Chancellor Espin, in his visitation charge at Chester on Saturday, said one way of collecting money for the Church in the fifteenth and sixteenth centuries was by means of "church ale." In the churchyard, and, he was afraid, sometimes in the porch, the ale was drawn and sold, and made a big profit because it had been given.

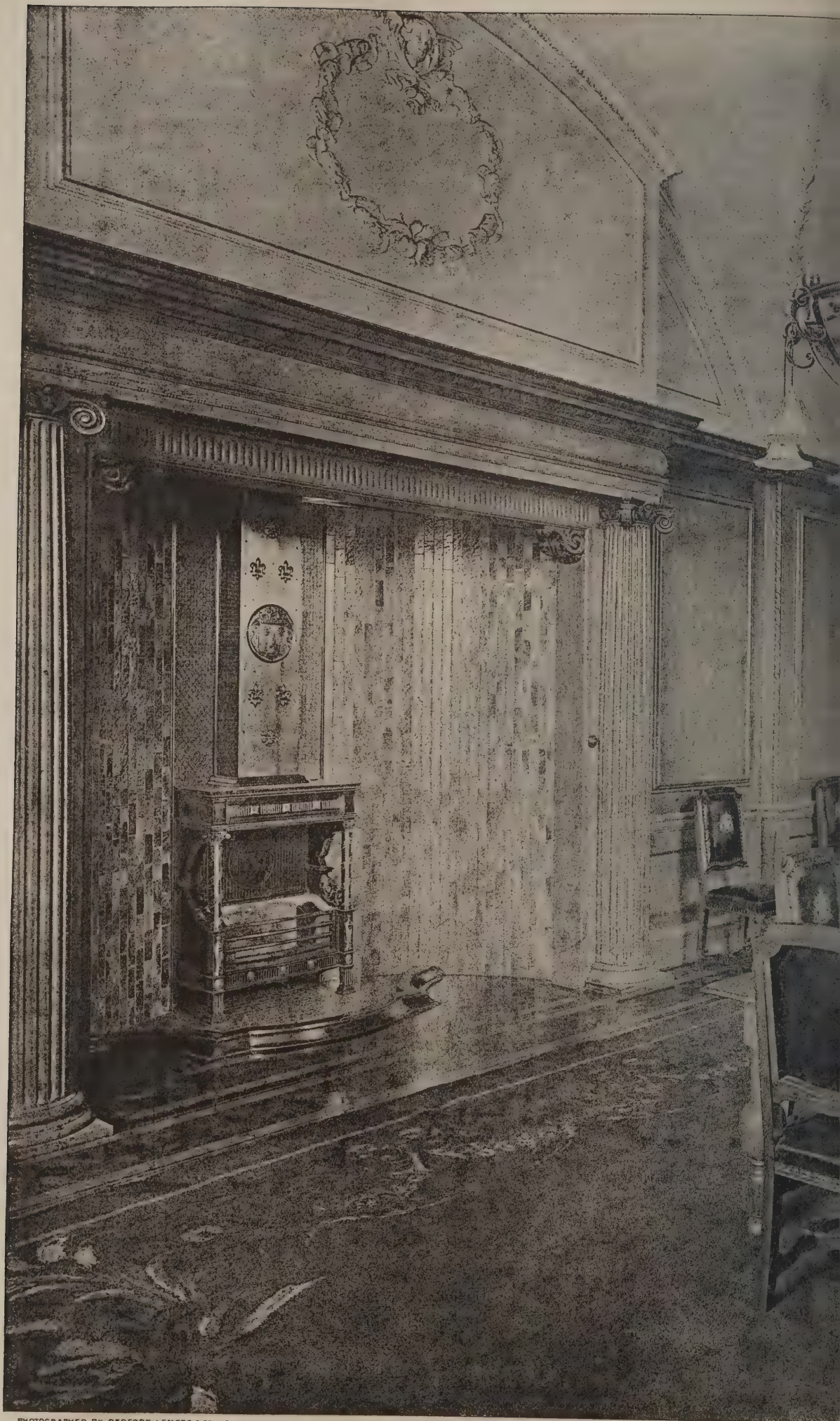
The Foundation-stone of the new town hall for Sutton Coldfield has been laid. The architect is Mr. Arthur R. Mayston, and the building will cost 10,100*l.*



PHOTOGRAPHED BY CHAS. R. H. PICKARD, 5 PARK LANE, LEEDS.



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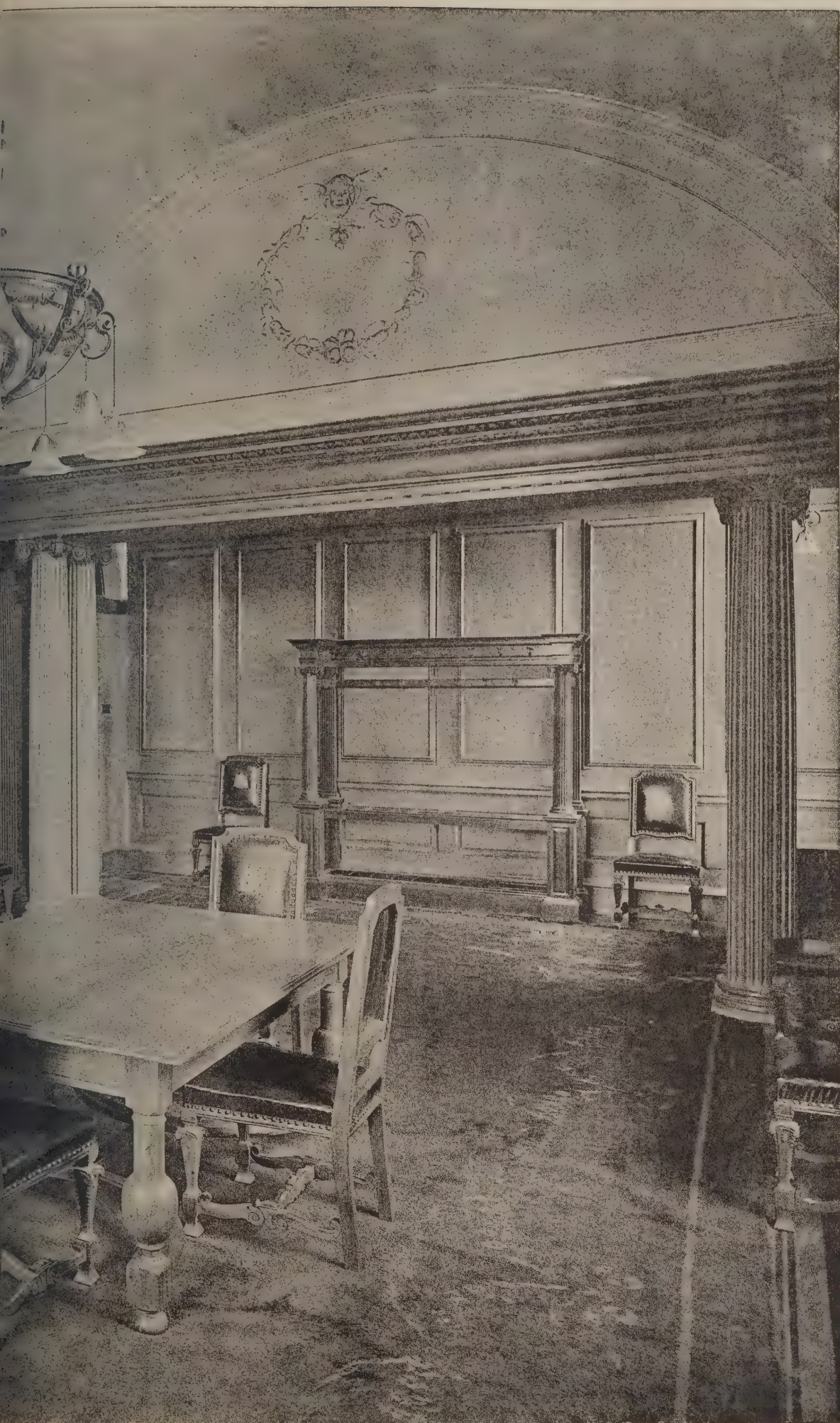


PHOTOGRAPHED BY BEDFORD LEMERE & CO. 147, STRAND, W.C.

MAGISTRATES' ROOM, COUNTY HALL, LONDON

HENRY L. JONES

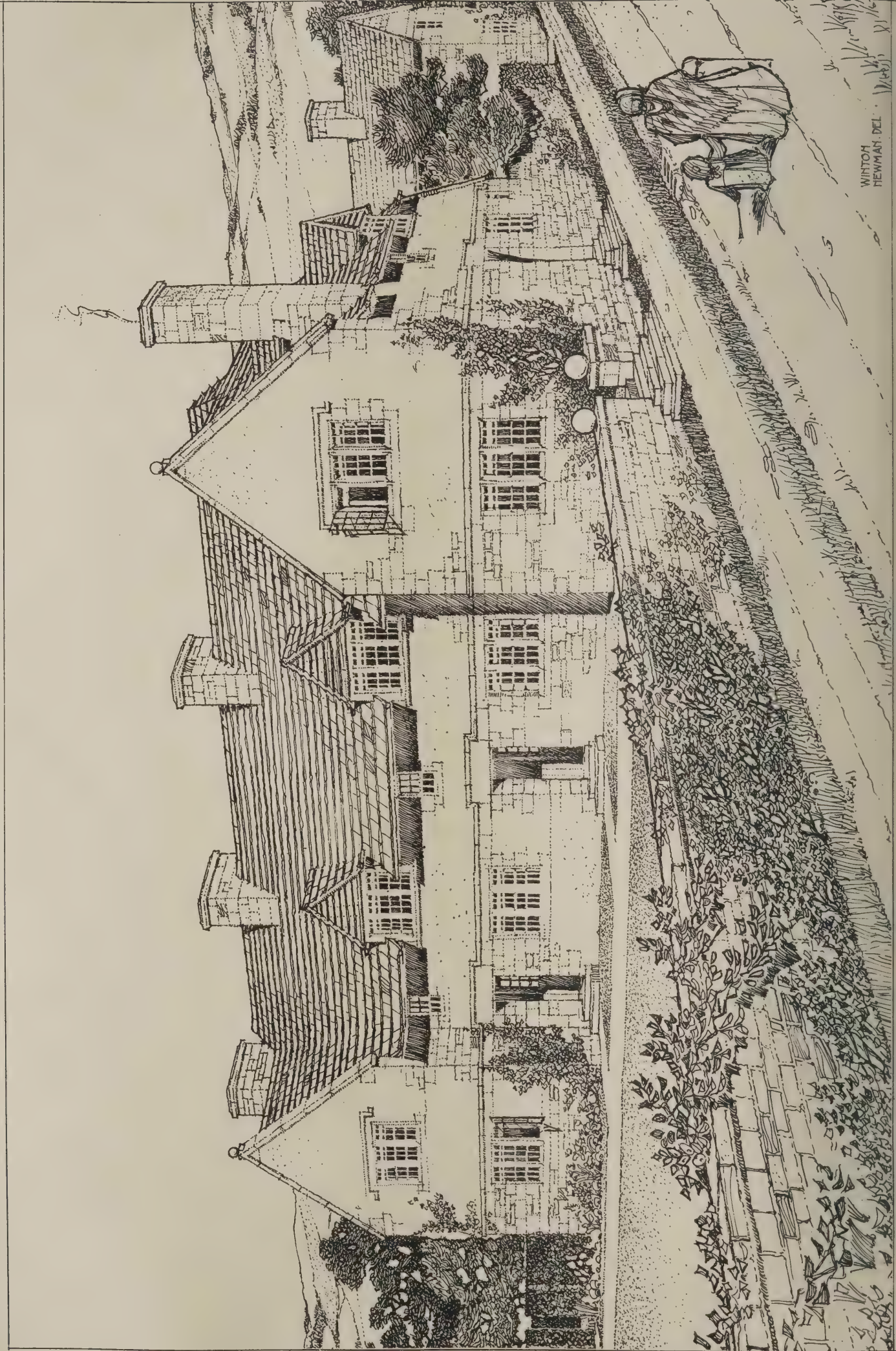
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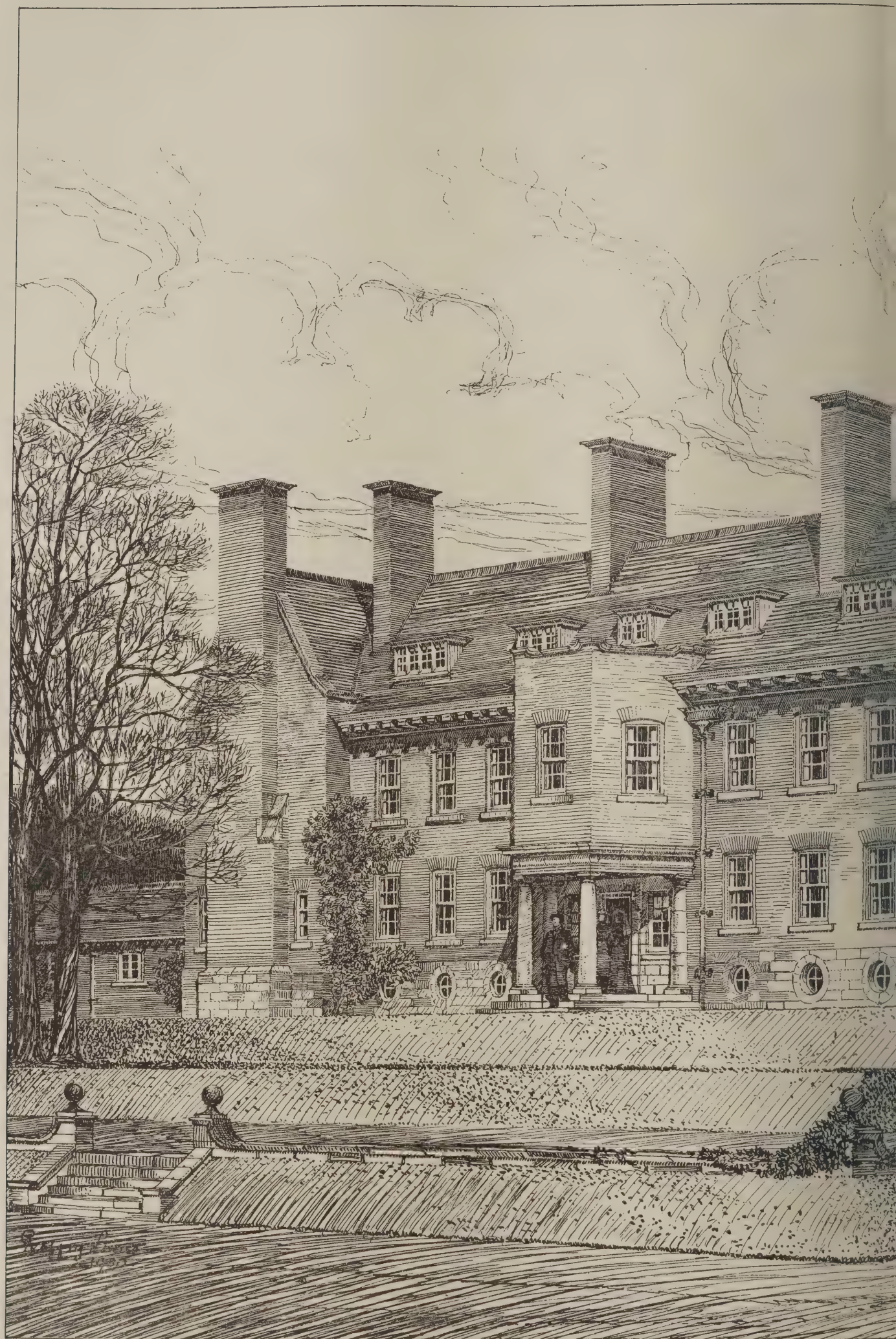
SESSIONS HOUSE, PRESTON

Architect.



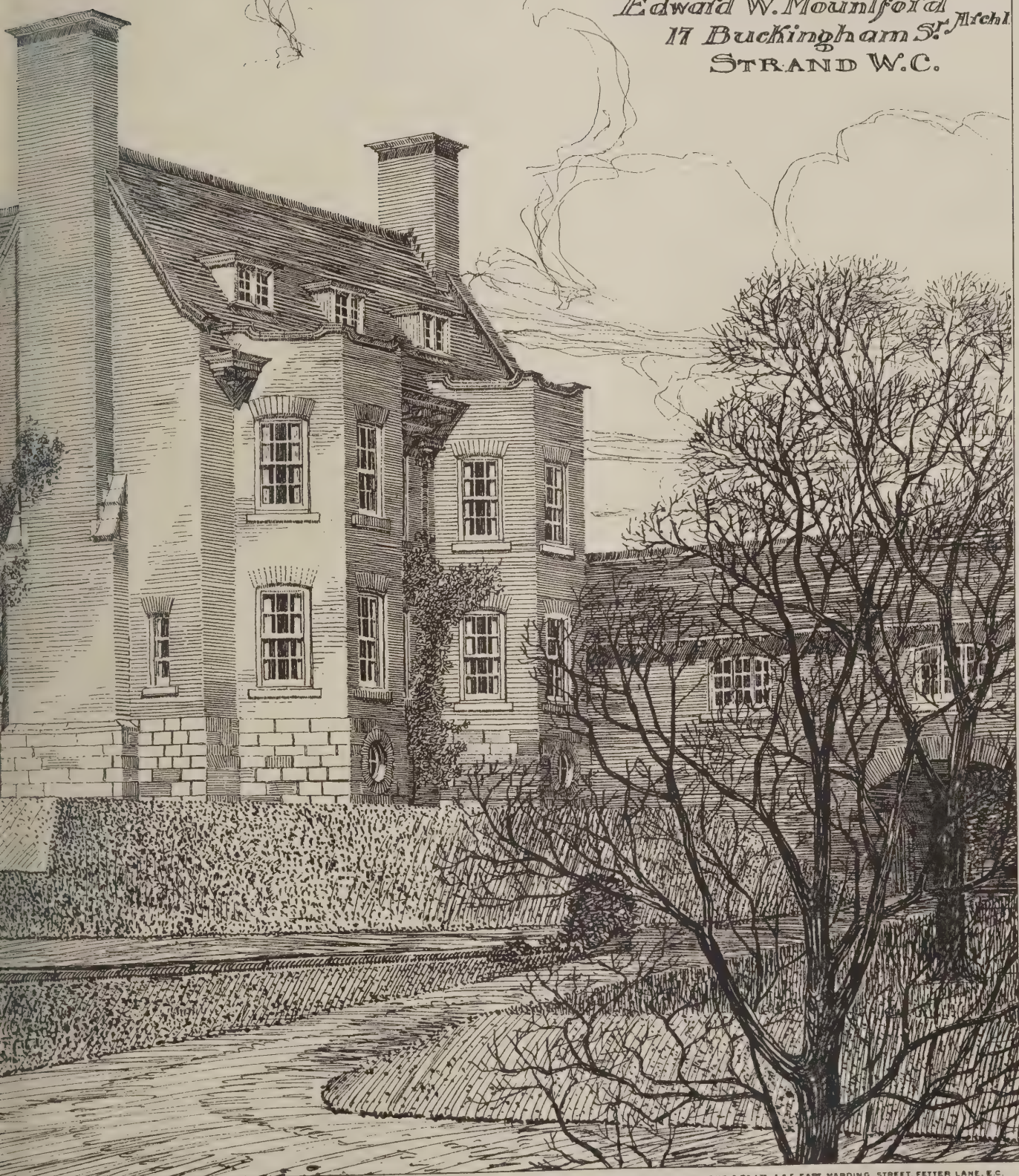


LODGE and COTTAGES.
 OVERBURY, WORCESTER.
Ernest Newton. Arch^t.



ADMINISTRATIVE BLOCK
of
NEW INFIRMARY.
SHEFFIELD.

Edward W. Mouniford Archt
17 Buckingham St.
STRAND W.C.



The Architect.

THE WEEK.

THE Usher Hall committee of the Edinburgh Town Council are still undecided about the most economical way of realising the intentions of the late brewer. Recently the plans which Mr. MORHAM had prepared were submitted to two experts, Sir ASTON WEBB and Dr. COWEN. Their reports were presented on Monday with one by Mr. MORHAM. It was proposed to dispense with the dome, which would diminish the estimate by 6,187*l.*, or to 4,208*l.* if the space were utilised as a gallery. Sir ASTON WEBB approves of the change and suggests that the cove should be carried round and a clerestory used for lighting. He furnished the outline of a hall carrying the galleries over one-half of the corridor at the gallery level, but the cost would be affected by the extra foundations required for two sides of the building. Dr. F. H. COWEN suggests that the new hall should be made to accommodate from 2,500 to 3,000, including the platform, whereas the hall indicated by Sir ASTON WEBB would give room for nearly 4,000. What is suggested is to restrict the length of the hall in proportion to the width as fixed by the lines of the old walls, adjusting the height correspondingly, by which there would be provided seating accommodation for 3,500. By adopting a closer order of sitting in the area and galleries the hall could be made to accommodate 3,841. The suggested alterations mean a rearrangement of the front elevation. The city architect submitted new proposals for this part of the building. It is estimated that without the dome and having a shorter hall the cost would be 64,800*l.* To this has to be added 13,470*l.* for lighting, painting, seating, &c. The site will cost 52,350*l.*, making a total of 130,620*l.* exclusive of the organ.

SHINGLE may be a local product or derived from a distant cliff, and it is not difficult to determine the origin of the "unnumbered pebbles." They are sometimes a protection to a coast, although not always pleasant to walk on, and much litigation has arisen on account of them. The Attorney-General was this week a party to an action relating to the removal of shingle from the shore at Blackpool, because the public had a right to walk on a cliff which, it was alleged, would be rendered dangerous by the absence of such a protection. The defendant had a contract with the Blackpool Corporation, by which he could remove about 200,000 tons. He was carting the shingle from the front of the Norbeck Estate Company, who sought an injunction. The case was referred to the Board of Trade, and on the report of an inspector an order was issued prohibiting the indiscriminate removal of shingle in large quantities from the foreshore generally. The defendant's theory was that shingle was deposited by the action of the waves, and compensation was in that way found for what was removed. The Judge in the Chancery Court of Lancashire decided that the order of the Board of Trade was to be obeyed.

It is pointed out by the Senior Chief Inspector of Schools in the Southern Division of Scotland that in the building courses of the continuation schools the instruction is too much confined to the copying of drawings, and the students are seldom called upon to exercise their ingenuity and judgment in applying what they have learnt to designing of even the simplest character. We suppose the defect arises from the belief that design is a mystery, or from the subjects proposed, cathedrals, municipal buildings, &c., being so ambitious as to exceed the powers of ordinary students. Another inspector, when referring to the classes in painters' work, such as are carried out in Aberdeen and Dundee, says it is to be regretted that a good

deal of time still continues to be devoted to practising such inartistic and futile developments of the painters' craft as what are technically known as "marbling" and "graining." One would fain hope that the demand for these false forms of decoration may gradually pass away, but so long as craftsmen are encouraged to spend laborious hours in cultivating them, it is to be feared that occasions will continue to be found for their display. The technical colleges, however, might show the way in this matter as they have done in others. In the Dundee Technical Institute there were last year 250 students belonging to the building trades, including joiners, masons, plumbers, cabinet-makers, while in the Heriot-Watt College, Edinburgh, the number was 311, besides 298 students described as architects, surveyors, civil engineers, &c.

THERE is much dissatisfaction in Glasgow concerning the action of the Infirmary Board in respect of the new buildings in Cathedral Square. The Board, regardless of protests, propose to commence the erection of a building which, from its size and character, will dwarf the cathedral of Glasgow, which is one of the most interesting structures of its class in all Europe. There seems to be no power which can exercise any check over the Board. It is beyond all question that by the erection of the new infirmary the architectural effect of the cathedral will be diminished. What adds to the peculiarity of the case is that the infirmary will have six or more storeys, although the opinion of medical experts is in favour of half the number. However, from the first the Board have acted in an autocratic manner, as if in defiance of what is usual when undertaking an important building. A couple of years ago, it will be remembered, there was a limited competition, and the designs were examined by Sir ROWAND ANDERSON. But not one of those selected by him was adopted, and the design which was put forward found no supporters among architects. It is understood that the plans approved by the Board have been submitted to other experts, but their names have not been announced, and any report which they made has not been published. Evidently their own judges are unfavourable to the proposals of the Board.

THE jury of the section of architecture of the Salon have awarded the *médaille d'honneur* to M. CHIFFLOT, who is represented in the exhibition by a drawing showing a restoration of a street in Pompeii. Although three attempts were made by the French painters who exhibit in the Salon, it was impossible to obtain the required number of votes for any one candidate. The *médaille d'honneur* will, therefore, not be awarded this year. Of late years failures of the kind are not uncommon, and they indicate the number of parties among the painters, as well as the want of principles in common when judging works. The sculptors were more successful, the medal having been gained by M. FRANÇOIS SICARD. There is no doubt his success was owing to his statue of GEORGE SAND, which after two years' labour was ready for this year's Salon. M. SICARD is a native of Tours, and the principal part of his education was obtained in the local school of art. The *médaille d'honneur* in the section of sculpture on medals and precious stones, which in France has more importance than elsewhere, was obtained by M. ROTY. He has executed so many State commissions his skill is generally known, and his medals and plaques will be esteemed hereafter as historical portraits. In the section of engraving and lithography the coveted prize was won by M. EMILE-JEAN SULPIS, who well deserved the distinction. It is remarkable that in painting there was no award of the first-class medals. In the section of sculpture first-class medals were obtained by MM. ALIX MARQUET, VICTOR PETER, CHARLES JACQUOT and SEGOFFIN. The first-class medal in architecture was awarded to M. JEAN HULTO.

SIR HENRY RÆBURN.

IF the position of RÆBURN among British artists is to be determined by the advance in the prices paid for his pictures, then that position must be in the front rank. On Saturday last his portrait of Lady RÆBURN, which in 1878 was sold for 610 guineas, was bought for 8,700 guineas. His contemporaries, it may be remarked, would not admit that he was able to represent the beauty of womankind. The portrait of himself, which in 1877 was valued at 510 guineas, on Saturday reached 4,500 guineas. For another portrait, which so recently as 1887 was sold for 200 guineas, on Saturday 3,600 guineas had to be given. Those prices are not to be taken as evidence of the discovery of an unknown master. NORTHCOTE, who was a portraitist and was familiar with all that was done by REYNOLDS, considered that RÆBURN's style was the happiest of the time, and in that opinion other authorities would agree. The criticism was not inspired by good-fellowship, for, although RÆBURN was a Royal Academician, he was not intimate with English painters. In fact, during the whole course of his life he only paid three visits to the Metropolis.

One of the peculiarities of RÆBURN was that his style was essentially his own. He was not only self-taught, but in his earlier years he had not the advantage of seeing good paintings, and he seemed to work by instinct. He was born in 1756, a time when there was much depression in Scotland. He was the son of a manufacturer, who was of good family. When he reached the age of six he lost both his parents. Fortunately, he obtained entrance to HERIOT'S school, and there he remained until he was fifteen. Perhaps it was owing to the influence of tradition in the school concerning the founder, who was a goldsmith and a royal favourite, but when HERIOT had the chance of becoming an apprentice he preferred that trade to all others. It would be interesting to know what were the conditions to which he was bound. The majority of modern goldsmiths are not metal-workers, and RÆBURN'S days were more likely to have been spent in a shop in Edinburgh than among craftsmen. He must have had time at his disposal, because he was able to make attempts in miniature-painting, inspired, no doubt, by examples which came to be mounted or which were left for sale. His master was not annoyed, but, like a shrewd man, realised that so much ability could be useful to himself. He introduced his apprentice to DAVID MARTIN, a portrait-painter and engraver, who, after experience in London, had returned to Edinburgh, where he at once gained success. At such a time he could have few rivals. MARTIN welcomed so promising an aspirant, and his kind and encouraging words were never forgotten by RÆBURN. He was inspired to adopt a bolder style in his miniatures, and as a report of his merit got abroad he had orders for at least two portraits every week. After a time he was able to agree with the goldsmith for the cancelling of his indentures.

Anyone who looked at the portrait of RÆBURN which was sold on Saturday, and which reminded Sir WALTER SCOTT of some figure of JUPITER, could not fail to conclude that he was endowed with courage, tenacity and foresight. The firm mouth and chin, the watchful, steady eyes, the thoughtful expression, would have served for a ruler of men. On ceasing to be an apprentice he resolved to do more than paint miniatures. Why should he not produce portraits in oil as well as DAVID MARTIN? It is true there was no teacher or friend to reveal the usual practice in painting heads on canvas. The elements were to him a mystery, and it was only by a course of failures he discovered the art of laying on colours. He was poor, and the same canvas must have been used for many experiments. He had recourse to MARTIN, who favoured him by lending him some of his own portraits to copy. But no explanation was given about the production of effects. MARTIN is not to be blamed. Foreign artists are amused at the secrecy which prevails in English studios,

and communicativeness is a rare virtue at the present time. Besides, in the eighteenth century any man in MARTIN'S position would have concluded there was no patronage enough in Edinburgh for two artists, and where was the obligation to help a competitor who was not even a pupil? RÆBURN was too strong to be kept back. He succeeded in making copies of MARTIN'S pictures, and the elder painter went so far as to accuse him of selling one of the copies. With a high-minded young fellow like RÆBURN that was sufficient to put an end to their friendship.

RÆBURN continued to produce miniatures, but the power that was seen in his attempts in oils was sufficient to persuade sitters to prefer portraits on the larger scale. MARTIN'S style was less vigorous, and therefore was not so well adapted for the representation of Scotsmen. In spite of all obstacles, RÆBURN by the time he had attained his twentieth year had succeeded in making a position for himself in Edinburgh, and there was competition for his services. But he was too shrewd to overestimate the value of his works. He continued to be a student as if with the hope that he might attain the versatility of the Italian masters. In his twenty-second year he married a lady with a fortune and then he sought the realisation of one of his dreams which was to study in Italy. At the time Sir JOSHUA REYNOLDS was supposed to be the best adviser in the country. RÆBURN had recourse to him and, as was to be expected, was recommended to study in the Sistine Chapel. It is sometimes supposed that REYNOLDS was selfish in giving such counsel to portraitists, for TITIAN was better adapted as an exemplar. In the case of RÆBURN, the President was likely to be sincere, for he offered to advance the money which the young Scotsman was likely to require while studying in the Vatican.

On visiting Rome RÆBURN found his countryman GAVIN HAMILTON, who painted classic subjects as well as portraits. Indeed, Rome to him was a home, and the greater part of his life was spent there. He was able to introduce RÆBURN to whatever was worth seeing. He also met JAMES BYRES, the architect, a man who received much abuse from BARRY, but who was competent to give good advice to students. Among other things he told RÆBURN never to copy any object from memory, but from the principal figure to the minutest accessory to have everything placed before him. RÆBURN esteemed the words as if issued from an oracle, and throughout the whole of his career he acted upon them. He was therefore a realist, and every detail which we see introduced in his portraits can be considered as authentic.

On his return to Edinburgh he selected George Street in the New Town for his painting-rooms, and by the time he was thirty-one he was admitted to be the foremost painter in Scotland. He was systematic in everything. He lived in suburban Stockbridge, but he walked into the town and was ready to receive a sitter at nine o'clock every morning. As a rule he retained them for only an hour and a half. The self-taught artist had no timidity; he never chalked-in outlines, but boldly commenced with brushwork. His hand was so steady it was not necessary for him to employ a maul-stick. He expected to be paid for his portraits on their delivery. Each work, therefore, became a ready-money transaction, and as there was no necessity to keep accounts no list is forthcoming of the numerous portraits which RÆBURN produced. Collectors will have to be careful in obtaining evidence of the genuineness of examples.

It was a time of a great intellectual awakening in Scotland, and RÆBURN was fortunate in having many of the most distinguished of his countrymen as subjects. Among them were DUGALD STEWART, PLAYFAIR, JEFFREY, ALISON (who wrote on Taste), Sir DAVID BAIRD, MACKENZIE and others. He painted more than one portrait of Sir WALTER SCOTT, and as they have been engraved they are known to all readers of the

"Waverley Novels." One was for CONSTABLE, who at the time was SCOTT's publisher. SCOTT is represented as seated by a ruined tower, with his dog Camp at his feet. It was painted in 1808. "The expression," says LOCKHART, "is serious and contemplative, very unlike the hilarity and vivacity then habitual to his (SCOTT's) speaking face, but quite true to what it was in the absence of such excitement. His features struck me at first as commonplace and heavy, but they were almost always lighted up by the flashes of the mind within. This required a hand more masterly than RAEBURN's." SCOTT in 1808 was known as a poet, and it was allowable for RAEBURN to suggest that he was in a contemplative mood. As a result of a dispute with the publisher, SCOTT wished to obtain the picture and to pay for it, but CONSTABLE declined. At another time SCOTT promised to sit for a portrait which the Duke of BUCCLEUCH wanted for "sweet Bowhill." The Duke suggested one of the failings of the artist when he said:—"RAEBURN should be warned that I am as well acquainted with my friend's hands and arms as with his nose, and VANDYKE was of my opinion. Many of R.'s works are shamefully finished; the face studied, but everything else neglected. This is a fair opportunity of producing something really worthy of his hand." SCOTT excused RAEBURN by saying he had very much to do, and that he had to work for cash, as there were only a few years left to make money. RAEBURN at the time was only sixty-three, but the kindly Sir WALTER had a presentiment that the end was near. When some three years afterwards RAEBURN was appointed the King's "limner and painter in Scotland, with all fees, profits, salaries, rights, privileges and advantages thereto belonging," it was generally believed that he owed his advancement to SCOTT. He enjoyed his office for not more than a year, for he died in 1823. His last work was a portrait of SCOTT.

All who knew RAEBURN respected him. He was a cultured gentleman as well as an artist, and was always ready to aid the younger artists. At one time there was a desire that he should leave Edinburgh for England, but eventually he preferred the Scottish capital, and he avoided London as if he were afraid of it. The admiration for his works was long confined to Scotsmen. But within the last few years there has been a reaction, and it is not unlikely that they will be still more appreciated.

AN ACADEMY RECORD.*

AMONG the men who are referred to by Sir WALTER SCOTT as affording inspiration for his novels one of the most interesting was the mason known as "Old Mortality." He devoted his life to the reparation of the monuments of the Covenanters, and more especially the inscriptions. In his enthusiasm to save from oblivion the names of those he believed to be martyrs for the faith, he abandoned his wife and family. He derived no profit from his labours, and he was destined to die exhausted at the roadside in his eighty-sixth year. By the irony of fate, the man who restored so many monuments lies in some churchyard without a stone to mark the grave of ROBERT PATERSON.

SCOTT was not able to see much of the man, but he could hardly fail to have some sympathy with him, for was not SCOTT himself simply an abler and more successful "Old Mortality"? In his early wanderings in search of old songs and ballads and records, a pursuit which he followed as if by instinct, was he not also endeavouring to bring to light names which were unknown except to a limited few? But are not all archæologists, taking the word in a wide sense, engaged in efforts to restore what has been cancelled and to resuscitate, as it were,

the lives of men who long have vanished? They know that the majority of people feel an interest in men and things which have passed away, and there is a constant endeavour to supply what is desired, although it may only be shadowy.

One of the latest instances of this effort to preserve the reputation of artists is the "Dictionary" by Mr. ALGERNON GRAVES, which relates to exhibitors at the Royal Academy from the first exhibition. It is not, however, confined to painters, sculptors, and architects who are no longer among us, for as it extends to last year a great many of those whose works are recorded are still living. But the greater part of the volume relates to deceased artists, and the author may therefore be considered as rightly belonging to the "Old Mortality" class. We hope he may attain a more satisfactory recognition of his labours.

Catalogues of the Academy exhibitions are prized, and for anyone who has an interest in the history of English art they are valuable documents. But as they were intended to serve for visitors rather than for students who would employ them as historical materials, it is difficult to realise from them the productions of any artist or to perceive the changes in the style or character of the works which he may have attempted. No one, for instance, could have supposed from the fine costume pieces of Mr. Hook that his reputation was to be based on representations of fishing scenes in the South of England. By arranging all the works of an artist in chronological order, as has been done by Mr. GRAVES, we can see almost at a glance the endeavours of artists to express themselves, or the veering which they adopted in order to gain success. Sometimes, too, by the adherence to one class of subject we can recognise that the artist was from the first successful, as happened with Sir L. ALMA-TADEMA, or that he had entered into a contest with the public in the hope that he would finally conquer. The latter case was exemplified in the earlier days of the Academy by JAMES BARRY, the representative of high art. His first painting was *Adam and Eve*; it was followed by *Venus Rising from the Sea*, *Medea Making her Incantation*, *The Education of Achilles*, *Jupiter and Juno on Mount Ida*, *King Lear and his daughter Cordelia*, *Antiochus and Stratonice*, *Mercury Inventing the Lyre*, *The Death of Adonis*, *Pandora*, *Portraits in the Character of Ulysses and His Companions*. There was a *Death of General Wolfe*, but as it was in the Classic style it cannot be considered an exception. BARRY stood alone, and it was to be expected that an artist who believed he was capable of dealing with such lofty subjects should look down with contempt on the men who painted commonplace things and found purchasers for them. But the public were too strong for him, and his fate was a warning to artists who wished to sell their paintings or statues.

It would take us long if we were to comment on the contents of the 400 quarto pages which Mr. GRAVES devotes to the Academy. It will be preferable if we confine ourselves to architecture, following the alphabetical order of the book. Readers will probably be surprised when they find that ROBERT ADAM, whose name is one of the most familiar to English architects, did not contribute a single design to the Academy; whether he sent any there is no knowing. About the time the Academy opened he had erected the Adelphi, and he may have been regarded as a speculative builder rather than an artist. In the early days of the Academy it is evident that designs were accepted of an imaginative kind. The buildings of the time, we suppose, were not deemed worthy of illustration. Between 1801 and 1806 we find EDMUND ATKIN's name attached to the following subjects:—"Design for a Pantheon," "Edifice for British Valour, &c.," "Enchanted Palace, &c.," "Design for Monument," "Interior of a Bath," and "Hall of Venus." An early student of the Academy was DANIEL ASHER ALEXANDER. He was a man who enjoyed an immense practice, including some important

* *The Royal Academy of Arts*. A complete dictionary of contributors and their work from its foundation in 1769 to 1904. By Algernon Graves, F.S.A. Vol. I. Abbaye to Carrington. (London: Henry Graves & Co., Ltd.)

official buildings. But in 1788 he appeared with "A Design of a Temple to Gods," as if that kind of work was imperative. The only subject which he could claim as his own was the "Royal Naval Asylum at Greenwich." THOMAS ALLASON, another student and the winner of a silver medal, sent in 1805 a design for a college, which was followed in the succeeding years by designs for a mausoleum, a Gothic building, a castle and a mansion. The custom continued, for as late as 1821, GEORGE ALLEN, who was a pupil of ELMES, began with a "Villa of Pliny" and a "Fountain to the Marine Deities."

THOMAS ALLOM might be considered as belonging to our time, for he lived until 1872. He began exhibiting as far back as 1827 with a design for Sydenham Church. He was an excellent illustrator, and among his drawings were *Sacred Source of the Ganges*, *Tournament from Ivanhoe*, *The Shrine*. Another architect-draughtsman who, unlike ALLOM, did not secure commissions for buildings, was FRANCIS ARUNDALE. Between 1830 and 1852 he exhibited an immense number of drawings of ancient buildings; in 1838 he exhibited no less than seven unnamed "views." But we expect it would be difficult to discover one of those drawings. ARTHUR ASHPITAL exhibited his church at Homerton in 1845, to be followed by several other buildings of the same class; but he was also allowed to exhibit "A Selection from Palladio," "Ancient Rome," "Modern Rome." Among his designs was a "Wellington Testimonial for London Bridge" in 1853. The name of THOMAS WITLAM ATKINSON is now known mainly by his interesting accounts of his travels in Siberia, the Tartar steppes, and the region of the Amour. But in 1832 and 1840 drawings of his own work were seen in the Academy. WILLIAM ATKINSON was a pupil of JAMES WYATT, and his drawings were sent from that architect's office in Queen Anne Street East. Until 1799, when he exhibited a design for "Hot-houses for the Emperor of Russia," he was living in the Bishop of DURHAM's house in Cavendish Square. In those days the race of patrons had not expired.

When it is remembered how closely Sir CHARLES BARRY was to be connected with Westminster, it is remarkable that his first drawing should be an interior of Westminster Hall. It was in the exhibition of 1812, when BARRY was in his seventeenth year. He was then a pupil of Messrs. MIDDLETON & BAILEY, in Lambeth. That drawing has survived, but his designs for hall, museum and library and buildings in a nobleman's park which appeared in the three following years have perished. In 1816 he was out of his pupilage. As there was no longer a NAPOLEON to interfere with English travellers on the Continent, he left England in 1817, when he visited France and Italy, Greece and Turkey, Egypt, Palestine, Assyria and Sicily. He returned in 1820 and took a small house in Ely Place, Holborn. Mr. GRAVES's catalogue shows in what out-of-the-way places artists used to live in the eighteenth and beginning of the nineteenth century. A drawing of the "Ruins of Thebes" was his contribution to the Academy of 1821, and in 1822 a "Parthenon" and a "Roman Theatre at Djerash." About that time he considered himself fortunate, for he obtained a commission for one of the Commissioners' churches at Campfield, near Manchester, and one at Prestwich. The foundation-stones were laid in August 1822, and he was able to send to the exhibition of 1823, besides the drawing of the "Temple of Theseus," views of his churches at Manchester and Oldham. Those early works kept BARRY in England, otherwise he might have emigrated to America, but he set no value on them as examples of architecture. In 1824 he sent two drawings of a church at Brighton. He was not represented in the exhibition of 1826, but in the following year was a drawing for the "New Spire to the Church at Petworth," which he had restored for Lord EGREMONT. BARRY was now able to move to

Foley Place, near Cavendish Square, and in successive years his subjects were "Drummond Castle," "Trumpington Street," "The Birmingham Town Hall" (a competitive design which was not successful), "A Unitarian Chapel," "Highclere" and "Bridge-water House," which is his most successful Italian mansion. In 1841 he was elected an Academician, and his drawings in the exhibitions of 1842 and 1844 represented the Houses of Parliament. In 1853 were two drawings of the new Crystal Palace, and in 1855 a "Design for Public Offices in one mass." His sons, CHARLES and EDWARD M. BARRY, were able to exhibit in 1850.

ALFRED BARTHOLOMEW, who at one time was an authority on architecture, had only a single drawing in an Academy exhibition—a design for an infant school at Brixton in 1834. GEORGE BASEVI began in the customary way by sending a "Temple of Theseus" to the exhibition of 1820. In 1822 there was a church at Stockport by him, in 1826 and 1828 "Belgrave Square, Hyde Park," in 1827 "New Square, near Grosvenor Place," enterprises which at the time were revolutionary; in 1839, the "Fitzwilliam Museum, Cambridge, which he obtained in competition. He was killed in 1845 while examining the bell tower of Ely Cathedral. HENRY BASSETT gained the gold medal for a "Royal Academy and National Gallery," which was exhibited in 1826, with a "Grecian Doric Church." In 1831 there was a "View of Burton House" by him. Then he was engaged in the Southampton estate office, Fitzroy Square, from which came an "Ideal Composition" in 1839. Between 1787 and 1806 there were several designs by CHARLES BEAZLEY, including a "Triumphal Arch at Maidstone" and a "Pavilion Intended to be Built," &c. His nephew, SAMUEL BEAZLEY, who was dramatist as well as architect, began to exhibit in 1811. Opera houses, theatres and clubs engaged his best attention, his last drawing being "Hillorsdern House," in 1848; the "Lord Warden Hotel," in Dover, was sent in 1846. A drawing by Sir ARTHUR BLOMFIELD of the "Annunziata" in Genoa was in the exhibition of 1856. His subsequent contributions represented his own works. In 1828 there were drawings by EDWARD BLORE of "Goodrich Court" and "Weston Hall," and in 1836 "A Garden Front at Aloupka, in the Crimea." J. BLORE commenced to exhibit in 1841, contributing designs for "A College" and "Gothic Church;" they were followed by "Williams Terrace, Chiswick." He prepared drawings of various monumental shrines, windows, memorials, as well as a sketch for "A Marine Palace at Ramsgate, submitted to Her Majesty in 1839."

JOSEPH BONOMI, the Italian, was among the "ghosts" employed by the Brothers ADAM, who profited by his skill. His first Academy work was a "Design for a Drawing-room," which appeared in 1783. He contributed views of the Pantheon and other Roman buildings until 1789, when he was elected an Associate. REYNOLDS wished to see him elected an Academician, being Professor of Perspective, and because his desire was not gratified he resigned the presidency. BONOMI designed several English mansions in the Italian manner, but London does not appear to possess any building by him, the Spanish Chapel having been removed. He died in 1808, but, strange to say, in the exhibitions of 1809, 1810 and 1811 there were drawings by "J. BONOMI." DAVID BRANDON exhibited between 1831 and 1878, and RAPHAEL BRANDON between 1838 and 1874. JOHN BRITTON was enabled to exhibit several of the architectural drawings which he made for the engravers. The name of BUCKLER, although not as popular as that of BRITTON, is no less associated with old English buildings. JOHN BUCKLER's name will be found in the catalogues as early as 1796, and continued till 1849. JOHN CHESSEL BUCKLER and other members of the family were also liberal in their contributions. J. B. BUNNING, who was afterwards architect to the Corporation of London, had a drawing in the exhibition of 1819 of the "York Buildings watergate." WILLIAM BURGESS's

first drawing was in 1852—"Restorations to Shrine of Edward the Confessor, Westminster Abbey." In 1860 there was a staircase at Gayhurst by him; in 1863 the Cork Cathedral; in 1865 Worcester College Chapel; in 1867 the design for the Law Courts; in 1870 Cardiff Castle and Knights-hayes; in 1872 a house at Cardiff, the memorial church at Skelton and the church at Studley Royal; in 1873 design for St. Mary's Cathedral, Edinburgh, and in 1874 and 1875 designs for the decoration of St. Paul's. In many cases the views which are seen in the architectural room do not suggest the extent of their author's practice. But in the case of WILLIAM BURGESS he might be said to be represented by his Academy drawings. There was the Lille Cathedral and various works in precious metals, but the totality was out of proportion to his genius. It is unnecessary to refer to the works of living architects which Mr. GRAVES has recorded.

There is more popular interest attached to painters' and sculptors' works, and amateurs can find an abundance of pleasure as well as information in going through his pages. A complete set of catalogues may now be considered as unattainable by ordinary individuals, for Americans would gladly give high prices in order to secure them for their public libraries. Mr. GRAVES's volumes will not only give all the information found in the catalogues, including the numbers of the pictures and the addresses of the artists, but it is presented in a form far better adapted for reference than the originals. Those who wish to invest money in pictures will find it suggestive; for, as we know, works of art which a few years ago were not highly valued now realise surprising prices. Many of the works of artists who are almost forgotten may also have their day and be received with cheers in the auction room. For such cases the "Dictionary" may be considered as an investors' guide. That the work should be found in every public library in the country is imperative. But no man or woman who claims to be an authority on English art can dispense with it. It may also be added that blank sheets are introduced for manuscript additions.

ARCHITECTURE AND ITS PLACE IN A LIBERAL EDUCATION.*

(Concluded from last week.)

PART II.

THE PLACE OF ARCHITECTURE IN A LIBERAL EDUCATION.

ARCHITECTURE having thus been shown to be a petrified history of each period, let us look at its place in the educational system of the day, first considering some reasons why a detailed study of its system has not been included in past educational schemes.

It is to be presumed that its absence has been largely due to its technical nature, and to the belief that it was impossible for the lay mind to grasp its forms and the constructive principles of which it is the outcome.

There seems to be no other valid reason to account for the fact that the educational door should have been shut for so long upon so entrancing a subject. But probably a stronger reason was the inability to discuss the subject from the educational point of view, because of the absence of available illustrations. To talk of architecture to the layman without adequate views and plans is like reading a play instead of witnessing it upon a stage, and this lack of illustration, and difficulty of presentment of such as was available, must have been a great deterrent, which in these days no longer exists.

Although architecture has been ruled out of the educational codes of the past, there have always been *dilettanti* who have been worshippers at her shrine, and among modern writers it is well to remember that many, like Freeman and Fergusson, have had no professional education in the art. Whereas in the past many of the world's greatest men and rulers have been builders, or at least patrons—e.g. the kings of Egypt,

Darius, Xerxes, Pericles, Alexander, Augustus, Hadrian, Trajan, Constantine, Theodoric, Theodosius, William of Wykeham, William the Conqueror, Charlemagne, the Medici, Wolsey, Elizabeth, Francis I., Louis XIV., Philip of Spain and Napoleon III.—yet in the later days of art, the patron system and protection of great men having lapsed, owing to the march of democracy and the greater distribution of wealth, the patronage of rulers is wanting, and the democracy not being educated up to the value of art as a national system, architecture has fallen into a state which is not advantageous either for the production of good architecture or national interest therein. Art cannot thrive without these protecting influences necessary for its production.

In the present schemes architecture does not figure on account of the apathy of directors of education, which is, by the way, not their own fault. Being brought up on a scientific code they clamour for the inclusion of geology, mineralogy, astrology and all the other "ologies." The fact that music and singing are also included (although taught in an elementary sense only) accounts for the greater general interest taken in them by the public, and justifies music being termed, as it was by Symonds, the truly modern art. History and literature are also included in modern education, but much human interest is eliminated from both because their joint production, architecture, or the petrified history of each period, is scarcely even mentioned. Yet the work of human hands should be worthy of study, and should give us an insight, not obtainable in other ways, of the thoughts, feelings and aspirations of the men who produced it. The plea put forward here is that the time has arrived for the establishment of a special faculty of architecture, to advance the general study of it apart from its adoption as a profession, and it is regrettable that architecture has as yet no seat within the portals of the great universities. There, if anywhere, we might expect to find that the history of the humanities in past ages should find a protecting roof, and that the student at these great centres of learning should be able to obtain the elementary principles of art in each age. In fact, it seems that these centres should essentially be the places where such education could be obtained, for whereas all over the country scientific and strictly technical education is advancing with rapid strides aided by large grants of money from the public purse, and whereas schools in business and other centres are being erected in furtherance of the forward policy of national education, we might expect that at the ancient universities the wider aspects of life, ancient and modern, should be cared for, and that their protecting wing might include the culture and art of all ages. Architecture is much more worthy of inclusion in a liberal education than a score of subjects one can mention that have secured their position and recognition.

There seems no reason why the technicalities—far less difficult, by the way, than in many of the sciences referred to above—should not be easily mastered by the average student of history, and why a lecturer, imbued with the absorbing nature of the subject and the necessary knowledge, should not invest with human interest what are supposed to be mere dry-as-dust subjects.

The possibilities of the inclusion of architectural history in any scheme of liberal education seem to be rendered easier and more necessary for many reasons, a few of which can be enumerated shortly. The open-mindedness and progressiveness of certain modern educational authorities, of which the London University is an example, has already provided for courses of lectures on various periods of architectural history, and the attendance at these must have shown the authorities that they have provided for a much-needed want, in spite of the fact that the lectures are given without much relation to or co-ordination with the general history of the period, which would add much to their interest.

The present-day facilities for travel have done much to arouse a genuine interest in architectural works erected in past ages, and the personally conducted educational expeditions, which are a feature of the period, are also largely responsible for the desire to know something of the forms of art which are thus brought more prominently before travellers. Photography has also been an important factor in interesting a large section of the community, especially of the travelling and educated public, in matters of art and architectural history, and has caused a desire for a knowledge of the subject which can only be obtained by attendance at lectures in which it is systematically dealt with. The general spread of education in matters of art has caused a yearning for some knowledge of architectural

* A lecture by Mr. Banister Fletcher, delivered before the University Extension Guild at Kensington Town Hall.

forms by those who travel and by the *dilettanti*, unprovided for by any educational scheme yet in vogue.

Perhaps most important of all, the use of lantern illustrations, rendering possible the presentation of the various forms and features of each period to large audiences, has given an added interest, and has awakened an enthusiasm for the subject which could have been produced by no other means.

By the use of photography and by means of lantern slides the art history of any period of which there are examples left can be shown and dealt with serially, because the lecturer's remarks can be illustrated by means of photographs of detail and ornament, and the points of evolution and design made clear, so as to be quite comprehensible even to the least imaginative.

Architecture and the daughter arts of painting and sculpture are unique in representing not only the thought of each period, which is also expressed in the literature, but also the work of human hands, namely, the buildings of all kinds which are the result of brain-power or thought and hand-power or construction.

The inclusion of art in the new scheme of the humanities, initiated by the University Extension Board of London University, is an important step, for the history of any period is incomplete without it, and true art is the grandest work of which humanity is capable. The whole scheme of work is arranged not for professional or technical purposes, but from the point of view of a liberal education.

We have seen what has been the general history of European architecture, and how its various forms were the result of the social and industrial condition and historical events, how intimately connected was the art with the history of the period, and how it was swayed by it. We have also seen why in the past its study has not been included in the schemes of so-called liberal education, and why its inclusion is now rendered possible. We have now to consider the probable results of such inclusion and the benefits which will thus be derived by the community.

The class of persons for whom I am appealing does not, of course, refer to the professional architect, for whom it has long been held necessary to have an intimate acquaintance with the styles of his art in past ages.

It should appeal to every person to whom a liberal education is a necessity, not as a means of enabling him to gain a living, but as fitting him to enjoy to the utmost his daily existence, and giving to him an additional interest in the history of past ages. This includes the travelled and cultured class, and for them each type of architecture must be bound up with the causes—geographical, geological, climatic, religious, social and historical—of which it is the result, and the intimate connection of all these on architecture must be shown more clearly than is possible in a technical course for young students.

Architecture is a sealed book to the majority of people who wander amongst the most beautiful and most soulful creations of the past, and are unable to appreciate either their meaning or their qualities. To them form means nothing, and a Grecian temple, a Roman amphitheatre or a Gothic spire recall none of the conditions which render each a reflection of its own period in history.

Therefore the inclusion of architecture in any systematic course seems essential, and it will give to those who study it, even in a superficial way, a general ground plan of the arts of form and of the trend of humanity in past ages, which is very necessary to a proper and complete understanding of history. It will also give additional pleasure in travelling and an interest in the great works of architecture because of the knowledge which it will give of the place of each work in the evolution of art.

It has become the fashion to know something about pictures, to talk with an air of knowledge about the various schools of painting and sculpture and of the galleries in which you will find them, but has it ever struck you that with a knowledge of architecture the world is your picture gallery, each street is a picture gallery where everyone may enter without so much as the payment of an entrance fee? Then of the buildings, have they not been erected by the general mass of the community in past ages; are they not in the highest degree human, for can we not see the marks of saw and of chisel made, may be, hundreds of years ago, but still telling us of methods of construction, craftsmanship, design and also methods of thought and life? But, in addition, our free gallery of buildings varies with the day and the time of year; sometimes we see our buildings in the haze of early dawn or in the full flood of noonday sun, at others in the dimness of twilight or in the weirdness of

a moonlight night. We want no special lighting for the works of the architect, which form also a setting in their highest flights for the works of sculptor and painter; and in the change of seasons we get that variety which gives them life.

In considering the enjoyment we get from the study of an old cathedral, and the good influence of a beautiful building upon all who pass and re-pass it daily, we must not forget the effect of environment, and the sentiment of age which gives colour, interest and texture to the walls and lichen-covered roofs. By environment we mean not only the position of the building on some specially interesting spot, but the environment of the period in which the building was erected, viz. the history of that period and of the people who helped to erect the structure; for if we study either architecture or history aright we must get into the "atmosphere" of the period. Truly it may be said that history has been to architecture what steam is to machinery, the grand propelling power; and, again, that architecture has been the printing press of all periods.

If there be any one of the fine arts more particularly entitled to the attention of the general student than another it is architecture, because it calls into action so many and such varied branches of mechanical labour, and because, operating thus extensively upon national industry, it also promotes national prosperity. Consequently the dissemination of a taste for it among the middle as well as the more opulent classes of the State is to be recommended no less by sound policy than with regard to more direct and more obvious results.

Is it not therefore time in these days of enlightenment, and in the interests of true as against superficial education, to provide for the study of architecture and its history in the curriculum of the education necessary for every man and woman? Is it not the art that shelters us from the elements, and with which we are brought in daily contact; the art which gives us what we call "home," the art that enshrines and illuminates the most sacred of our associations, forming and fashioning the ornamentation of religion, which it aids by the mystery of its light, shade and colour; the art that has been, and is, the outcome of conditions intimately bound up with the history of the human race? Finally, is it not the art which is the mother of all arts, for from it sprang painting, sculpture, and all the arts and crafts of succeeding ages of development?

No student will ever regret the time spent in the study of such an enthralling subject, for every ruin which he now regards in blank amazement will then tell him of the history of other days, and will enable him to conjure up the character of the men of the period in which it was erected, and will open wide to him the enjoyment of contemplation of form, of which he will then appreciate the meaning and the lesson it should teach.

THE RESTORATION OF IONA CATHEDRAL.

AT the General Assembly of the Church of Scotland last week Dr. Donald Macleod made the following statement on behalf of the Iona Trustees:—Since the trustees stated to last General Assembly what had been done towards restoring the ruins of the ancient ecclesiastical buildings to a fit state for use for the purpose of worship, a considerable amount of work has been undertaken and some very interesting parts have been added to the building. Last year the sacristy was re-roofed, and the arcading between it and the choir has been opened out. Also the north transept has been added to the restored building and the partition between it and the tower has been removed. The whole of the floor of the part now roofed in has been paved. The small window in the east end of the south aisle has been restored. This window is a very unusual design and almost unique in its tracery. The trustees are indebted for the restoration of this window to the kindness of Miss Campbell of Blythswood, at whose expense it was carried out. Arrangements have been made with the convenor of the Highland committee that if his committee are able to send deputies to Iona during the summer the regular services of worship may, with the co-operation of the parish minister, be held in the cathedral. Before this can be done some small further repairs must be carried out and chairs and a reading desk must be provided. To complete the restoration of the parts already roofed in Dr. Honeyman reports that an expenditure of about 250*l.* will be required. To meet this and the balance of the repairs carried out last year, which has been temporarily

borrowed from the bank and other liabilities, about £1,100, is urgently required. Besides this, other things are necessary, but not so urgent, requiring a considerable additional expenditure. The trustees have resolved, if the General Assembly approve of the proposal, to appeal to the ministers of the Church, and through them to the people of Scotland, for subscriptions. The trustees in submitting this statement earnestly request the support of the General Assembly to the appeal above referred to.

Principal Stewart, St. Andrews, moved:—"That the General Assembly are glad to learn that the restoration has proceeded so far as to permit of the arrangements proposed with the concurrence of the parish minister for holding Sunday services in the cathedral during a part at least of the summer. The General Assembly approve of the proposed appeal and wish it all success." The response to their appeal, they must admit, has been so far disappointing. Dr. Donald Macleod had just returned from South Africa, where his appeal had received a very cordial response. The subscriptions he had received amounted at present to between 300*l.* and 400*l.* One of the difficulties they had to contend with in making their appeal was the want of an adequate scheme of some useful purpose to which the restored buildings might be devoted, and he was sure the Assembly would hail with satisfaction the announcement as to the holding of Sunday services. One most useful purpose to which this gift might be put would be that it should be used as a place where ministers in delicate health might get a fortnight or a month's holiday during the summer, with the very slight duty imposed on them of conducting a Sunday service. He was told that it would not take much to make some of the buildings, say, the nunnery, suitable for a residence for the ministers who went there. It was not an act of gratitude to the late Duke of Argyll that the buildings had been allowed to remain so long without the necessary repairs being carried out, and he did think that when the Duke of Argyll entrusted the Church of Scotland with the ownership and custody of these ancient buildings it should not be shown by their conduct that the trust had been in vain.

Dr. Blair, in seconding, suggested that they should have a retreat there not merely for men in delicate health, but where ministers could retire and hold converse with one another, and calmly and quietly, amid the historical reminiscences of Iona, study many questions that affected the Church.

The motion was unanimously adopted.

SOCIETY OF ARCHITECTS.

ON Saturday thirty-six members of the Society of Architects from London and provincial centres spent several hours in touring Liverpool for the purpose of acquainting themselves with most of the places of interest from an architectural point of view. Mr. Walter W. Thomas, who is president of the Society, in conjunction with the secretary, Mr. C. M'Arthur Butler, had made the arrangements for the visit. The itinerary began with a visit to the new Dock Board offices, of which Messrs. F. H. Hobbs & Arnold Thornely are architects. This interesting experience was succeeded by a tour of the docks by means of facilities kindly provided on the Overhead Railway by the engineer and general manager, Mr. S. B. Cottrell. Other places seen included the Hatton Garden fire station, St. George's Hall and the town hall. The visitors, lunched at the North-Western Hotel, under the presidency of Mr. Thomas. The Lord Mayor, who had desired personally to welcome the visitors, called at the hotel, but as they had not returned at the appointed time from the itinerary, his lordship had to leave to fulfil his engagement to accompany the Municipal Officers' Guild on the Welsh coast trip by the steamer *La Marguerite*.

After the luncheon Mr. A. E. Pridmore (vice-president) proposed the health of the President, and expressed the thanks of the party to Mr. Thomas for the excellence of the arrangements which had been made for the visit.

Mr. Thomas suitably responded, and in proposing the toast of "The Lord Mayor and Corporation of Liverpool," conveyed to the members of the Society present the heartiest greetings of the Lord Mayor.

Mr. Turton (deputy surveyor to the Liverpool Corporation) responded.

On the initiative of Mr. Ellis Marsland (hon. secretary) the company toasted the health of all in Liverpool who had

assisted to make the visit the enjoyable success which by all the visitors it was voted to have been.

At the town hall, which was inspected in the afternoon, the members of the party were received by Alderman Willink, acting on behalf of the Lord Mayor, and were entertained to tea.

The visitors took their departure from Liverpool on Saturday evening.

THE WATTS BEQUEST.

THE late G. F. Watts, R.A., after his long career as an artist, had accumulated a vast number of studies besides other works. In his will it was stated that the President of the Royal Academy should have first choice, and afterwards there was to be a division among various galleries throughout the country. As there were difficulties about the interpretation of the clause Mrs. Watts, in order to avoid litigation and in accordance with what she believed would have been his wishes, proposed that some of his works should be given to existing public galleries, and that the greater part of the works should be used to form a collection for exhibition at the gallery at Limnerslease, Compton, Guildford, erected by him. With a view of carrying out this proposition the executors, with the approval of His Majesty's Attorney-General, requested Sir E. J. Poynter, P.R.A., Sir Charles Holroyd, keeper of the National Gallery of British Art, and Mr. Lionel Henry Cust, the director of the National Portrait Gallery, to select such of the late artist's works as in their opinion could suitably be placed in a public gallery for exhibition or study. The committee accordingly made a selection, and a scheme for dealing with Mr. Watts's works based upon its report was, after submission to the Attorney-General, approved by Mr. Justice Warrington on Monday.

The scheme provides that the following works are to be given to the undermentioned provincial galleries:—"Mischievous," to the National Gallery, Princes Street, Edinburgh; "Faith, Hope and Charity," to the National Gallery at Dublin; "Echo," to the Nottingham Art Gallery; "The Recording Angel," "The Court of Death" (study), "The People that Sat in Darkness," to the Manchester Art Gallery. These are some of the late artist's finest works in red chalk. "A Study for the Court of Death" and "Britomart," to the Art Gallery at Norwich.

One hundred and nine works are to be placed in the gallery at Limnerslease, which will be open to the public on at least three days of the week free of charge, and on at least three other days of the week at a charge (if any) of not more than one shilling per person. Mrs. Watts will convey the gallery to trustees for the benefit of the public in perpetuity, and will endow it with a fund sufficient for its maintenance.

The following portraits by the late Mr. Watts will be retained in the gallery at Limnerslease until the time shall arrive, according to the rules in force relating to the reception of portraits by the National Portrait Gallery, for their presentation to that gallery:—Field-Marshal Earl Roberts, K.G., V.C., the Right Hon. Gerald Balfour, the Right Hon. the Marquis of Ripon, Mr. Algernon Charles Swinburne, Mr. James Passmore Edwards, the Right Hon. Charles Booth, the Lady Mount-Temple, Mrs. Josephine Butler, Claude Montefiore, Professor Flinders Petrie, Mr. John Burns, M.P., Mr. Walter Crane, the Right Hon. Cecil Rhodes (unfinished), Mr. George Meredith, Mr. Philip Hermogenes Calderon, Mr. G. F. Watts, R.A.

Mr. Watts's study in gesso of "Physical Energy" will be placed at the disposal of His Majesty's Commissioner of Works, or other proper authority, in order that it may be utilised for making a bronze statue for London, and after being used for this purpose the work is to form part of the collection in the gallery at Limnerslease.

In accordance with a promise made by the late Mr. Watts his picture "Alice" has been selected for presentation to the National Gallery of Art of New South Wales.

The testator bequeathed to his friend Mr. Andrew Hitchens one of his small pictures, to be selected by him; to Mr. George Duckworth a portrait of his mother, Mrs. Julia Leslie Stephens; to Sir Walter Dalrymple, the small portrait of his mother, Sophia Lady Dalrymple; to Laura Lady Troubridge, the portrait of herself in a red cloak; to General Arthur Prinsep, the portrait study of his mother in a red dress; and to Mrs. Florence Maitland, her own portrait.

NOTES AND COMMENTS.

ALL statistics relating to the Metropolis are startling. It might be supposed that the figures showing the traffic over the bridges in London could not easily be approached. But at Woolwich they are no less remarkable. The free ferry was opened in March 1899, and during the three complete years following (1899, 1891 and 1892) it was used by 12,205,474 passengers and 678,152 vehicles. During the last three years (1902, 1903 and 1904) these figures have increased to 15,642,869 passengers and 1,328,624 vehicles. The total up to the end of 1904 is 70,402,853 passengers and 5,806,446 vehicles. Useful as is the ferry, it cannot always be worked. During bad weather and fogs traffic must be suspended. Last year there were 38 stoppages, which must have caused much inconvenience to the working class. The bridges committee of the London County Council are justified in proposing that a footway tunnel about 11 feet in diameter, similar in design to the Greenwich tunnel, should be constructed under the river at the point where the free ferry crosses. The length would be about 500 yards. It would not be necessary to acquire any land in connection with the construction of the tunnel, as the shafts on either side of the river could be sunk under land belonging to the Council, and the local authority, the Woolwich Metropolitan Borough Council, who are responsible for the paving, maintenance, &c., of the land, would be prepared to give the necessary facilities. The total estimated cost of constructing a footway tunnel would amount to about 145,000*l.* The annual cost of the maintenance of the tunnel, including the supply of electric current for the lifts, is estimated at 2,500*l.* It will be necessary to obtain authority from Parliament to carry out the project.

In his annual report Mr. W. L. VERNON, the Government architect of New South Wales, says:—"The composition of the staff of officers of the department underwent, during the year, a very drastic investigation on the part of the Public Service Board, resulting in some considerable changes. I can congratulate myself that the consequent reorganisation retained for me the services of active, businesslike and experienced outdoor officers; a body of draughtsmen which I doubt could be equalled for ability in the whole of the States, and a most competent staff of district architects, whose constant attention in the country districts has enabled the utmost to be done in keeping up the condition of buildings under somewhat adverse circumstances. The number of officers under my control is numerically less than before." On July 1, 1903, there were four first-class architects, seven second-class, eight district architects and fifteen draughtsmen. On July 1, 1904, the respective numbers were three, four, five and ten. That means a reduction in assistants from 9,543*l.* to 7,100*l.* There used to be eighty-one assistant engineers; the number has been reduced to twenty-eight. That means a reduction from 29,265*l.* to 10,745*l.* Instead of having thirty-seven engineering draughtsmen, there are now nineteen. The surveyors have been reduced from eighteen to eight. It is said that as far as was possible "the permanent officers were transferred to other departments where their services could be utilised, but unfortunately places could not be found for all, and many officers who had been in the department for years had to be retired from the service. During the year a complete reorganisation of the country officers, with a view to more economical and efficient working, was made; and in place of having, as formerly, two or three officers in the same town, each representing a separate branch of the department, one responsible officer is now in charge of each district, exercising control of all works carried out in that district by the department. In consequence of this reorganisation, and the dispensing with the services of officers no longer required, the returns for 1904-5 will show a reduction of 439 officers."

Few visitors to the Bavarian Walhalla, unless they are Germans of the old school, can admire the building. It was an effort to realise GOETHE's idea of a combination of Northern and Greek ideas. The tribes who believed in a Walhalla where heroes were to assemble could not suppose it would assume the form of a Greek temple. But KLENZE was willing to serve as an interpreter for the king. He produced an excellent imitation of Greek work, but he could not suggest the furnishing of it. Only very classic people can gaze on the busts without being chilled. The temple, in spite of its style, was not out of place among Germans, especially as in modern times they have endeavoured to imagine themselves as resembling the men who fought against the Roman legions. A Walhalla in Brussels is, however, a different sort of affair. There are a greater variety of uniforms to be seen in Belgium than in much larger countries, but when we think of their warlike deeds there somehow arises the figure of VAN CUTSUM in "Vanity Fair," that sensitive hussar who, like all his regiment, obeyed the colonel and fled from Waterloo. Perhaps the Walhalla which the King of the BELGIANS is about to have erected will testify to victories in Congo and elsewhere. It is to be an imitation of KLENZE's temple, although M. BOUVARD, the French architect, to whom the project is entrusted, would be able to produce a more appropriate design. But why should not a Belgian architect receive the commission, and why is the Flemish style unsuitable? We suppose the Walhalla or Panthéon is to be considered as a national memorial and therefore it should not display indebtedness to strangers. The site of the building is close to the Porte de Namur in Brussels.

THE charming property in the western suburb of Paris known as "Bagatelle" having been acquired by the Municipality, an exhibition of works by English painters has been opened in one of the vacant pavilions. M. CAMILLE GROULT has lent fifty pictures by TURNER, REYNOLDS, GAINSBOROUGH, ROMNEY, CONSTABLE, &c. The subject of one of TURNER's is the Pont-Neuf, Paris. There is also a Venetian scene by him. Although the collection is limited it justifies the preference of DELACROIX, GÉRICAULT and other Frenchmen for English paintings some seventy years ago. The exhibition, unlike the majority of those in Paris, can only be seen on payment of an entrance fee. The money received is to be devoted to the purchase of works of art, which will form a permanent collection.

The result of the elections for Council of the Royal Institute of Architects on Monday was as follows:—JOHN BELCHER, A.R.A., President. Vice-Presidents.—EDWIN T. HALL, HENRY T. HARE, LEONARD STOKES, Sir JOHN TAYLOR. Honorary Secretary.—ALEX. GRAHAM, F.S.A. Members of Council.—W. H. ATKIN BERRY, J. J. BURNET, A.R.S.A., W. D. CAROE, M.A. Cantab., F.S.A., T. E. COLLCUTT, A. W. S. CROSS, M.A. Cantab., ERNEST GEORGE, JAMES S. GIBSON, J. ALFRED GOTCH, F.S.A. (Kettering), E. A. GRUNING, EDWARD W. MOUNTFORD, Professor BERESFORD PITE, A. N. PRENTICE, G. H. FELLOWES PRYNNE, JOHN W. SIMPSON, JOHN SLATER, B.A. Lond., C. HARRISON TOWNSEND, PAUL WATERHOUSE, M.A. Oxon., EDWARD WOODTHORPE, M.A. Oxon. Associate-Members of Council.—R. S. BALFOUR, HENRY A. CROUCH, W. A. FORSYTH, H. V. LANCHESTER. Representatives of Allied Societies.—A. W. BREWILL, G. BERTRAM BULMER, THOMAS COOPER, H. L. GODDARD, M.A. Oxon., JOHN KEPPIE, W. M. MITCHELL, G. H. OATLEY, P. C. THICKNESSE, J. H. WOODHOUSE. Representative of the Architectural Association (London).—E. GUY DAWBER.

ILLUSTRATIONS.

GAIETY RESTAURANT.—GRAND SALON.

HERRISON, DORCHESTER.

HARDRES COURT, CANTERBURY.

DINING-ROOM, COUNTY SESSIONS HOUSE, PRESTON

MAIDSTONE.

THE first summer ramble of the twenty-ninth season of the members of the Upper Norwood Athenæum was taken under the conductorship of Mr. T. C. Thatcher to the capital of Kent on Saturday, May 6. A good muster of members and friends left town by an early train, and on arriving at Maidstone a brief visit was paid to St. Peter's Church, erected in the thirties on the site of an ancient Pilgrims' chapel, a few portions of which were visible at the east end of the present church. Then the Archbishop's palace was seen, one of thirteen seats of the primate in Kent; three were in Surrey and two in Sussex. Hasted's "Kent" gives a view of as much of the palace at Maidstone as remained at the Dissolution. They proceeded to the beautiful church of All Saints, then to the college of All Saints and the Tithe Barn, an interesting specimen of this class of building, having an external stone staircase like the old toll-house at Yarmouth, a feature sometimes found in fourteenth-century buildings. The interesting Elizabethan building, the former Chillington manor-house, which is now the Museum and Library of the town, was visited. It is a picturesque building, and contains a large and varied collection of antiquities illustrating all periods of prehistoric existence, Roman pottery and leaden coffins, fossils and bones of the mammoth, rhinoceros and Irish elk, portraits of bygone worthies, including Hasted, the historian of Kent, and a good painting by Morland. Amongst other good things are Mediæval weapons and ironwork, a large Natural History collection and the ancient college library, and a valuable reference library of Kentish topography.

At the evening meeting Mr. Thatcher read the following paper:—

Maidstone in Saxon times was called Medwegstun, meaning Medway's town (Russell). Lambarde tells us that in an ancient Saxon book which he had seen on

of bronze and a lamp, both Roman, were discovered, and in 1870 the foundations of a Roman villa were unearthed in a hop garden near Upper Stone Street.

If a criminal sought refuge in All Saints Church he received protection of sanctuary. But the means also existed for effectually punishing offenders against the public peace. The cucking-stool was a frequent source of expense to the town, and the stocks and the pillory were constantly in need of repairs; there was a "cage" for rogues and vagabonds in the High Street, removed in 1654 to a void space beside the Great Bridge stairs.

In Anglo-Saxon times the neighbourhood of Maidstone was the scene of many conflicts, such as the battle of Aylesford, when Horsa and Catigern were slain. This place we visited last autumn. Edmund Ironside, having defeated the Danes at Otford, pursued them as far as Aylesford, where he was victorious.

One of the most notable events which distinguish the place in history was the famous meeting held on Penenden Heath—that is "the place of penalty;" in fact, at this place criminals were executed (it is about one mile north-east of the town)—between Lanfranc, Archbishop of Canterbury, and 'Odo, Bishop of Bayeux, Earl of Kent, brother of William the Conqueror, in consequence of the latter's appropriation of various lands and privileges formerly enjoyed by the Primate, and after a trial lasting three days, Odo, got the worst of it, and had to relinquish twenty-five manors to the See of Canterbury.

In the reign of Richard II., in 1381, Wat Tyler (but whether he was born in Kent or Essex is still a matter of dispute) set up his standard in rebellion. And in the reign of Queen Mary, 1554, Sir Thomas Wyatt took up his stand in the High Street and announced his intention of opposing the marriage of Queen Mary with Philip of Spain, and his principal supporters were landholders from this part of



MAIDSTONE—CHURCH, PALACE AND COLLEGE.



CHILLINGTON MANOR-HOUSE, MAIDSTONE.

the bridge work at Rochester it was written Mægwanstane—"that is to say, the mighty or strong stone, a name (belike) given for the quarries of hard stone there." In Domesday Book the name occurs as Meddestane, the mid-town or town in the middle of Kent. This is Newton's idea. In Edward I. Law Reports it is written Maydenstan, the "town of maidens," and out of this arose the idea of placing a maiden standing on a stone on the old seal of the town. To my own mind the older is the correct meaning, and we may take it to represent Medway's town, considering the frequency with which the Saxons named towns and vills after the rivers upon which they stood.

The locality is claimed to be the site of a Roman station, though not necessarily a military one, yet there is every reason to believe, from its important local position, and from remains which have been discovered from time to time, which you have seen to-day in the Museum, that it was a place of consequence during the Roman occupation. In 1715 several Roman urns and bottles were found at the lower end of Earl Street, urns were found in Howick Lane and at St. Faith's Green in 1819, also, in the same year, part of a Roman shield, a brooch and several coins were unearthed near Wheeler Street. In November 1859 over twenty-four human skeletons were dug up, together with about 150 Roman urns and coins. In 1822 a small image

Kent. His fate and that of his followers is well known. One result was that Allington Castle was forfeited to the Crown. In Mary's time several noblemen and women suffered death by burning for conscience sake in the town of Maidstone. On June 11, 1557, two men and five women were burned at the stake in the Fair Meadow, one of whom was a poor sightless maiden commonly called "Blind Bess." These were all tied to one stake.

Edward VI. incorporated the town under the title of "The Mayor, jurats, &c.," of the town of Maidstone in Kent, a privilege which it forfeited on the occasion of Sir Thomas Wyatt's rebellion. This was restored by Queen Elizabeth in the year after her accession to the throne.

On Thursday, June 1, 1648, Lord Fairfax laid siege to Maidstone. Sir Gamaliel Dudley was governor and Sir John Mayney second in command. It was a desperate battle, the Royalists disputing every inch of the way until twelve o'clock at night; and after five hours' hard fighting were driven into All Saints Churchyard, where they surrendered. Sir John Mayney and 300 Royalists were slain, and Sir Gamaliel Dudley, Sir William Brockman and 1,300 men were captured, beside 500 horses, 3,000 arms, 9 colours and 8 pieces of cannon. A full description of this battle you will find in Clarendon's work, the "History of the Rebellion." In fact, the Parliament estimated the victory

so highly that they ordered a Thanksgiving for it "in all the parish churches of London and Westminster."

Maidstone has had its celebrities:—Ralph of Maydenstan, Bishop of Hereford, died 1245; John de Maidstan, Dean of Lincoln, 1275; Walter de Maydenstan, Bishop of Worcester, 1313; William Newton, the historian of his native town, died 1744; and William Wolleth, the eminent engraver, born 1735.

The Archbishop's palace is on the north side of All Saints, the palace grounds adjoining the churchyard. Newton tells us that the manor of this place, together with the palace or castle, did formerly belong to the family of Cornhill, and so continued till William de Cornhill, desiring to exemplify his zeal and devotion to religion, gave them to Stephen Langton, Archbishop of Canterbury, in the seventh year of King John, or about A.D. 1207. But how true soever this may be of the castle, it is very certain that long before this, in the reign of Edward the Confessor, the manor of Maidstone was owned to be the property of the Archbishop of Canterbury, probably by the gift of one of our Saxon princes. Thus it is entered in that ancient and venerable record called Domesday Book:—"Maidstone is the Archbishop's own manor, and in the time of King Edward defended itself for x plough-lands. And of them Ralph holds one plough-land, which is appraised at 50s., and William, the brother of Bishop Gundulph, holds two plough-lands, and they are appraised at 10l., and Anscetillus de Ross one plough-land, which is appraised at 60s. And two men have thence one plough-land, who render to the altar of the Holy Trinity 16s., and yet that plough-land is worth 20s. This manor has an hundred within itself."

In 1348 Archbishop Ufford pulled down the greater part and commenced the present buildings. They were not completed until the time of Archbishop Islip, who sued the

Sir Jacob Astley (created Baron Astley of Reading), and was alienated by his representative in 1720 to the first Lord Romney, whose successor handed it over to the Corporation quite lately.

The dungeon is a vaulted chamber with a fine groined roof, and where it is said an anklet was found not so long since, and this tells a dreary story of poor prisoners kept in durance vile in olden days. The window is still to be seen where the food for the unfortunates was lowered down. The four walls adjoining mark the site of the prison chapel and guard-room.

Inside the building we have the dining hall, with the raised dais for the prelate; the bishop's robing-room, library and private chapel; and also the entrance to a subterranean and unexplored passage, leading, it is said, to an old house in Buckland, on the other side of the river. But the most curious part of this passage is that it commences on the first floor, and not from the ground floor or basement.

The palace and grounds were secured by public subscription and presented to the borough in 1887 to commemorate the jubilee of Her late Majesty Queen Victoria. The ground floor is now the headquarters of the Royal Army Medical Corps, and I believe the private chapel is given over to musical studies.

The tithe barn, now used as stores and stables, appears to have been a portion of the original offices. The stone staircase on the outside, common to Late Decorated houses, the arched doorways and the moulded windows, all of these are worth our notice.

We will now turn our attention to Maidstone Church, a very fine example of Perpendicular work. "The building is assigned almost completely to Archbishop Courtenay, 1381-96, who, after building the adjoining college, obtained



TOMB, WITH FRESCO, OF DR. JOHN WOOTTON.



FIREPLACE AND PANELLING, ARCHBISHOP'S PALACE.

administrators of Ufford for dilapidations, and, receiving 1,100l., demolished a house belonging to the archbishopric at Wrotham, and made use of the materials for completing the building of the palace. He also obtained the Pope's license to charge his whole province with a tax of 4d. out of every mark, under colour of which his officers demanded and collected a whole tenth towards the building of this house and other like purposes. But Stephen Birchington puts it more plainly:—"But by the craft of his clerks, who only showed to the clergy the said letters in the church of Maidstone without reading them, he extorted from his subjects a full tenth (10th), and had from others of the province of Canterbury only 4d. of a mark according to the Bull."

It was largely added to by Archbishop Courtenay in 1381-96; he also founded the college, and died in the palace in 1396, and Archbishop Stafford is also said to have died in the palace in 1452. The palace was again added to by Archbishop Morton in 1486. King Henry VI. visited it in 1438, and with the great primates of England it continued a favoured residence until Cranmer in 1538 surrendered it to Henry VIII. Edward VI. granted it to Sir Thomas Wyatt, on whose attainder it reverted to the Crown. Queen Elizabeth bestowed it upon Sir John Astley, who died in 1637, from whom it passed to his son, the famous cavalier,

the license of the king (Richard II.) to convert the parish church of St. Mary to a collegiate church, dedicating it afresh in honour of All Saints. The first notice of Maidstone Church occurs in Domesday Book, where we find that about 800 years ago a parish church stood on the same spot, evidence of which was discovered during the restoration, when the piers of the columns in the arcades were found to be resting on massive oval-shaped plinths, which evidently had supported the columns of the original church. This discovery was confirmed by the finding afterwards of some of the tiles that formed the pavement of the original church.

"The entire edifice was designed upon definite and fixed proportions. The nave is 99 (3 times 33) feet long, its width is nearly 93 (3 times 31) feet, the chancel is 60 (3 times 20) feet, and each side aisle of it is 12 (3 times 4) feet wide; the choir proper is also 60 feet long and 30 (3 times 10) feet wide, forming two squares of 30 feet each. Archbishop Benson in 1886 said:—"If you take the plans and examine the dimensions, you would find them written all over with the figure three, undoubtedly with the intention of keeping before men's minds the Holy Trinity and the God whom they worshipped." Thus, too, there are twelve pillars in the nave, six on either side, representing the Apostles, and four in the chancel, two on either side, representing the Evangelists." (Row and Martin.)

The monument of Lord Jacob Astley bears the inscription:—

To the never dying Memory of that
Great Soldier and Person of Honour,
Lord Jacob Astley, Baron of Reading.
Let th' Island Voyage (in the Van) speake forth
Thy youthful Valour, they all-daring Worth.
Next: Newport Battell, where thou didst prefer
Honour to Life; there made an Officer
By famous Orange (thy great generall),
Under whose sword (that day) Spayn's force did fall.
What Cloudes of Nations could I raise for thee,
And each one would a glorious witness bee.
As Holland, Denmarke, and vast Germany,
All grieve thy losse, honour thy Mémoire.
England (thy Mother) crowned thy hoary Head
With Major Generall. Here in Honours Bedd
Thou (now) dost rest. And with more honour than
These times afford unto a noble man.
Faith, Valour, Conduct. All in Souldier should,
Or could be wisht for, this Tombe doth enfolde.
Ao. Dni., 1653.

Obiit, 27 Die. Febyuarri, 1651.

Before the battle of Edgehill (where Sir Jacob was severely wounded) he knelt down and offered up this memorable prayer:—"O Lord, Thou knowest how busy I must be this day. If I forget Thee, do not Thou forget me;" and with that he rose up and cried out, "March on, boys."

In the south aisle is the piscina that marked the position of the altar of St. Katherine. The Arundel chapel is entered by passing through the new carved screen, recently erected by the officers and men of the Royal West Kent Regiment, in memory of their comrades who were lost on the North-West Frontier of India.

In this chapel are many monuments, but the most noted is that to Dr. John Wootton, died 1417; he was appointed by Archbishop Courtenay as the first master of the college. He was master for twenty years, and was also a canon of Chichester Cathedral. Its brasses are gone, but there still exists in the arch above a mural painting representing the Archangel Gabriel presenting the deceased, symbolised by a very diminutive figure in a suppliant posture, to the Virgin Mary, who stands between St. Katherine (with her wheel) and St. Mary Magdalene, while in the distance are the canon's patron saints, each wearing a pall and crowned with a luminous glory. Figures of Archbishop Becket and Bishop de la Wych of Chichester are in the side canopies.

In the centre of the chancel a raised slab has been despoiled of its brasses, but their matrices plainly show that they portrayed a bishop with mitre and crozier. It is the memorial to Archbishop Courtenay, over which so much controversy has raged, for according to the Leiger (or Leger) book of Christ Church, Canterbury, recently confirmed by some discoveries in the Chapter Records, he was interred by the order of Richard II. in the cathedral (where his monument of alabaster still exists, at the feet of the Black Prince), on August 4, 1396, though contrary to the desire expressed in his will that he should be buried in his beloved church of Maidstone. Excavations were made beneath the slab in 1794 by the Rev. John Denne (curate-in-charge), and at a depth of 6 feet a skeleton was discovered, but without any ring or pastoral staff, and from the perfect state of the teeth apparently of a much younger man than the prelate. Mr. Bèresford Hope suggested that his heart may have been buried here, and his body in the cathedral, a custom not uncommon in those days.

Chillington House was originally the Court House of Chillington Manor, which passed from the Cobhams to the Maplesdens, and was forfeited by the latter for their share in Sir Thomas Wyatt's insurrection. Here is the public Museum, containing some good specimens of the birds and fossils of the neighbourhood, and a fine collection of Roman relics, the donation of the late Mr. Thomas Charles, who resided there, and died in 1855. The manor-house itself is an excellent specimen of domestic architecture of the Elizabethan period. Evidence of an older building was discovered in 1871, as some rag-stone jambs and an arch were found *in situ*, the spandrels bearing the initials I. M. and P. M. respectively, probably those of John and Peter Maplesden, who occupied the house about Henry VII. or VIII.'s time. This relic now forms part of the fireplace in the Brenchley room.

In 1343 is the first mention of this manor, then held by the great Cobham family, afterwards by the ancient college of All Saints, and then by the Maplesden family, who, as I have already said, forfeited it to the Crown in 1554. In

the fourth year of Queen Elizabeth's reign it was sold to Nicholas Barham, serjeant-at-law, Recorder and M.P. for Maidstone, for 500*l*. In 1683 it was the residence of Edward Wyatt, serjeant-at-law; in 1801 Mr. William Charles purchased it, and at his death in 1832 it passed to his two sons, William and Thomas. The latter bequeathed his collections to the town, forming the nucleus of the present extensive Museum. The Corporation subsequently purchased the house and garden adjoining. In the reference library are some very valuable topographical works.

The College of All Saints, founded by Archbishop Boniface in 1260, was the hospital for reception of poor travellers and for the special benefit of pilgrims on their way to the shrine at Canterbury. All that is left of this ancient building is to be found in St. Peter's Church. It had fallen so low as to become a store-room, but now it is used again for worship. In 1395 the hospital was incorporated by Archbishop Courtenay with the new college of secular priests, the larger part of which still stands to the south of the church. The buildings still standing belong partly to the Earl of Romney, and are in private occupation.



ALL SAINTS COLLEGE, MAIDSTONE.

They consist of a gateway, a long range of rooms between it and the river, terminated by a tower, and the master's house on the right-hand side. The first master was John Wootton, whose elaborate tomb we have seen to-day in All Saints Church. The college was dissolved about 1538.

In conclusion, I have to acknowledge my indebtedness to Newton's "History and Antiquities," Russell's "History of Maidstone," Hasted's "History of Kent," and Row and Martin's "Kent's Capital." I must also express my sincere thanks to Mr. Downes for his kindness in taking me over the ground and for his valuable advice, and also the custodian of the Archbishop's palace, the vicar of All Saints, and the curator of the Museum for the attention shown; for this, gentlemen, as you are doubtless aware, is my first attempt at a ramble, and under the circumstances trust that you will overlook any deficiencies that appear in my paper, for my great difficulty was what to put in and what to leave out—for this is a subject which deserves to be treated in a far more able manner than I

have done. I have endeavoured to place before you the history of those places we visited to-day in as lucid and brief a description as possible, and if I have given you a pleasant afternoon I am amply repaid.

SCHOOLS OF ART IN SCOTLAND.

SPECIAL reports as to the character of the instruction in various schools of art, by Mr. E. A. Walton, R.S.A., have been presented to the Scotch Education Department as follows:—

I have visited the following schools of art in Scotland, viz. the School of Art, Glasgow, the Royal Institution School of Art, Edinburgh, the Heriot-Watt College art classes, Edinburgh, the Technical Institute art classes, Dundee, and Gray's School of Art, Aberdeen.

On beginning my work of inspection I was accompanied by the officers of the department charged with the special oversight of the science and art work, and at each school I was attended by the director or headmaster. I visited every class, morning and evening, that was held during my stay in the four cities; I interviewed each separate master, gave advice on the particular work of each class, examined the work in hand of the students, and looked at specimens of finished work which were set out for my inspection and criticism.

In this report I have dealt, as requested, particularly with the drawing and painting classes. Before I was requested by your lordships to visit the schools, I had had opportunity from time to time of seeing the working both of the old and new systems of training art students, particularly in the Glasgow School of Art. It is my opinion that the present state of the schools is a great improvement on the past, and if all the classes of the schools were brought into line with the best classes I have seen under the new system, the art student would now be able to receive as designer, craftsman or artist as complete and thorough a training as he could get anywhere at home or abroad. A greater union between the schools of art in Scotland should be encouraged, and I advise that all the masters should visit the different schools from time to time. I therefore recommend that the masters charged with the oversight of the classes for painting and drawing from life and antique should in particular visit the Glasgow School of Art, where I found the system best carried out with regard to these classes.

The excellent collection of architectural casts in the Royal Institution, Edinburgh, should be made more use of, and I would therefore advise that every art school in Scotland should have a complete set of copies of this specially fine collection, also that every school should help as far as possible in spreading copies of its best properties in this way. I further recommend that the masters of the various architectural classes of all the schools should visit that held by the Royal Institution, Edinburgh. There is a very distinct effort being made to bring the Board school drawing-classes for children into closer touch with the system of the art schools; I made it my business when in Scotland to visit two of the Board schools to make myself acquainted with the system employed. I was greatly impressed with this department of general education; I think it augurs well for the future, for every branch of handicraft and learning will be greatly aided by it, and it will materially raise the standard of the art schools. In the art schools themselves every encouragement should be given by the masters to the sketching clubs, as it helps greatly to raise the standard of the students' work and encourage their individuality.

The Glasgow School of Art.

I visited the above school on February 8 and 9. The school is finely equipped and the director is thoroughly alive to all its requirements. The work in nearly all the departments is excellently carried on with much interest and enthusiasm.

The great difficulty in such a school is to keep the students alive and keen, and in the Glasgow School of Art there is very little to find fault with. There were, however, exceptions which I pointed out to the director, and I found that in these cases he had already contemplated certain changes to rectify matters. The Glasgow School of Art takes a first place in the art schools of Scotland, perhaps I ought to except (with regard to its architectural classes) the Royal Institution, Edinburgh. As a consequence of the able management of the school—and in spite of the fine building so lately erected—more space is required. At the

present time many classes are overcrowded, and part of the upper hall or museum is screened off for the purpose of making an extra classroom. The museum is a most valuable feature, and it is regrettable that any of it should be shut off from the general use of the student. I therefore advise that the entire building be completed according to the original plans as soon as possible. But I would recommend that, until the building is completed, the number of students should be reduced by cutting off those who prove themselves to be inefficient, and by applying an entrance test; this would also raise the general standard of the school.

The system followed by the school (in the drawing and painting from the antique and life classes) of teaching the students to draw and paint the figure life-size, is excellent for the more advanced students. It was evident to me, however, from some of the studies, that some of the students were not quite prepared for this stage. As a general rule no figure should be drawn or painted life-size. Half-size is large enough, where the space for working in is within ordinary and reasonable limits, and only when the students are thoroughly advanced should they be allowed to draw or paint on a larger scale. To the student who is making naturalistic studies of the figure on the so-called life-size scale, I should like to point out that the figure should not be life-size by actual measurement on the canvas. I saw excellent studies of the so-called life-size by the students of this school marred by not being on an exact and reasonable scale. As regards drawing from the antique in this school, the work was most thorough in its study, and the result was good, but a freer use of material is required. It seemed to me that the student was more encouraged to use chalk pencils than charcoal, and the result was in some cases a certain amount of mannerism and unnecessary labour was also expended in making pretty shading. Both mediums have their advantages and their drawbacks, but the use of both should be more encouraged, and would, in my opinion, tend to remove these defects in the work.

In the still-life painting classes the same principle of an exact scale in drawing should be adhered to. The student in these classes might also be taught care in the preparation of his canvas and the use of non-fugitive colours. Painting and drawing in the school, excellent as it is in all the different classes, would be materially improved by adherence to the above advice; the student would find himself less hampered by material and less confused by a too complicated palette. The various studies shown me convinced me of the faults arising from the neglect of these principles. In the modelling classes the work on hand was only in a very preliminary stage, and I had no opportunity of seeing any final results.

The embroidery and design for embroidery practised in the Glasgow School of Art are marked with great distinction of style. These classes are doing work of a very high order, and many excellent results are achieved. In spite of much talent displayed, however, the results are not altogether convincing to me. The modern movement of art, as applied to design, has greatly influenced these particular classes, and the fact that the result is not thoroughly convincing seems to me to be because the designs are not sufficiently based on the sound study or direct inspiration of nature as practised in the other departments of the school. When human figures are employed, the fault is most evident; but it is also evident in the designs of ornamental forms. I do not in any way intend to discourage the influence of the modern movement in art work. In fact, I would have it introduced, when possible, in the architectural department of the Glasgow School, but it should work hand in hand with a closer study of nature and of the Classic orders. The movement as applied to design and architecture seems to me to require to go back to first principles, origin, construction, proportion, &c. Further, I should advise that the architectural students studying the Classic orders would do well themselves to go back more to these first principles, as their work greatly requires it.

Edinburgh Royal Institution School of Art.

I visited the above school on February 12, 16 and 17. The school has made a distinct, and so far successful, effort to improve its classes in the last year or two, and it is being brought well into line with the best type of classes I visited in Scotland. It seems to me, however, that in order to make the further necessary advance, the services of an additional master or director are required.

The most successful feature of the Royal Institution art classes seems to me to be the architectural school. There is a certain activity about it that inspires the student. It possesses a fine library and an excellent historical collection of casts of architectural fragments. This department is kept in admirable working order, and as an example would be of great value to the other schools of art in the country.

The present Renaissance of architecture, which has influenced some of the younger Scottish architects, seems not to be recognised by this school. I am inclined to think that the classes might be brought into touch with this Renaissance, on account of its vitality and force, which will have to be reckoned with in the future. Much of the work of this younger school of architects is fantastic, and inclined to run to seed, but bringing this new life into the school would have a good influence on the students, would inspire original work, and make the students of the Classic orders more critical of certain accepted forms, and would also, in my opinion, have a good influence upon the Renaissance itself outside the schools. I may here point out that this is in accordance with my remarks upon the embroidery classes in the School of Art, Glasgow.

In contrast to the architectural gallery the antique gallery gives one a feeling of great surprise. The collection of casts is excellent as a whole. Some additions, however, might be made with advantage, but the gallery itself is in shocking order, and would demoralise any worker by its dingy character. I therefore strongly advise that this particular gallery be redecorated immediately, roof and walls coloured a light tone and a number of the casts cleaned under the direction of a sculptor. Some other classrooms in the building seem to be almost in a similar condition, and no time should be lost in having this matter attended to. Apart from this serious defect, which is bound to exercise a deteriorating influence on the work of the students, the system of teaching drawing and painting seems to me to be excellently carried out. I should strongly recommend, however, that the life classes be held daily.

Advanced students should be encouraged to make life-size drawings and paintings of the figure, and I should like to point out that there is an exact scale upon which the student should base his drawing. I found the students in this school using a simple palette to good effect.

The modelling class in this school is good and carried on with considerable life and enthusiasm. The bookbinding classes are well directed by a thoroughly skilled craftsman, employing good and sound designs. The class for technical and ornamental design is well carried out, and very good work of a high order is done. I have only one suggestion to make regarding the work of this class, viz. that although many of the designs are directly inspired from nature, still more thorough study could be done in this direction with advantage to the students.

Edinburgh Heriot-Watt College School of Art.

I visited this school on February 15 and 16. The school is worked on excellent lines, and the staff of masters over all is good; an extra master, however, is, in my opinion, required for the more advanced work, so that the present headmaster could have more time to supervise and act as general director. In the classes for drawing and painting from the antique and life I found the work reached a high standard. In my estimation, however, the amount of drawing from the life attainable by the student, though it may meet the requirements of designers and craftsmen, is quite inadequate for the requirements of the artist student. I am fully convinced that such a student should have opportunity given him to draw and paint from the life every working day of the week, and in his more advanced stages he should devote at least six hours a day to this study.

Advanced students should be encouraged to make life-size drawings and paintings from the figure, and I should like to point out there is an exact scale upon which they should base their drawings.

The modelling classes in this school are doing good work as far as they can go, but they should be encouraged to make more use of natural objects to design and model from. A life class for modelling is urgently required, and if an extra room cannot be secured for it at once a draped model for the study of the head should be arranged for immediately. It is advisable also that the modelling student should have access to a collection of architectural fragments such as those in the Royal Institution School of Art. There are no architectural classes in the art school. This department is classified with the technical and science

classes of the college. This might be kept as it is, but it is a well accepted fact, and one that should not be lost sight of, that architectural students should work in the general classes of an art school, drawing and modelling from the antique and life. The study of natural objects in this school, and the illustrations and home exercises, showed very good results.

Dundee Technical Institute Art Classes.

I visited the art classes of the above Institute on February 9 and 10, and I find that they are of a very limited character. The department for ornament study and designs for textiles is the most active, and some very good work is done by it. The elementary principles of pattern planning, the analysis of simple patterns, and repeating designs, plant forms and their adaptation to purposes of design are well studied. The architectural class is practical, and good work is done by it. The principles and the history of architecture seem to be well taught. The limited character of the school retards the very good efforts made by the classes I have mentioned. The life class is only held one day in the week, and, owing to want of space, the antique figures are put aside to make room for elementary studies. With regard to the work of the life class and the classes for drawing and painting from the antique and still life, the students should be encouraged to make life-sized drawings and paintings, and I should like to point out that there is an exact scale upon which they should base their drawings. There is now no modelling class in the school, whereas seven years ago eight or nine advanced students worked under the direction of a sculptor. The space allotted by the Institute for this department has been cut down, and the art school is being crushed out. Many private art classes are now held outside the Institution, and are well attended. It would be well if these could be in some way united to the art school, and in particular the good designing and embroidery school, which exists outside, might be brought in if suitable accommodation could be offered to it. At least four times the present accommodation of the art school should be provided, and another master should be appointed to organise and set certain additional departments in good working order. The present master has done excellently with the accommodation afforded him.

Aberdeen Gray's School of Art.

I visited the above school on February 10 and 11. I inspected the classes, and found the system admirably carried out, and the school well directed in all the departments. The activity and keen interest shown by the masters and students are very marked.

At this school in particular I made lengthy criticisms to each master regarding the work of his particular class. With regard to the higher branches of life and antique work, I would advise that to further develop these classes an extra master should be appointed.

The life classes should be held at least five days a week, two days being, in my opinion, quite an inadequate time to devote to what is the most important study of all.

The most advanced students should be encouraged to make life-size drawings and paintings of the figure, and I should like to point out that there is an exact scale upon which the student should base his drawings. In the still-life painting classes it would be advisable for the students to pay more attention to the backgrounds. The backgrounds should be studied as carefully as the objects themselves. This leads the student later to carefully study the background when he is painting a head or a figure. The ornamental modelling classes should, in my opinion, devote more time to designing and modelling from life and from natural objects rather than from so many classic ornaments and designs.

A large quantity of granite ornamental carving is done in Aberdeen for tomb-stones, &c. At present this work is mostly of a very stereotyped kind, and the school of art should make a distinct effort to influence the carver and induce him to make use of better classes of ornament and a more varied treatment. I should, therefore, suggest that a proficient architect might be appointed to deal specially with this matter.

The following suggestions made by Mr. Walton were also incorporated in each of the foregoing special reports communicated to the schools:—

With regard to colour, a student's palette should be limited to the absolutely necessary colours. A nude figure rarely has a yellow tint exceeding that of yellow ochre, a red exceeding that of light-red, or a blue exceeding that of

black mixed with white. There is, of course, no limit to the colours that may be in the background, and it is interesting at times to put a point of vivid colour in the background, and then that extra colour should be added to the palette; but as a general rule the above mentioned colours—yellow ochre, light red and black and white—are sufficient. Should these colours produce a black and inky effect in the student's work it is only evident that he has not dealt with his materials wisely, and until he understands the possibilities of these colours no others should be added to his palette. It is well known that many of Velasquez's greatest masterpieces were painted with a similarly limited palette.

I would also advise that the preparation of canvas should be understood by every student; it should be a part of his necessary training to learn to prepare his canvas. The canvas can be prepared in two or three ways; for the student a toned ground is preferable, and as a rule a warm grey is best. When a tempera priming is used, the study may be drawn in with charcoal, and then fixed with a fine spray of turpentine and a little oil or varnish. When an oil ground is used, before beginning to draw, the canvas should be washed with Fuller's earth and water, to remove all fatty matter from it, and when quite dry again the study commenced in charcoal. Should, however, the painting stand unfinished for any length of time, the surface should be washed again and again, until all grease is removed from it.

Students should make a careful study of pigments, and no fugitive or unreliable colour should be allowed. Many authorities have written on these subjects, and the best information should be put into the hands of the student by his master from the beginning. It is often said that it is not important for a student that he should use absolutely permanent colours, and also that cracking and discolouration do not matter in a student's work, but I know from experience that the student should be taught to practise extreme carefulness from the very beginning, otherwise he will be greatly handicapped in his future career. Nearly all the great masters were trained in youth to practise exceeding carefulness.

Mr. Walton expresses a high opinion of the plan adopted by the governors of the Glasgow School of Art, of procuring masters with the best foreign training to take charge of such important classes as painting and modelling from the life. He points out that training of the kind these masters have had has not been readily available in Britain in the past generation, and dwells upon the benefit to the schools from the stimulus of fresh ideas, and the opportunity of seeing other methods of working. He strongly recommends that the governors of the other schools should make themselves acquainted with the working of this plan in the Glasgow School of Art.

On the other hand, he is convinced that the term of office of such foreign masters in any one school should be limited say to a term of three years at most, though the same master might very well be employed for a certain period in each of several schools in Scotland consecutively.

HAND OR MACHINE-COLOURED MAPS.

AT the Glasgow Geological Society's meeting last week attention was called to one respect in which the very excellent work of the Geological Survey of Scotland is hampered by conservatism of method. In spite of the great recent progress in the economy and accuracy of colour printing, the maps of the Geological Survey of Scotland are still coloured by hand. The Ordnance authorities at Southampton have found that it is quite possible to print the English geological maps by machinery, so the method is practicable. Its adoption has enabled a great reduction to be made in the cost of the maps. The English quarto sheets are now being issued for 1s. 6d. each, while the slightly larger Scottish maps cost 6s. The hand-painted maps are not only dearer, but they are less satisfactory. The colours are often thick, and obscure the topographical details. The colours obtained by printing are brighter and more transparent. The machine-coloured maps, moreover, are more reliable, as the hand-painted maps are always open to the chance of some mistake by the colourist. The cheaper maps are also much more permanent. The hand-painted maps may be things of beauty when they leave the office of the Ordnance Survey, but they are not a joy for ever, for when hung upon a wall they rapidly fade even in our diluted sunshine, or if used in the field on a wet

day the colours run and the map is spoiled. It was pointed out in the discussion that the geological classes at the University use the 1s. 6d. English maps in preference to the 6s. Scottish ones, from the ease with which they can be read and the fact that they are not likely to be injured by a casual splash of water. The geological maps are not only of great value to the miner, farmer and all authorities on public health, but they should be of great educational value. Every school at which geography is taught should have a copy of the Geological Survey of its district. If the maps were issued at the same price as that of the English ones, they would no doubt be more largely used by teachers and by tourists. The question of expense is not a serious one. The maps are already often sold at a heavy loss, as it is impossible to get some of the maps hand-coloured at the price at which they are sold; and the cost of printing would be very small in comparison to the cost of the actual survey. The Geological Society, on the motion of Professor Gregory, moved an address to the Secretary of the Board of Education, urging the colour printing of at least the sheets of the Geological Survey maps of Scotland which deal with the mining areas and those of special geological interest.

RUSHTON CHURCH.

THE members of the North Staffordshire Field Club lately visited Rushton Church. The Rev. S. Thomas, the vicar, says the *Staffordshire Advertiser*, explained that in the churchyard were two stones which were said to be Druidical, the belief being that on that spot a Druidical temple once stood. There was also in the churchyard the stump of a cross, and it was supposed that St. Chad came to those parts, and, finding the people in the habit of gathering on that hill, planted a cross there and preached to them. In later times a church of wood was erected on the spot. It was only a nave originally, but was afterwards extended north and south. The present structure dated back to the thirteenth century, the date being fixed by the "dog-tooth" ornament carved in oak over the piers on the north side of the nave. When the British Archaeological Association visited the church some years ago, one section maintained that the ornaments were "dog teeth," whilst the other section held that they were *patera*. It the latter, the structure dated from the fourteenth century. The east end wall was supposed to be part of the original structure—this wall being of stone and the remainder of wood. The first alteration to the church was dated 1650, since when various small alterations had been made, until the present modern pews and parquetry were placed in the church in 1888. Mr. Thomas pointed out the quaint pews in the Swythamley chapel and the font of the pre-Reformation period. The latter, it was interesting to note, bore marks of knife or arrow sharpening. Mr. Scrivener said he did not agree that the ornament referred to was "dog-tooth" carving, and entirely concurred with the remarks made by Mr. C. Lynam in a paper read by him in 1882. This ornament was placed at intervals of 18 inches, and he had never seen or read of "dog-tooth" ornament placed at such intervals. He believed they were *patera*, and were the work of a later period than the thirteenth century. Mr. Scrivener then quoted as follows from Mr. Lynam's paper on the church:—"This church consists at the present time of a nave, chancel, north aisle, north chapel, south porch and western bell-cot with vestry. Like most of our parish churches, it is a building of varying dates, and it bears evidence in several ways of having its foundation at least in remote antiquity. It is to be observed in the first place that the original church comprised only a nave and chancel, and that these were constructed of timber, except the east wall of the chancel, which is now and, in my opinion, was originally of rubble stone. The south porch, which is also of timber, was attached to the original structure, and its ancient parts are probably coeval with the first building. . . . The nave consisted of three bays, and the chancel had two bays. On the north side the great posts which carried the roof still exist, and also the massive wall-plate which received the feet of the rafters. It is not so clear whether the north wall-plate of the chancel is original. The roof timbers have been very much altered and mutilated at different periods, but with slight exception the western truss of the nave roof (now partly hidden by the gallery front) is intact, and from it and the other remains the design of the original fabric may be distinctly discerned. On the sides were upright posts, from which sprung a huge arched beam; this supported a king-post with struts to principal

rafter and ridge-piece. The purlins and rafters are now hidden by a plaster ceiling, so that nothing can be said of them. The spaces between the side posts were filled in with boarding, in which were the windows lighting the interior. The western truss of the nave roof should be particularly noticed, as it is in every way of the finest design and workmanship. The treatment of the apex of the arched rib is most interesting. . . . In the chancel the lower portion of the arched ribs of roof is to be seen; the eastern one is moulded on its edges, and is probably part of the original church; the western one is of later date." As to the date of the structure, the writer said:—"In his 'History of Leek' Mr. John Sleigh quotes one of Mr. Norwood's conclusions respecting it, namely, that 'There is one ornament probably unique in England, namely, six dog teeth cut in oak over the piers on the north side of the nave.' The ornaments referred to are the carvings in the wall-plate at the east end of the north side of the nave, still visible. The dog-tooth ornament was not employed after the end of the thirteenth century, and regarding these carvings as examples of that ornament, as suggested by Mr. Norwood, we should learn from them that this church was erected before the year 1300. But before accepting this conclusion, we must be satisfied that 'dog tooth' is the right term for these carvings. Every student of Gothic architecture will agree with me that the ornament referred to cannot be called 'dog tooth.' Wherever these are employed the ornament is a continuous string of quatrefoiled leaves all placed close to one another. . . . Here at Rushton the ornaments are spaced with a considerable interval between them, and are, in fact, what are called 'pateras,' which occur constantly in fourteenth and fifteenth-century, as well as in earlier work. So that the conclusion of Mr. Norwood (based on the ornament being dog tooth) that this timber building is of the thirteenth-century date, cannot, I think, be accepted." Mr. Scrivener added that he quite agreed with Mr. Lynam, and he did not believe, though he should like to, that it was Early English work.

AN ANCIENT DURHAM CAMP.

A DISCOVERY of great interest to antiquaries, says a correspondent of the *Manchester Guardian*, has just been made on the estate of Lord Boyne, of Brancepeth Castle, by Mr. Edward Wooler, of Darlington. In the course of researches on behalf of Mr. Chalkley Gould, a well-known authority on ancient British earthworks, Mr. Wooler visited Middles Farm, about half-way between Brancepeth on the east and Low Taw on the west. A brief reference to a short piece of entrenchment in MacLaughlan's "Survey of the Roman Roads in Durham and Northumberland," and its situation between two branches of Stockley Beck, suggested the idea that probably this might be part of the boundary of an ancient camp, particularly as the streams converged at the eastern end and formed a V-shaped piece of land of considerable extent. As the result of frequent visits and careful investigation, Mr. Wooler has been enabled to define the outlines of the largest ancient British camp in the North of England after the huge entrenchments at Stanwick. The two branches of Stockley Beck unite near Oakenshaw Farm, at the eastern end of the earthworks, and both have very precipitous banks, which were evidently utilised as part of the outer defensive barrier of the camp. On the inner side of the streams, both north and south, there are strong entrenchments, of which the rampart is still in many places in exceedingly good preservation. Roughly, the shape of the enclosed camp is that of the sole of a boot, with the toe pointing to the east, and an idea of its size may be formed from the fact that the area is about 145 acres. The northern rampart is 1,654 yards long, that on the south 1,584 yards, the west (running from stream to stream) 493 yards, and the east—or toe of the boot—211 yards. The camp is slightly over 500 yards west of the old Roman road running between Binchester (Vinovium) and Lanchester (Longobardum?). In the places best preserved the ditch is still 6 feet deep and 3 feet wide, and the width at the top of the rampart is 11 feet. During the nearly nineteen centuries which have since elapsed, however, the natural erosion would be very great, especially as the camp stands about 700 feet above sea-level and the soil is very light and friable. It is evident, too, by reference to existing surveys 200 years old, that in the process of clearing adjacent land for cultivation a great quantity of rubbish and stones has been thrown into the old dyke.

Mr. Wooler concludes that this large, fortified camp was constructed at the time of the Roman invasion as a place of retreat for the Britons in the event of the huge entrenchments at Stanwick being found untenable. The distance between the two camps is about 16 miles, and from its size the newly discovered earthwork was evidently designed to accommodate not only a whole tribe, but also the herds and flocks which constituted their chief wealth. The defence of so great an extent of rampart—3,940 yards—would be so difficult that Mr. Wooler conjectures that the two streams were dammed towards the east so as to flood the adjacent low-lying ground (now very much of the nature of a morass), thus compelling any attack to be made on the comparatively easily defended west rampart. Just outside the north rampart was found a quantity of slag, which on analysis proved to be lead slag, and as there is neither trace nor record of any lead in the vicinity, the ore must have been brought from Weardale, a distance of about 10 miles.



Alteration of Essex Boundaries.

SIR,—Permit me to appeal to all who reverence the evidences of our country's story to oppose the Local Government Board's attempt to obtain Parliamentary sanction to a drastic alteration of county boundaries. Though the county of Essex is apparently to be the only sufferer on this occasion, the question is one which affects the whole country.

The petition presented to the Local Government Board by my Council explains the position, but in addition I would point out that the order will in this case alter bounds existing since pre-Roman days, and all for the sake of the Poor Law which may at no distant date be amended.

GEO. PATRICK, Hon. Secretary,
British Archæological Association.

Copy of Petition.

The President and Council of the British Archæological Association have heard with extreme regret of the proposal of the Local Government Board to remove ten parishes from Essex to Hertfordshire by altering the county boundary which has existed for a thousand years, thus destroying the landmarks of history. It is respectfully suggested that the requirements of the Poor Law administration can be met by financial arrangements between the two counties, and that in any case the ancient county name of Essex be retained. Should this transfer be accomplished a like rearrangement may follow all along the borderland of the county, and it appears to your petitioners that as a large part of England is subject to similar conditions, the matter should be dealt with as a whole rather than that one county should be selected for sacrifice.

Registered Plumbers.

SIR,—We beg to ask the favour of some notice of the endeavour which is being made by advertisement to reach the registered plumbers who have omitted to inform the Worshipful Company of Plumbers of their present address. In view of the decisions of the public health and water authorities and architects of the Kingdom as to the employment of registered plumbers in connection with sanitary work and water services, it is necessary that the rules and regulations relating to the production and renewal of certificates should be enforced with a view to the publication of revised local and general lists of registered plumbers. As the registration system is conducted by the Company in the public interest, the favour of your notice is solicited.—We are, sir, your obedient servants, HUNTER & HAYNES.

IMPORTANT NOTICE.

To all Registered Plumbers who have omitted to notify their present addresses.

In view of the various decisions of the public health and water authorities and architects of the Kingdom respecting the employment of registered plumbers upon sanitary work and water services, it has become necessary that the conditions endorsed upon the certificates of registration issued by the Worshipful Company of Plumbers should in all cases be strictly enforced and complied with. Accordingly an important notice has been posted to all registered plumbers whose addresses are known to the

company. Applications must be made forthwith to the company, or the secretary of the district council, for this notice, as non-compliance therewith on or before July 31 next will necessitate the cancellation of the certificate and the removal of the grantee's name from the register.

Dated May 29, 1905.

HUNTER & HAYNES,

Solicitors to the Worshipful Company of Plumbers.
9 New Square, Lincoln's Inn, London.

GENERAL.

Mr. Francis J. C. May, who recently resigned the post of Brighton borough surveyor, announces that he has entered into private practice in Brighton and London, and is prepared to act as consulting engineer, architect and surveyor.

The Total Amount subscribed up to date for the memorial to the late Mr. Brough, A.R.S.A., it is understood, exceeds 1,000*l*. The intention is to found a scholarship in painting and sculpture.

The Excavations on the site of the old Roman camp at Brough, near Hope, it is not expected will be resumed this summer by the Archæological Society, on account of their inability to obtain the necessary legal authority for entering on the ground.

The Dean of Canterbury on Ascension Day, the 1st inst., preached on behalf of the restoration of Bell Harry Tower. It was, he declared, the first monument that met the eyes of strangers who visited this land as they travelled to London, and the Dean of Westminster in permitting that appeal recognised that Canterbury had a special claim. One side of the tower had been restored, and was found to be even in worse case than was thought. To complete the work 10,000*l*. was needed, and they had only received 4,000*l*.

Mr. J. Somes Storey, the Derby county surveyor, has placed his resignation in the hands of the County Council. Mr. Storey has held the appointment since 1877.

The Buildings Sub-Committee of the Gosport education committee reported at their meeting last week that they had again considered the appointment of an architect for the new schools, and after the decision of the District Council on the matter they recommended that the surveyor (Mr. Frost) be instructed to prepare plans of the buildings for the approval of the committee, on the understanding that he would carry out the work without payment or honorarium.

Mr. E. Brown, who has been since 1900 on the engineering staff of Liverpool University, latterly as lecturer in applied mechanics, has been appointed assistant professor in civil engineering and applied mechanics in the McGill University at Montreal.

The Council of the Essex Field Club have forwarded a petition to the Local Government Board protesting against the order for removal of ten Essex parishes into Hertfordshire as being calculated to lead to the confusion of all historical and scientific records and bring about a disturbance of landmarks of extreme antiquity which is both needless and regrettable. The Council point out that, though the removal is said to be for administrative purposes only, the change of county name and consequent break in the continuity of history will inevitably follow, as has been the case with the three parishes taken from Essex in 1894. The Essex Archæological Society, which, as we have already announced, has also presented a petition on the subject, have been informed by the Local Government Board that "there is no question of dropping the old county name of Essex."

A Discussion will be opened on "Sanatoria for Consumption: Design and Location" at the Parkes Museum on the 16th inst., at 4.30 P.M., by Mr. Edwin T. Hall. Messrs. Percy Adams, Aldwinckle and Cutler will also speak. On Saturday there will be a visit to the Heatherside Sanatorium, Frimley, of which Mr. Hall is the architect.

Mr. A. E. Prescott, borough surveyor of Douglas, was on Monday appointed to a similar office in Eastbourne by a majority of the Town Council. The salary is 400*l*. rising to 600*l*. per annum. There were 163 candidates.

The Liverpool Cathedral Committee announce that all the windows in the lady chapel will be given by members of old Liverpool families. The foundations of the lady chapel and of one of the towers are now complete. Satisfactory progress has also been made with the foundations generally.

Mr. William James Taylor, architect and surveyor, of Bank Street, Sheffield, died last Saturday from blood-poisoning, which was the result of an accident sustained when inspecting some houses in course of erection.

Sawley Bridge, an old stone structure of six arches, which spans the Trent between Sawley and Castle Donington, has been condemned, as it has been found dangerous owing to the river undermining its foundations. A new bridge will be erected on its site at a cost of 23,000*l*.

Mr. W. Holman Hunt is to be among the recipients of the honorary degree of doctor of civil law from the University of Oxford, which will be conferred on June 28.

Mr. Sherard Cowper-Coles on June 28 will give an exhibition at Grosvenor Mansions, Victoria Street, of his new method for blending and inlaying metals. A variety of colours and new effects can be obtained, as one or more metals can be inlaid and blended in a similar manner to enamels, but at a much lower temperature.

Mr. Horace Allen, C.E., has opened an office at 17 Cheap-side, where he can be consulted on subjects relating to gas engineering.

The National Academy of Design and Columbia University School of Architecture are to unite to form an institution under the joint control of the University and the Academy. According to the agreement 500,000 dols. is to be raised by the Academy for the erection of a new building, for which the University is to provide a site upon its campus, probably at 116th Street and Broadway.

Mr. R. M. Lucas, architect, Southampton, has proposed to deposit 100*l*., to be paid over to the South Hants Hospital or the cricket club if he fails to produce testimony from six architects and six builders in direct contradiction of the statement of a member of the South Stoneham Rural District Council, that Mr. Lucas's plans for a cottage did not show the floor as a solid one, and for which the surveyor demanded ventilation.

A Meeting of Florentine artists and professors was recently held under the auspices of Signor Pellerano. They have appointed a committee to arrange for the founding of a gallery of modern Tuscan art in Florence similar to those in Venice, Milan and Turin. The hope is entertained that the new gallery may be opened next year.

The Carnegie Dunfermline Trust state in their monthly report that, with the sanction of Mr. Oldrieve, H.M. Board of Works' architect for Scotland, certain repairs were being made at the Palace ruins. The drainage system is being altered so as to remove from the front Palace wall a number of unsightly conductors. The King's kitchen and the crypt underneath it are at the same time being refloored with cement in order the better to preserve the property.

Mr. C. F. A. Spratt, architect, has redrawn and published Mr. H. E. Malden's map of Surrey in 1086. The scale is half an inch to a mile.

A New Building is to be erected at the corner of Belvedere Grove and Courthope Road, Wimbledon Hill, to be called Clifford House, and will consist of high-class residential flats. The elevations will be in unison with the surrounding properties, which are of superior character. Messrs. R. Ward & Son, Battersea, are the contractors. Messrs. Palgrave & Co. are the architects.

The Exhibition of works in wood and wood-carving at Carpenters' Hall will be open for inspection after next week. The conversation will be held at 3 P.M. on Monday, 19th inst., when the prizes will be presented to the successful exhibitors and the exhibition declared open by Lord Avebury, F.R.S., D.C.L.

Lord Rayleigh is to receive the Albert Medal of the Society of Arts in recognition of the influence which his researches, directed to the increase of scientific knowledge, have had upon industrial progress, by facilitating, amongst other scientific applications, the provision of accurate electrical standards, the production of improved lenses, and the development of apparatus for sound signalling at sea.

The Secretary to the British school at Athens has placed in the hands of the Vice-Chancellor of Cambridge University the nomination to a studentship of the school. The studentship is of the value of 50*l*., conditional on the student's residing three months, and would be raised to 100*l*. if the student completed six months' residence. Students of Girton and Newnham are eligible. The Vice-Chancellor invites candidates to send their names to him on or before June 17, together with such evidence of their qualifications as they may desire to submit.



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DINING ROOM, COUNTY
HENRY

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R, Architect.

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CANTERBURY.

J.B.A., Architect.

HERRISON DORCHESTER
GEORGE THINE F.R.I.B.A. ARCHT



9th 1905



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The Architect.

THE WEEK.

A GRACIOUS act has been done by HIS MAJESTY in purchasing the bank of the river Liffey outside Dublin for a length of nearly one and a half miles, the area being about 200 acres. Everyone who has visited the Phoenix Park in Dublin knows that the ground slopes steeply to the river on one side. The view is picturesque, and has been often selected by Irish landscapists for paintings. On one spot the University have put up a boat club-house, and here and there villas are erected. The people of Dublin are beginning to realise the value of the districts which environ the city, and there were apprehensions that the banks of the Liffey might be utilised for buildings which would not prove an additional attraction. In order to preserve the amenity of the landscape, the Commissioners of Woods and Forests have purchased the land for about 10,000*l.*, and it will be the fee simple estate of the KING, his heirs and successors. The boon will become more valuable if the public are not shut off from the river, as is the case at present.

It might be supposed that the exaggerations of sculptors in treating unpleasant subjects were generally known by this time. From many works which are produced in our time the old Greeks, if they could revisit the earth, would turn away their eyes. But as there is no accounting for tastes, it may happen that a work which is admired by cultured citizens in one city will be reprobated elsewhere by men and women who are no less capable of judging. A curious instance which exemplifies the connection between geography and criticism has occurred in Liège. M. LAMBEAUX, a Belgian sculptor, produced a very difficult marble group which he called *Le Faun Mordu*, representing a woman or fauness biting the ear of a satyr. The work was of extreme difficulty, but, if not beautiful, it displays great power. It was exhibited in Brussels, Düsseldorf, Paris and St. Louis, and as a remarkable group the sculptor was invited to display it in the gardens of the International Exhibition at Liège. The jury expressed satisfaction on its arrival, and it was duly placed in a prominent position. But a couple of days afterwards it was stated in one of the local papers that the work was to be removed. On M. LAMBEAUX remonstrating the secretary announced that he had received orders to that effect. Afterwards it was stated that the committee were given the choice to expel M. LAMBEAUX's group or to be deprived of the reliquary of St. Lambert, which for four centuries has been considered the principal treasure of Liège. The authorities of the exhibition, as men of business, prefer the relic, and the group had to find some other refuge. We suppose the dispute is not entirely concerning the demerits of M. LAMBEAUX's work. Liège for centuries was ruled by prince-bishops, and probably the sculptor's group was employed to test the strength of ecclesiasticism at the present time.

THERE WAS a time in this country when it was believed that inventors could be assisted through the agency of societies. When it is remembered that patents were necessary, and that an inventor claimed an exclusive right in his production, it would be self-sacrificing on his part to run the danger of acquainting people having a little knowledge about the peculiarities of his improvement. In our time it is not necessary for anybody who has an invention that is likely to be successful to go a-begging for aid. The change that has taken place in the position of inventors has been exemplified by a lawsuit which is now before the Scottish Courts. It appears that in 1819 a Mr. KEITH

left 1,000*l.* for the prosecution of science. Of that sum 400*l.* was offered to the Society for Promoting the Useful Arts in Scotland, which is now known as the Royal Scottish Society of Arts. The money was accepted on the condition that the principal was to be invested and the interest applied "in sums of money or medals in rewarding inventions, improvements, or discoveries in the useful arts, which shall be primarily submitted to the Society." Fancy expending about 12*l.* a year in the hope of fostering invention to an unlimited extent in Scotland. It is needless to say inventors were not to be captivated, and the 400*l.* has been lying unused in the sense that was intended, but it has fructified until it has become 2,257*l.* 16*s.* 8*d.* But even the interest on that sum appears to be scorned by inventors in general. The Society now ask the authority of the Court to expend the income in the payment of the expenses of or connected with lectures on the useful arts or scientific subjects, or in making money grants in aid of experiments and of work of research in or connected with the useful arts in Scotland.

It is intended to erect a technical school in Dublin, but the difficulty seems to be the selection of a site. A great many people in the city would gladly dispose of their property, and about forty sites were offered to the technical education committee. Two or three years have been occupied in endeavouring to select one. The number was reduced to six, and finally to three. The report relating to the latter will suggest the value of property at the present time in Dublin. Site on Cavendish Row, area 31,000 square feet, subject to 192*l.* rent, rateable valuation 346*l.* 10*s.*, price 13,200*l.*; site on St. Mary's Place and Upper Dorset Street, area 48,000 square feet, subject to 65*l.* rent, rateable valuation 395*l.*, price 12,300*l.*; Bolton Street, area 31,400 square feet, subject to a rent of 90*l.*, rateable valuation 146*l.*, price 7,570*l.* The three sites are in the northern part of the city. It might be supposed that the students who were desired would be also found in the south. The amount demanded in all cases seems to be unreasonably high. The committee believe they will be able to obtain the property for a lower price, and their report was adopted by the small majority of one.

It would be remarkable if the United States anticipated Great Britain in the establishment of a Ministry of Fine Arts. As far back as the days of Sir ROBERT PEEL it was supposed to be a necessity, and he was considered to be especially qualified to become its representative. We seem to be as far as ever from having a Minister of Fine Arts. A resolution of the Society of Beaux-Arts Architects, which was lately adopted, suggests that few obstacles to the addition of such a Minister to the Government of the United States now exist. Having expressed gratification at Mr. JAMES STILLMAN's gift of 100,000 dols. to the French Ecole des Beaux-Arts, the members of the Society adopted the following resolutions:—"Whereas, history teaches that the most enduring records of the greatness of a nation are its monuments of art, and that the cultivation and development of the fine arts are of paramount importance to the progress of a people; and whereas, to successfully foster and develop the artistic tendencies of a community these tendencies must be unified and nationalised; be it therefore resolved that it is the opinion of the Society of Beaux-Arts Architects that the time has come when it is eminently fitting and the bounden duty of the Government of the United States to officially recognise these facts and to undertake, by the establishment of a department of the Government, the direction of this fundamental part in the evolution of its people." There are so many candidates for office in America, we suppose there would be no objection to have a Minister for each of the fine arts.

WORKMEN'S COMPENSATION.

THE departmental committee appointed in 1903 to inquire into the law relating to compensation for injuries to English workmen sent out circulars asking for suggestions for the amendment of the Acts of 1897 and 1900. In the course of the reply from the Yorkshire Federation of Building Trades Employers it was stated:—"With regard to the pecuniary burdens, the experience of the trades falling within the scope of this Federation is that for the considerations aforesaid the pecuniary burdens imposed by the Act are becoming a most serious question, particularly in the building trade. The claims are numerous, practically unrestricted, and cause a continual advance in indemnity premiums. My Council would suggest the insertion of a clause making it compulsory upon architects when framing bills of quantities to provide that the insurance or indemnity premiums should fall upon and be paid by the building owner." The words indicate the view taken by many builders. They adopt all the precautions which experience has dictated for preventing accidents to their workmen. If injuries happen to the men they are looked on as any other contingencies, such as defects in foundations, and the expense should, therefore, fall upon the building owner. The proposal would be no more than an official acceptance of calculations which are now inevitable with all contracts. Many things arise which increase the cost of works, and a builder exercises his foresight in allowing for them.

The reply of the Federation, however, shows that the Workmen's Compensation Act is usually considered in its financial relations alone. There can be no doubt that the Act was originally an imitation of the law promulgated in Germany in 1884, by which security for the relief of persons injured in their occupations was provided by means of a system of compulsory insurance. In England there were already remedies open to workmen at Common Law, but they were difficult to enforce and an action was expensive. One intention of the German law-makers was the prevention of accidents. It has been so successful that a marked diminution of the percentage of fatal cases and of cases of total permanent disability has been demonstrated by statistics. In England there is no evidence of a similar result. There may have been improvements in various trades by which risks of injury are diminished. But the departmental committee who investigated the subject declared themselves "unable to come to the conclusion that the operation of the Compensation Act of 1897 has had any marked or ascertainable effect one way or the other upon the safety of workmen."

With some employers it is possible that as they have insured against accidents they grow indifferent. Evidence to that effect has been given from time to time. The representative of a union of builders' labourers informed the committee that the generality of the practice of insurance by shifting the responsibility makes employers more careless. But we think it can be asserted with no less truth that the expectation of receiving compensation makes building workmen still more careless. An accident brings loss to a builder in other ways besides paying compensation, for it disturbs the organisation which is necessary on works. As the other men on the job become demoralised, the quantity of work they perform is diminished. It is therefore a necessity with a builder to make arrangements which will insure safety, but as a foreman cannot be in several places at once it is not difficult for an accident to arise when his observation is directed elsewhere. In fact, superintendence has by reason of the Act assumed a new character, for it has to be directed towards the preservation of workmen from the consequences of their own carelessness rather than towards the carrying out of the contract with efficiency and economy. A foreman has now a divided duty before him, for he has to look after men with as much assiduity as if they were not possessed of ordinary sense. As men who are

approaching their second childhood are imagined to require more surveillance to keep them from danger, they in consequence find it more difficult to obtain employment. Men who have been slightly maimed will not be again insured against accidents by some companies. All the sorrows of both classes are attributed to the evil effects of the Compensation Act.

It is now more difficult to amend the Act than it was to prepare it originally. Such a multiplicity of interests have grown up in connection with the clauses, it is almost impossible to deal boldly with arrangements through which so many people besides employers and workmen are connected. For instance, the British Medical Association recently sent a petition to the Home Secretary in which they objected that the 300 medical practitioners appointed as referees under the Act were not always called in by county court judges, and they were being superseded by the medical officers of the insurance companies. The cost of litigation in many cases exceeds the amount of compensation, and all who take part in such suits are opposed to changes which would make litigation less expensive. It must therefore be concluded that an amended Workmen's Compensation Bill will bear the character of a compromise.

We see this in the Bill which has just gone through the House of Lords, but has yet to bear the scrutiny of the House of Commons. In the first section there is reference to personal injury by accident arising out of and in the course of the employment caused to a workman, for which the employer is liable to pay compensation. Objection has been repeatedly made to the word "accident," and at first sight it may appear to be unnecessary. And these occurrences, it has been pointed out, can hardly be said to be accidental like the fall of a ladder or the collapse of a plank. Again "arising out of" does not give emphasis to "in the course of" employment. The Lords have, however, retained both expressions. The long sub-section (b) of Section 1 has been deleted, and sub-section (c) remains. Sub-section 3 also remains; sub-section 4, which relates to seeking damages under other Acts, has been amended. Section 3, which treats of contracting out, is preserved.

Section 4 was and continues to be one of the most important, for it relates to sub-contracting. "Undertaker" is now made equivalent to "principal," and sub-contractor becomes contractor. The principal, it is said, shall be liable to pay to any workman employed by the contractor in the execution of the work any compensation "which he would have been liable to pay if the workman had been immediately employed by him; and where proceedings are taken against the principal, then in the application of this Act references to the principal shall be substituted for references to the employer, except in the provisions relating to the amount of compensation." The principal is to be indemnified by the immediate employer of the workman, and the workman is not to be prevented from recovering compensation from the contractor instead of the principal if the former can be considered as the undertaker. It was stated that the Act did not apply to work which was ancillary or incidental to the trade or business. It is now added, "nor shall it apply in any case where the accident occurred elsewhere than on or in or about the premises, work or building in respect of which the principal is the undertaker within the meaning of this Act." The addition is of great importance to builders or principals. It could not be interpreted, we suppose, that an accident which arose in a factory for making girders, columns or roofs would make the principal liable, and he would also be exempted if accidents occurred in quarries which were not his own. Section 5 remains as before.

Section 6 relates to the recovery of damages from a stranger. The workman may take proceedings to recover damages against that person, but he cannot recover damages as well as compensation. If he obtains compensation the person who paid it shall be

entitled to be indemnified by the stranger. The clause used to have little practical application, but, as compensation to sailors is now admitted to some extent, it can apply to the owner of a ship. Clause 7 has given rise to much litigation, for it determined the extent to which the Act could be applied. It related to a railway, factory, mine, quarry or engineering work, or any building exceeding 30 feet in height which was being constructed or repaired by means of scaffolding. It is now altered as follows :—

This Act shall apply only to :—(a) Employment by the undertakers (i.) on or in or about a railway, tramway, factory, workshop, laundry, dock, wharf, quay, warehouse, mine, quarry, engineering work, or smithy; or on or in or about a building which is being constructed, altered, repaired, decorated or demolished; or (ii.) about the business carried on by the undertakers at any such premises, work or building as aforesaid, but away therefrom, if it is proved that the absence of the workman from such premises, work or building was due to the nature of his employment at the time of the accident.

It will be observed that there are several additions, and a 30 feet standard for building is set aside; nor is there anything about scaffolding or machinery. Apparently there will be no longer a necessity to have any new definition of a building, or to describe what kind of mechanical power is employed for constructing, repairing or demolishing it. As it is, the definition has been extended so as to comprise "the site of an intended building, and the construction of a building includes the work of preparing for and laying the foundation of an intended building." Factory has the same meaning as in the Factory and Workshop Act of 1901. Workshop means other than a domestic workshop; and warehouse, about which there have been disputes, is henceforth to apply to "any premises used solely or mainly for the storage of goods in connection with or ancillary to a retail business, whether included in the building in which the retail business is carried on or not."

We need not enter into any consideration about claims; that is an affair for lawyers rather than for contractors. But the subject of dependents among whom compensation is divided has become less vague, for it refers to "such of the following members of the workman's family as were wholly or in part dependent upon the earnings of the workman at the time of his death, and as are residing in the British Islands; that is to say, wife or husband, father, mother, grandfather, grandmother, step-father, step-mother, son, daughter, grandson, granddaughter, step-son, step-daughter, brother, sister, half-brother, half-sister." It is proposed that the Act shall come into operation on January 1, 1906, but, except in certain cases, only where the accident happened on or after that date. The Bill has, however, to be subjected to examination in the House of Commons and by men who possess experience of the working of the former Acts, and are, therefore, competent to apply different tests to those adopted by their Lordships. There are many people who would prefer that the existing Acts were repealed and an entirely new Act substituted. That was the opinion of Judge GYE, who, among others, recommended "that the whole law of compensation for injuries should be codified, and, if possible, should be re-enacted in its entirety in a single new Act of Parliament, dealing with the whole subject in distinct parts and under separate headings." We suppose it was considered more prudent to endeavour to patch up the existing Acts. Builders have good reason to complain of the expansion which has been given to those parts which relate to them. The Act was originally intended to meet exceptional trades which were dangerous and hazardous, and especially when men came in contact with machinery. Hence it was that high buildings were contemplated, and accidents were supposed to commence at a height of 30 feet above the ground. But unless there is an

alteration in the House of Commons a building may mean the site only, and the liability of the contractor commences as soon as a sod is raised or a post driven into the ground. That is not in keeping with the original Act.

MECHANICAL AIDS TO EXCAVATION.*

WHEN constructing the canals and railways of Great Britain the system employed in the earthworks could not have varied much from that which was used for the great undertakings of Eastern and Egyptian monarchs. Cuttings and embankments were made by the muscular power of men aided by shovels and picks. In many instances horse-power was not utilised for hauling the trucks containing the material until they had been pushed a long distance by men's arms. After a time the contractor's engine was introduced in the form of a locomotive that was not disarranged by jolting on an imperfect resemblance of a permanent way. A modern contractor, and especially one who hailed from America, if he were able to see in vision English railway work at an early period, could not help being amused at so primitive a system, and yet immense cuttings and embankments were formed and the work has needed few reparations.

The illustrations which appear in American periodicals and books on engineering are enough to suggest that the procedure has been entirely reversed, and that in such works as railways little is left for human arms. There are men introduced who seem to be engaged in cutting or banking, but one of the old English navvies would consider their efforts as little more than playing with clay or gravel.

In Mr. ZIMMER's book what is usually described as engineering construction does not form the only subject. He treats of machinery which is employed for lifting and moving other materials such as coal, grain, timber and much else which is necessary in business. Elevators, worm conveyers, cable conveyers, band conveyers, chain and rope haulage, skips and grabs, trucks, &c., are all described and clearly illustrated. Architects may have to erect warehouses or other buildings in which such machinery will be installed, and in the pages they can realise what is required in order to secure efficient working of the different appliances. For instance, in the Liverpool warehouses, where grain is received, it was found that to convey grain horizontally it had to travel over 7,000 feet, and as the most efficient means continuous bands were used. Hydraulic cranes are employed for discharging vessels, and they are fixed in towers constructed in the warehouses. The foreign granaries differ in some respects from those in England. One interesting example of an arrangement for moving is the Bolinder timber conveyer which is in use at the Millwall Docks, and which can be arranged on a curved as well as a straight line. One of them will deliver about 200 standards of 5 inch \times 7 inch battens in ten hours. A later arrangement consists of an endless chain made up of a series of rollers, and the capacity is 160 standards in ten hours. An enormous amount of labour must be saved by the structure.

Although the inventions in their perfected form are a product of our times and owe their existence to the necessity of executing work at a cheap rate, yet antiquity can show at least a recognition of the principle. ZIMMER refers to one of the carvings discovered at Nineveh by LAYARD, in which a warrior is represented

* *The Mechanical Handling of Material.* Being a Treatise on the Handling of Material such as Coal, Ore, Timber, &c., by Automatic or Semi-Automatic Machinery. By George Frederick Zimmer, A.M.Inst.C.E., with 550 Illustrations. (London: Crosby Lockwood & Son.)

Earth and Rock Excavation. A Practical Treatise. By Charles Prelini, C.E., with Tables and many Diagrams and Engravings. (New York: D. Van Nostrand Co. London: Crosby Lockwood & Son.)

cutting a rope to which a bucket was attached, and it was used to draw water from a well outside the besieged castle. The rope ran through a pulley-block. In the Leyden Museum is a sheave and pulley-block which was used in remote days in Egypt. Mr. ZIMMER also reproduces an old print in which we see a ropeway employed in the city of Dantzic as far back as 1644. He tells us:—

This ropeway connected the city ramparts with a hill outside the town known as the Bischoffsberg. A single rope was passed over pulleys suspended on high posts, two of which were embedded in the city moat. The rope carried a number of rather diminutive buckets, which were filled with earth on the hill and were discharged at a certain point on the ramparts. Probably, the earth was used for strengthening the fortifications. The empty buckets were returned to the starting-point on the same rope, which ran back on another line of posts. This was simply an endless rope running between two not very distant points.

The modern ropeway may be said to date from the adoption of wire ropes and cables. It is a remarkable fact that although, as already stated, wire ropes were known to the Romans eighteen centuries ago, they were not pressed into the service of modern engineering till the nineteenth century was well advanced. The practical use of twisted wire rope seems of no earlier date than the thirties; though wire ropes were reported to have been used in England as early as 1832, the pioneer in this field is believed to have been a German engineer, Professor Albert, of Claushal, who introduced these wire cables into his native land in 1834. The first English patent for ropeways was taken out on July 20, 1868, by Charles Hodgson, on whose invention most of the modern ropeways are more or less founded.

A ropeway was lately employed for the construction of the new Beachy Head lighthouse. The work-yard had to be at the top of a cliff 400 feet above the sea, and the site of the lighthouse was 600 feet from the base of the cliff. Both men and materials were carried in trucks, and no accident appears to have occurred. In India the system has been largely used for conveying timber from forests, and ropes have been also used in Tasmania, New Zealand and in places where ordinary means of traffic would be too costly. No less interesting are the appliances for lifting heavy weights, such as barges, by which they can be loaded or unloaded at a cheap rate and with expedition. Messrs. AVERY'S weighing machines may also be considered as lifters. The automatic grain scale is equal to a load of 12,000 lbs. Their automatic weigh-bridge can take loads of 20 tons. There is much else in Mr. ZIMMER'S book which will be found interesting. It represents one important branch of engineering, in which statics and dynamics are combined. All the machines have to be constructed on principles which to some extent correspond with those required in bridges and other structures, and the foundations must be calculated with as much care as if they were required for large buildings. The practical illustrations reveal the details of construction, and as mechanical handling of material is daily increasing in favour the utility of Mr. ZIMMER'S work can hardly be over-estimated.

In Mr. PRELINI'S "Earth and Rock Excavation" the machinery which American ingenuity has devised to supplant manual labour in one important class of work is more particularly described. As a rule the labourers engaged in American excavations are foreigners, and they only hold their positions until some new invention supplants them. We are told that "On one section of the New York subway a contractor with great political influence employed a lawyer so as to have him at hand in any accident; that he could gather evidence in order to demonstrate to the friendly judges that the accident was caused exclusively by the victim, and the contractor is only too generous when he refuses to sue him for damages." Mr. PRELINI says that conduct is abominable; but it reveals the spirit with which capital deals with labour of an inferior kind. The better class labourers obtain employment in connection with the

machines to which they might be assumed as inimical, and although they are paid less than mechanics, there is a slight improvement in their condition. As a rule all excavators are regarded as alike, and they are simply looked on as living machines.

The channelling machine which the Americans favour cuts vertical slots or channels in rocks, and the amount of work performed varies according to the hardness of the rock. On the Chicago Canal the quantity ranged from 50 square feet in moist material to 500 square feet in hard rock. On that great work it was calculated that the cost was 3 cents per cubic yard of material excavated. Drills are becoming familiar in this country; the price of one class has been increased owing to the difficulty of finding diamonds, but a substitute has been obtained, it is said, by using steel teeth. On English railways powder alone was used for blasting, but now there are a variety of compounds of the nitro-glycerine class which are more effective. Mr. PRELINI says that "nearly all the explosives with fancy names which are placed on the market are simply false dynamites." He advises engineers and contractors to avoid the purchase of any explosive of which the ingredients are concealed. In America anyone can manufacture explosives after obtaining permission from the State, and there are no special laws for their transportation. The arrangements adopted when explosives are employed in American towns are thus described:—

In conducting blasting operations in city streets or in thickly settled districts it is the usual practice to cover the holes with a protecting mattress before firing them. Such mattresses are usually made of logs about 1 foot in diameter, loosely chained together into a mattress-like bunch. In New York city each mattress usually consists of ten logs, and enough mattresses are used to cover the full area of the blasting cone. Over these logs is placed a heavy netting made of $1\frac{1}{4}$ to $1\frac{1}{2}$ inch manila rope, or else a sheet of tin, usually a section of discarded tin roofing. Logs and rope nets are preferable to logs and tin sheets. The logs should be loosely tied together so that they give an elastic mattress to absorb the force of the explosion; if fastened rigidly together they will break and splinter. The operation of these mattresses is as follows:—They rise into the air from the force of the blast, but confine the flying stones underneath and immediately drop back to near their original position because of their great weight.

For excavation there are numerous appliances. A plough, differing in shape from that used in agriculture, is one. Then there are "graders" of various kinds, and some in which a locomotive and grader are combined in order to dispense with horses. The ladder and buckets or continuous digging machine is believed to have been first utilised in the Suez Canal. There is also an up-digging machine, an excavating machine and various others. Ordinary manual labour is displaced by the steam shovel, of which there are many types. One bucket employed on the Panama Canal has a capacity of $1\frac{1}{4}$ cubic yards, and its average output is 500 cubic yards a day. There are different sorts of buckets which open to deliver material and close to form receptacles for additional stuff. In America there is a greater variety of carts conveying materials than with us. In one the bottom can be opened, allowing the material to fall out without stopping the horses, so that not an instant of time is lost. In some parts of the country a "stone boat" is used for heavy materials. It is without wheels and is drawn like a sledge. But as it stands within a few inches of the ground there is no trouble in loading with rocks or other material. For vertical hoisting the Americans have a variety of derricks and locomotive trains. They have also aerial transporters of many types.

The author, in conclusion, describes some modern canals and works in which the machinery he explains was employed. One of them is the Panama Canal. He is a champion of M. DE LESSEPS, whose idea was to construct an open sea-level canal in which vessels could

pass from ocean to ocean without stoppage. After expending a good deal of money to carry out a different policy, the original idea is likely to be realised. Digging and drilling machines, cranes, locomotives, cars and dredgers have been utilised. But in spite of all those auxiliaries, the men engaged were unable to withstand the climate and the results of the excavations, which brought to the surface dangers which had been imprisoned within the earth. Mr. PRELINI says:—

In the excavation of the Panama Canal at times were employed 13,000 men, of which 12,000 were workmen, and 1,000 between foremen, superintendents, engineers, &c. As a rule, when an excavation is effected in any locality, bacteria spread in the air in such quantities as to affect the health not only of the labourers, but also that of the inhabitants living close by. For this reason are found symptoms of malaria near every excavation of some importance, and even in localities never affected before. But to excavate such an enormous amount of earth as was then required for the construction of the Panama Canal, and in a tropical region where many other diseases are encountered, was a hard proposition. The death rate among the men employed in this work was something awful, being $7\frac{1}{2}$ per cent. among the workmen and 6.4 per cent. among the employers. These numbers would have certainly been doubled if it were not for the strict sanitary measures adopted by the company in order to safeguard the health of its men, and for the enormous expenses it underwent to provide for the comfort of the men, greatly improving the sanitary conditions of the locality. European workmen could not stand the climate and were decimated; the only ones who could resist it in those regions came from Jamaica, but they were very slow in their work.

Mr. PRELINI's book describes the latest ways of excavation and embankment, especially in undertakings on a grand scale. There is no doubt that much work continues to be done in this country in a primitive manner. There is room for the new book, and it is to be hoped it will have the effect of promoting economy by suggesting a better system. At the present time railway companies are blamed because of their excessive charges, which are supposed to aid foreigners in their competition with English producers. But when it is remembered how costly was the making of every railway and the large sums which had to be given to obtain an Act, the prices charged are not out of keeping with the preliminary expenses. Economy of construction must affect the prices to be paid for the conveyance of goods.

REGULATIONS FOR COMPETITIONS.

THE following regulations were approved by the Royal Institute of British Architects at the meeting on the 5th inst. :—

If the promoters of an intended competition desire members of the Royal Institute of British Architects to take part therein, the conditions should be based on the following suggestions :—

1. The promoters of an intended competition should, as their first step, appoint one or more professional assessors, architects of established reputation, whose appointment should be published in the original advertisements and instructions. The selection of the assessor should be made with the greatest possible care, as the successful result of the competition will depend very largely upon his experience and ability. The President of the Royal Institute of British Architects is always prepared to act as honorary adviser to promoters in their appointment of assessors. All the designs sent in should be submitted to the assessors.

2. The duty of assessors should be, after conference with the promoters :—(a) To draw up the particulars, conditions and suggestions in accordance with instructions to competitors, such documents to be so drawn up as to form an agreement between the promoters and the competitors, and also to advise the promoters upon the question of cost and the amount and apportionment of the premium or premiums. (b) To determine whether the designs conform to the instructions, and to exclude any which do not. (c) To advise the promoters on the relative merits of the designs admitted to the competition, and to make a selection in accordance with the instructions.

Note.—It is essential in drawing up the instructions to state definitely which of the conditions must be strictly adhered to, and those which are merely optional or of a suggestive character.

3. No promoter of a competition, and no assessor engaged upon it, nor any employé of either, should compete or act as architect for the proposed work.

4. The number, scale and method of finishing of the required drawings should be distinctly set forth, and they should not be more in number or to a larger scale than necessary to clearly explain the design, and such drawings should be uniform in size, number, mode of colouring and mounting. If the assessor advises that perspective drawings are advisable, it should be so stated.

5. Competitions should be conducted in one of the following ways :—(a) By advertisement, inviting architects willing to compete for the intended work to send in designs. The promoters, with the advice of the assessor or assessors, should make their selection from such designs. The author of the design awarded the first place should be employed to carry out the work. (b) By advertisement, inviting architects willing to compete for the intended work to send in their names by a given day, with such other information as the candidate may think likely to advance his claim to be admitted to the competition. From these names the promoters, with the advice of the assessor or assessors, should select a limited number to compete, and each competitor thus selected should receive a specified sum for the preparation of his design. The author of the design awarded the first place should be employed to carry out the work. (c) By personal invitation to a limited number of selected architects to join in a competition for the intended work. Each competitor should receive a specified sum for the preparation of his design. The author of the design awarded the first place should be employed to carry out the work.

6. No design should bear any motto, device or distinguishing mark; but all designs should be numbered by the promoters in order of receipt. Any attempt to influence the decision of the promoters or of the assessor or assessors should disqualify a competitor.

7. The author of the design placed first by the assessor or assessors should be employed to carry out the work, and he should be paid in accordance with the schedule of charges sanctioned and published by the Royal Institute. If no instructions are given to him to proceed within twelve months from the date of selection, or if the proposed works are abandoned by the promoters, then the selected architect should receive payment for his services in connection with the preparation of the competition drawings of a sum equal to $1\frac{1}{4}$ per cent. on the amount of the estimated expenditure.

8. In every case the amount of premium or remuneration for the competitive designs should be fixed under the advice of the assessor or assessors.

9. Where a deposit is required for supplying the instructions, it should be returned on the receipt of a bona-fide design; or if the applicant declines to compete and returns the said instructions within a month after the receipt of replies to competitor's questions. The deposit required should not exceed the sum of one guinea.

10. Each design should be accompanied by a declaration, signed by the competitor, stating that the design is his own personal work, and that the drawings have been prepared under his own supervision.

11. A design should be excluded from a competition—(a) if sent in after the period named (accidents in transit excepted); (b) if it does not substantially give the accommodation asked for; (c) if it exceeds the limits of site as shown on the plan issued by the promoters, the figured dimensions on which should be adhered to; (d) if the assessor or assessors should determine that its probable cost will exceed by 10 per cent. the outlay stated in the instructions, or the estimate of the competitor should no outlay be stated. If the assessor or assessors be of opinion that the outlay stated in the instructions is inadequate, he or they shall not be bound in the selection of a design by the amount named in such instructions, but the question of cost shall nevertheless be a material element in the consideration of the award; (e) if any of the other instructions are violated.

12. It is desirable that all designs and reports submitted in a competition, except any excluded under Clause 11, should, with the consent of their authors, be publicly exhibited after the award has been made, which award should be published at the time of the exhibition. At the close of the exhibition all the designs, with the exception of

the one placed first, should be returned, carriage paid, to their authors.

13. It is essential to the success of any competition that the promoters should agree in their instructions that the award of the assessor should be adhered to unless there is some valid objection to the employment of the author of the design placed first, as to which the assessor should be satisfied.

14. In the case of works of considerable magnitude it is desirable that three assessors should be appointed. As stated above, the President of the Institute is always ready to advise on this or other points.

NORFOLK AND NORWICH ARCHÆOLOGICAL SOCIETY.

THE annual meeting of the Norfolk and Norwich Archæological Society has been held at the Guildhall, Norwich. The President (General W. E. G. L. Bulwer, C.B.) occupied the chair.

The Hon. Secretary, says the *Norwich Mercury*, read the annual report, which contained a record of the meetings and excursions organised by the Society during the past year. Reference was also made to the 500th anniversary of the incorporation of Norwich. Death had removed during the past twelve months the Rev. E. H. Nelson, Mr. W. Carr, Mr. Archibald Day, the Earl of Chichester, the Rev. H. Dunster, the Rev. Frederick Davies and Mr. Samuel Nightingale.

The Treasurer's report showed that the year 1904 started financially with a balance at the bank of 353*l.* 16*s.* 1*d.*, and concluded with a balance of 378*l.* 0*s.* 2*d.*

Sir Peter Eade proposed the re-election of General Bulwer as president, and said they all knew how admirably he had fulfilled the position in the past and what a great service he had rendered to the Society, and the motion was carried unanimously.

Mr. Bolingbroke read a letter from Mr. Walter Rye in which he expressed the desire to resign his position on the committee and the sub-publication committee.

The President read a letter from the Rev. Dr. Jessopp, in which he said:—"The Society is so deeply indebted to Mr. Rye for his invaluable services in the cause of Norfolk archæology that it seems to me it would be little less than a crying scandal if he were allowed to resign his position amongst us, even though such resignation were accepted with a unanimous testimonial of our regret, and with the fullest and most cordial expression of our profound esteem and gratitude to this our most distinguished colleague. I therefore beg to hand in a proposal which I am sure will find many seconders, and which I am very sorry that I cannot have the honour of proposing personally. That this meeting having received an intimation from Mr. Walter Rye of the fact that he desires to resign his position upon the committee of the Norfolk and Norwich Archæological Society, desires to express to Mr. Rye its cordial thanks for all his invaluable services in the cause of archæology during many years in the county of Norfolk, but they cannot accept his resignation."

It was decided not to accept Mr. Rye's resignation.

Norwich Church Brasses.

Mr. Bolingbroke said a gentleman recently wrote to him stating that he had two or three fragments of brasses from Norwich churches which he (the speaker) might be desirous of acquiring for the Strangers' Hall. They were not receivers of stolen property at Strangers' Hall, however, but he bought the brasses and communicated with the committee of the Society, who decided that they should be handed over to the clergy of the churches to which they belonged. The first one was a brass in memory of John Caston, a citizen and alderman of Norwich, who died on January 3, 1483, and who was buried in St. Lawrence Church, and there was no doubt that the brass came from that church, although it was not mentioned in Blomefield. By his will the gentleman to whose memory the brass was erected gave forty shillings for making a new perk in the church. The other two were scrolls belonging to the big brasses in St. John Maddermarket Church. One formed a portion of the brass of an abbot, and the other represented a portion of a knight in armour and part of a lion.

The first brass mentioned was presented to the Rev. C. B. P. Ramsey, the rector of St. Lawrence, by the President, who said he had great pleasure in handing the brass, duly mounted, on behalf of the Society. It un-

doubtedly belonged to that church, and he hoped it would be replaced there. Just now two or three city churches had got out of repair and he saw it was proposed to pull them down, but he would like the citizens of Norwich to carefully consider whether they were not trying to do away with what was a very important and valuable asset in the possession of these churches. A great many visitors came to the city in the summer time, especially Americans whose forefathers came from Norwich, and who liked to come to the place where their ancestors were born and married, and where some of them died. Those people brought a lot of money into the place, and if these relics which were perhaps often more interesting to outside than to citizens, were destroyed, it would be a great loss to Norwich. Americans, who had local associations, were very proud of these ancient relics.

The Rev. C. B. P. Ramsey, in returning thanks on behalf of his churchwardens and himself, remarked that he felt very strongly about the preservation of their ancient churches, and was at the present time restoring St. Gregory's Church, of which he was incumbent. Towards the cost of this work a further sum of 140*l.* was required, and perhaps some members might assist him in the way of funds.

The President: Although we can give away brass, I do not think we have much gold to give away.

Replicas of the missing rose-water dish and ewer, presented to the city by Archbishop Parker, were on view, and Dr. Bensly gave a few interesting facts regarding these pieces of plate. The replicas were made from drawings of the originals in the possession of Mr. Walter Rye, and were presented by Mr. Geoffrey Buxton and various past mayors and sheriffs of the city.

Sir Peter Eade expressed their thanks to Dr. Bensly for having initiated the movement for the reproduction of these lost pieces of plate.

The Roman Occupation of Norfolk.

The Rev. H. J. Dukinfield Astley, M.A., Litt.D., then read some "Notes on the Ninth Iter of Antoninus, with special reference to the sites of Sitomagus and Venta Icenorum, reconsidered in the light of Tabula Peutingeriana," in which he maintained that, according to the data of Antoninus's Itinerary and the Tabula Peutingeriana, Caister and Thetford are the sites of Venta Icenorum and Sitomagus, in harmony with the views of the older antiquaries, as opposed to modern theory, propounded principally by Dr. Raven, which fixes Norwich and Dunwich as the sites. As Dr. Raven pointed out, the old antiquaries, as Camden and Sir Thomas Browne, unhesitatingly pronounced for Caister as the site of Venta Icenorum, but for the next site in the Itinerary, Sitomagus, they had to follow a deflected line to the east or west. The old antiquaries followed the westward line, although they differed as to the site, but before Dr. Raven he could only find three writers who took the eastward line, and fixed upon Dunwich as the site. This identification had been widely accepted in modern times, though none had explained the reasons for their choice so ably and learnedly as Dr. Raven. That gentleman would identify Venta Icenorum with Norwich rather than with Caister, on the ground that the name indicated a British settlement, and previous to the Roman occupation, and that in this respect Norwich Castle, with its British earthworks, contrasted most favourably with Caister in its low situation near the river Tas, which was not at all in the position of a British town. He continued:—"Then there is the form of the Caister camp—rectangular, without any sign of Icenian earthworks on which Roman walls might have been raised. So far as mileage is concerned either site might serve. . . . Finally, if Caister be Venta Icenorum where can we place the Ad Taum of Peutinger's Tabula, which is certainly much later than the Itinerary? Tasburgh, in spite of the temptations caused by its name, will not serve for Ad Taum." He (Dr. Astley) submitted, however, that there was no place which suited the data of both the Tabula and the Itinerary in respect to Sitomagus so well as Thetford, and that Dunwich was at any rate ruled out. How any one with the Tabula before them, and the inland progress of the route so clearly marked could argue on the basis of the Tabula, as against the Itinerary and the older antiquaries, for the position of Sinomagi on the coast, as Dr. Raven and so many modern antiquaries did, passed his comprehension. Whatever grounds there might be for fixing it at Dunwich, the data of the Tabula was dead against it. Arguing that the name Venta Icenorum meant simply the market of the Icenii, Dr. Astley said they must look for such a site not in a tempting place provided with

British earthworks, but in a locality where everything would prove its importance during the period of the Roman occupation. Where would they find a more fitting situation than that of Caister? That Caister was a place of importance under the Romans was proved not only by its mighty camp and massive walls, which bespoke the size of the garrison maintained within it, but by the remains of Roman residences which were found in the neighbourhood; and that it was a place of great commercial activity was proved by repeated and important finds of Roman coins, besides ornaments, pottery of various descriptions and other things at or near the camp. They concluded therefore on every ground of right reasoning that Venta Icenorum, the market town of the Iceni, was to be located where the older antiquaries placed it, viz. at Caister, and not at Norwich. What Norwich was to-day, Caister was in Roman times, and as they saw the busy crowd thronging the Norwich streets on a Saturday they could repeople the deserted camp and field of Caister with the crowd of country folk bringing their wares, and the merchants from the south buying and selling, and picture to themselves something of the varied scenes and bustling life of Venta Icenorum in these far-off days. At Ad Taum, which they located at Tasburgh, they found the remains of a good Roman camp twenty-four acres in extent, and following the Roman road through Stratton they turned to the westward, following the bend indicated in the Tabula, and passing through Banham and Kenninghall along the line of a road still known as Ickneild Street, which might very well mark the route of the Ninth Iter, they arrived at Thetford, the Sitomagus of the Itinerary and the Sinomagi of the Tabula. This was a more direct route to London than the coast line favoured by Dr. Raven, and took them past places which were of some note in Roman times. Dunwich did not rise to any importance until Anglian times, whereas Thetford provided just the site which the Romans would fix upon for a station. To his mind the data of the Itinerary and the Tabula, together with the considerations which he had adduced, all pointed to Thetford as the true site of Sitomagus, and to the theories of Dr. Raven being "needless, baseless and untenable."

Mr. J. J. Coulton, as one who had given considerable attention to the subject, expressed himself as entirely in accord with the opinion of Dr. Astley. He believed that Norwich was not the Venta Icenorum, but that Caister was. Caister was washed by the river Wensum, whereas Norwich was washed by the Yare, and Wensum received its name Venta, as Caerwent and Winchester also did.

The proceedings closed with the usual votes of thanks.

WESLEYAN CHURCH HOUSE.

THE Trustees of the new Church House at Westminster have chosen Messrs. Lanchester & Rickards, of Bloomsbury, as architects. The decision of the Trustees, says the *Methodist Times*, was unanimous, and after it was come to Sir Aston Webb, the architectural assessor, declared himself of the same opinion. The designs of Messrs. Lanchester & Rickards were deemed the best of those sent in, both on the ground of general architectural ability and of internal arrangement. It is expected that all the competing designs will be exhibited shortly at City Road. Some time must elapse before tenders can be asked for and the foundations put in, and it will, of course, not be for a considerable time that the actual building will be put in hand. The building, as designed by Messrs. Lanchester & Rickards, will bulk well in relation to the group of buildings surrounding it. It is loftier than the Westminster Palace Hotel and the Westminster Hospital, and will confront the great Abbey not with any rivalry of style, but with a massive edifice well worthy of the conspicuous site which it is to occupy.

It is thought that the cost of the building will amount to 140,000*l.*, and the style of architecture chosen is the Renaissance. In working out the design its proportions and massing have been allowed to develop from the necessities of the case, the form of the large hall being naturally the dominating influence, while the expressed desire for a building of monumental character has been an important factor in determining the treatment of the detail.

It has been considered not inappropriate to base the design on the style belonging to the period at which John Wesley commenced his life work. Applied ornament and sculpture have been sparingly used, in view of the austerity of the design, and some suggestion has been found in the

verses beginning, "Wherefore take unto you the whole armour of God" (Ephesians vi. 13-17). Figure-work has been almost wholly avoided, as unsuited to the purposes of the building. It is suggested that in the middle of the Tothill Street frontage a statue of John Wesley should be placed in the recess formed by the building.

The form of the external dome has been decided on with a view to differentiating the building from one of a strictly ecclesiastical character such as a circular dome would suggest.

The interior of the building will be arranged as follows:—

Basement.—Tea-room to seat 550 and another to seat 450. Ladies' cloak-room and lavatory, kitchen service-room, heating chamber and tea offices. The mezzanine, at ground level, will comprise thirteen offices, two strong rooms and a lavatory. The ground floor will comprise a conference hall to seat 300, reading-room, library, small hall, four committee-rooms, librarian's room, vestry and two lavatories. The mezzanine above the ground floor will contain twelve offices and two lavatories.

On the first floor will be the assembly hall, seating 1,401 people, cloak-rooms and lavatories, two vestries, a reception-room and eleven offices. And on the second floor will be the entrance to the galleries, accommodating 1,155, making a total seating accommodation for the assembly hall of over 2,500. The librarian's house will be on the third and fourth floors.

AN EARLY COROT.

ONE of the paintings presented by the Prince of Wales to the Dublin Museum Art Gallery was a landscape by Corot, the French painter. The work was known, as doubts had been raised about its genuineness, and it was ascribed to an Hungarian artist. The following letters from London experts support the belief that it came from Corot's hand:—

"120 Pall Mall: June 6, 1905.

"Dear Sir,—Having carefully examined the little landscape with figures and a boat, I have no hesitation in pronouncing it to be a genuine early work by J. B. C. Corot, painted about the year 1825.—Yours faithfully,

"THOS. WALLIS."

"The Marlborough Gallery, 53 Pall Mall:

"June 2, 1905.

"I have examined the small landscape submitted to me to-day, and it is my opinion that it is an early work by Corot. From great experience in such matters, I am perfectly aware that the early works by most of our esteemed painters have little of the characteristics of their advanced and more matured.

MARTIN H. COLNAGHI."

"39B Old Bond Street: June 6, 1905.

"Dear Mr. Lane,—I have to-day seen the picture signed in full by Corot, and upon which I hear some doubt has been thrown in Dublin. I am of opinion that this is a perfectly genuine work of the master. It is ridiculous, in my opinion, to say this picture has been painted since 1877. It was, I think, the work of Corot when very young; the work of a clever boy. It is interesting to connoisseurs as showing how very carefully the artist worked in his youth, and I have no hesitation in saying it to be a genuine work.—Yours very faithfully,

LOCKETT AGNEW."

"177 Piccadilly, London, W.: June 6, 1905.

"Dear Sir,—With regard to the little panel picture attributed to Corot which you have to-day submitted to me for my opinion, I have to say I have no doubt as to its authenticity, and that it is a very early example of that artist, and painted at the beginning of his career.—Yours faithfully,

AYERST H. BUTTERY."

An Appeal has been made for funds towards the resumption of explorations at St. Augustine's Abbey at Canterbury, which have been in progress during the last four summers. The results hitherto obtained include the discovery of the crypt of the Early Norman church with its three apsidal side chapels, each having its altar still *in situ*; the walls of the north transept, the chapter-house and the infirmary chapel. If funds are forthcoming excavations will be made on the eastern part of the nave, including the ritual choir, which still lies under a great mound of earth; the chapter-house is not yet cleared out, and no work has been done on the dormitory range and other buildings.

NOTES AND COMMENTS.

THE Red Book of the Architects' Benevolent Society has been again issued, although last year's edition was the means of adding only seven additional subscribers. During the past year sixty-six applicants were assisted and ten pensioners received annual grants. In that way 950*l.* 19*s.* was expended. The year's subscriptions amounted to 525*l.* 16*s.* Fortunately, the dividends on the company's stock amounted to 398*l.* 10*s.* 3*d.* There has been a deficit of 47*l.* 9*s.* 1*d.* For so important a profession the figures are not satisfactory, and, "in view of the comparatively small number of architects in active practice who contribute to the Society, the Council make an earnest appeal for more liberal support." Only 5 or 6 per cent. of the members of the Royal Institute subscribed to the funds. The Society needs no eloquence in order to describe its utility. At a time like the present there is likely to be an increased number of applicants for assistance, and unless the subscribers are more numerous they cannot be relieved without drawing on capital.

SYRACUSE has so long a history and was at one time so important as a city and a seaport, it seems falling from the sublime to the ridiculous when we consider it in a vice-consul's report. A great quantity of the lemons and oranges which are used in the United Kingdom are shipped at Syracuse. But what is more interesting to contractors is that the exports of asphalt have considerably increased. During 1904 the quantities shipped from Syracuse and Mazzarelli were about 75,542 tons, of which 65,320 blocks of compressed bitumen, equal to 1,633 tons, and 69,100 sacks of pulverised asphalt rock, equal to 3,455 tons, were sent to various destinations. At Ragusa (the asphalt mining district) another new steam factory for the extraction of bitumen from the asphalt rock and compressing into blocks, as also for pulverising the asphalt rock, is being built by the United Limmer and Vorwohle Company; and important discoveries of asphalt rock were made at Scicli, where the mines are being worked and the asphalt extracted is brought to Syracuse for exportation. The quantity of asphalt obtained by Great Britain was 4,923 tons. As the utility of the material is being more generally recognised, it is advantageous to have supplies from a great many districts.

It is anticipated that the danger which threatened French churches will be minimised. One party of the citizens desire to see them converted into museums or into warehouses. And to secure the fullest liberty for the secularisation of the buildings it was proposed that the tenure of them by the congregations should be limited to a very few years. Not a word was said about renewals of the leases. The Commission appointed to report on the subject have come to the conclusion that the proposed arrangements would be unsatisfactory. It has therefore been suggested that the leases should be renewable so long as the stipulated conditions were carried out. It has yet to be seen whether the opposing parties will recognise the advantages of the new proposals or will have to submit to a majority on the other side. The fear of eviction is not pleasant to contemplate even by those who aspire to suffer in order to display their zeal, and it is not unlikely that if tenants were often changed the churches would suffer.

IRISH gentlemen are not credited with any desire to purchase pictures by Irish artists. If they invest it is generally in works which were produced in some other country. MORLAND appears to be a favourite, and the loss of two pictures which were said to be by him formed the subject of a trial in Dublin a few days since. The plaintiff, a foreigner who dealt in pictures, made an agreement with a London dealer to let him have the two paintings on the sale or return principle. There were some doubts about the genuineness of one of them,

and in consequence the trade price was 50*l.* each. The two pictures were wrapped in a rug, and the travelling dealer brought them to the terminus of the Great Southern and Western Railway, as he expected to send them to a gentleman in Mitchelstown. One of the porters detected them, and said that as the pictures were not personal luggage they would have to be paid for. The pictures, it was alleged, were not to be found on plaintiff's arrival at the station, and he had not since seen them. The railway company maintained that the value of the goods had not been declared, for, if so, he would have had to pay an insurance of 10*s.* The guard of the train expressed the belief that the dealer had himself taken the parcel. The jury found for the plaintiff, and assessed the value of the pictures at 65*l.* There was no doubt the plaintiff had stated that the parcel contained pictures, but had not stated the value placed on them. The case is curious as showing there were irregularities on both sides, and owners of pictures should be warned that railway companies are not infallible in their arrangements.

THE French have claims on Egypt owing to the great services which were rendered by CHAMPOLLION at the beginning of the last century—a time when that ancient kingdom was considered to be an unsolvable mystery. The interest has not been lost, and an exhibition which is now open in the Petit Palais in Paris reveals that the explorations at Antinoë by M. GAYET have been crowned with deserved success. There is originality about a figure of a gladiator, who evidently upheld his reputation by the richness of his costume. There is also a charioteer who was buried with his whips, his goad and the reins he used. The mummy of a woman who had charge of the images of OSIRIS also has interest. Evidently Greek influence was strong in Antinoë, for a piece of stuff resembling muslin has been delicately painted with scenes from the myth of BACCHUS, some of them being different to those accepted by the Greeks. There are two portraits in wax colours which from their reality are sufficient to confute those who believed that the Egyptians cared only for conventional forms.

ILLUSTRATIONS.

GAIETY RESTAURANT.—MASONIC TEMPLE.

ON the right of the first floor of the New Gaiety building will be found the Masonic Temple and Banqueting Hall. Between these is the Tiler's Room, which is of sufficient dimensions to accommodate a large number of persons. From it on the western side is the entrance to the Masonic Temple, the design for which has been based on Byzantine Church work. This room is of noble proportions, being 45 feet in length, 27 feet in height, and 26 feet in width, with an apsidal end and barrel roof over (supported on sixteen Sienna Scagliola marble columns) richly decorated with emblematical paintings in the semi-dome and on the semicircular end above the organ. The whole is adapted for every conceivable branch of the Masonic world. The Temple is decorated and furnished in the Byzantine style, and has a carpet of rich blue, curtains of pearl plush surmounted with embroidered palmettes surrounding Masonic emblems. These, with the design and colouring of the vaulted ceiling, accord with the artistic subject paintings of angelic figures representing respectively "The Star of the East," bearing a radiant star in the outstretched hand, "The Spirit of the West," bearing the Western crescent moon surrounded by seven stars, and "The Spirit of the South," bearing the noonday sun. As a background is utilised the starry sky, the Tree of Life bearing bursting pomegranates, and two birds, an early symbol of the Resurrection.

BOROUGH OF BRIDGWATER FREE PUBLIC LIBRARY.

THE ENTRANCE COURT, PALAZZO CHIGI, SIENA.

THE EXCAVATION OF THE OLDEST TEMPLE OF THEBES.*

IT will probably be within the recollection of the members of the Society of Arts that some ten years ago the Egypt Exploration Fund carried out the complete excavation and conservation of the great temple of Deir el-Bahari, on the western bank of the Nile, at Thebes. This great work, the most important of its kind carried out by the Egypt Exploration Fund, was entrusted to the hands of Professor Naville, the senior excavator of the Fund, who had already proved his skill by the discovery of the store-city of Pithom, and by the unravelment of the probable route of the Exodus. This was the work with which the Egypt Exploration Fund made its *début*. Ever since its foundation, twenty years ago, the Fund has carried out systematic excavations, chiefly associated with the names of its chief excavators, Messrs. Naville and Petrie, and it may with truth be said that no other private society has ever done so much for the furtherance of our knowledge of the ancient world. Its work has varied in character from year to year as the occasion needed: that at Deir el-Bahari is an example of what the French call *déblaiement* on a large scale, the complete clearance of an ancient site on which considerable remains existed above ground, usually those of a temple. Only those who remember what Deir el-Bahari was twenty years ago, covered with high-piled mounds of *débris* and encumbered with the ruins of the Coptic monastery from which it took its name, can realise the heavy nature of the work which the Fund undertook to carry out there. Heavy as the work was it was worth doing, for the temple, though half buried, was known to be not only unique in Egypt as regards its plan and the beauty of its sculptures, but was of great interest on account of the interesting personality of its founder, the great Queen Hatasu, or Hatshepsu, of the eighteenth dynasty, the queen regnant, who reigned as a king and was depicted as a king in masculine attire. The work was worth doing, and its result is well-known to every modern visitor to Egyptian Thebes. As it stands completed and conserved by the skilful hands of Mr. Somers Clarke and his associates, the great temple of Deir el-Bahari is a lasting monument of the Egypt Exploration Fund's work in Egypt.

But the work at Deir el-Bahari did not cease with the excavation of this temple. When that was finished, a large tract to the south of it still remained untouched and unexplored. This tract is now being excavated for the Fund by Professor Naville, and it is this excavation, in which I have taken part with M. Naville for the past two seasons (assisted during the second season by Mr. E. R. Ayrton and Mr. H. Garnett-Orme), which has resulted in the discovery of the oldest temple at Thebes. This is a second temple, side by side with the first, but a thousand years older than it. It dates to the time of the eleventh dynasty, about 2500 B.C., to a period and a dynasty of which very little is known. It was to be expected, therefore, that this discovery would tell us much that would be entirely new with regard to the architecture and art, perhaps also the history, of an obscure epoch. This expectation has been abundantly justified: we have learnt much that is entirely new, and the Fund has made discoveries of the greatest interest, which I will now describe.

From several indications it was considered probable that a building of the eleventh dynasty existed at Deir el-Bahari, but it was not supposed that anything much would be found of it. Finely furnished tombs of the same dynasty had been found here by M. Naville during the course of the preceding excavations, and it was hoped to find still more of the same kind. Both temple and tombs have been found, but, contrary to expectation, the temple has turned out to be far more important than the tombs. The temple is much larger and in better preservation than it was expected to be; the tombs, as far as we have explored them (the excavation is not yet completed), prove to have been violated and robbed by the tomb thieves of ancient days, but have nevertheless yielded us objects of the eleventh dynasty which were buried with the dead, in good preservation, and one very good find, a magnificent white limestone sarcophagus of unique workmanship.

The relation of the tombs to the temple is interesting. They are contemporary. The temple was a mortuary chapel or funerary temple, dedicated for the deceased king Mentuhtetep III., the most important monarch of the eleventh dynasty, and the first great Pharaoh who exer-

cised his dominion from Thebes. It was in his epoch that Thebes became what we should call the "capital" of Egypt. The tombs are excavated within the precincts and beneath the actual pavement of the temple. They were the last resting-place of a series of priestesses of Hathor, the tutelary goddess of the place, who was venerated in the form of a cow. These priestesses were contemporaries of Mentuhtetep and other kings of the eleventh dynasty (one at least of whom is a new discovery) who are commemorated here, and one or two of them seem to have been actual queens: all are described as "favourites" of the king. Other great personages of the court were buried in the immediate vicinity of the temple, which seems then to have been a sort of eleventh dynasty Westminster Abbey; still other great personages of the time are commemorated in the inscriptions on its walls.

The temple stands upon an artificially squared platform of rock, rectangular in shape. In the centre of this platform is a square mass of building, which seems to be the core of what was originally the base of a pyramid. It is built of heavy rough nodules of flint. In one place only, the north-western corner, is part of the original facing of fine white limestone blocks preserved. The erection was originally pyloniform; remains of the heavy cornice and the toruses at the corners have been found. Above this, it is most probable that a small pyramid was erected, as we see a pyramid depicted above a base of this kind in the representations of tombs in the "Book of the Dead." This would agree with the fact that the tomb-chapel of King Mentuhtetep is spoken of in the "Abbott Papyrus" (the *procès-verbal* of an inquiry into tomb robberies in the reign of Ramses IX., about 1100 B.C.) as a *mer*, that is to say, a pyramid-tomb. It cannot have been an altar, as has been suggested, as there is no way up to it by steps or ramp from the platform. Yet that it was a real pyramid covering the actual burial-place of the king is doubtful, as we shall see later. The central erection was surrounded by a colonnade of three rows of small octagonal pillars, each originally 12 feet in height. The intercolumniation is very narrow, as they measure only about 7 feet from centre to centre of the bases. Each is inscribed with the name of King Mentuhtetep. This colonnade or pillar-hall was surrounded by a wall, the sides of which were decorated with coloured reliefs representing the king's coronation and celebration of the Jubilee festival ("sed-heb"); processions of warriors and magnates, among whom figures a well-known dignitary of Mentuhtetep's reign, the Vizier Kheti; men driving cattle, gathering seeds, reaping corn and building boats, and other scenes appropriate to the funerary chapel of a king at this period. I shall refer again to these reliefs at the end of this paper. Typical specimens of them will be exhibited at the annual exhibition of the Egypt Exploration Fund at the rooms of the Society of Biblical Archaeology, 37 Great Russell Street, in July. Outside this wall was a colonnade of square pillars, of which only the bases remain *in situ*. This seems to have been an open colonnade, looking out upon the court at a lower level, which is shown on the left of the screen. The open colonnade must have given the whole building something of the aspect of a Greek peripteral temple. The court is artificially cut out of the rock, like the platform. The rock wall, about 15 to 18 feet high, was masked by a wall of magnificent limestone, blocks of which a considerable stretch remains in position. The whole of this court was excavated during the first season's work. It separates the two temples. The whole building was approached from the centre, from the east, that is, by an inclined ramp or processional way, flanked on either side by colonnades, as in the later temple of Hatshepsu. From this it would seem that Hatshepsu's architects took the idea of a platform approached by a ramp flanked by colonnades (but no more; the plans of the buildings on the platform are perfectly different in the two temples), from the older temples which we have discovered. This is a most interesting probability. Coming back to the west end of the pyramid, we see the remains of a colonnade. Here were found the tombs of the chief priestesses, with in front of them the shrines in which offerings were made to their *kas*, or doubles. Many fragments of these shrines, which were embellished in the high reliefs, delicately coloured, have been found and brought back to England. The cavetto mouldings of the cornices, with inscriptions above them giving the names of the dead priestesses, are of remarkably fine workmanship.

I shall now proceed to describe the general progress of the excavations from the commencement to the suspension of work at the end of last season. This suspension does

* A paper read by Mr. H. R. Hall, M.A., before the Applied Art Section of the Society of Arts.

not mean the end of the work. Two-thirds only of the temple have been as yet excavated; one-third remains to be done. A wall at the western end of the platform turns inward towards the cliffs, and pillars and pavement, now covered again by a fall of rubbish, seem to lead further west towards another shrine, probably the king's own shrine, and if we may judge by the analogy of the priestesses' shrines, which lie immediately in front of their tombs, perhaps the king's tomb itself.

The chief problem in dealing with an excavation of this type is the removal of the rubbish, and the disposal of it when removed. It is impossible to throw all the stuff simply behind one as we work forward, planning as we go, and partly covering up again what has been investigated and planned. The object is systematically and totally to uncover—*déblayer*—a building, to free it from the rubbish which has accumulated above it during the lapse of time, and to free it totally, so that it can be kept for all to see and study. To do this properly in a confined space, such as that at Deir el-Bahari, which is surrounded on all sides by cliffs, and partly filled with already excavated temple buildings which must not be again covered up, is difficult. In an open space, as at Abydos, it is possible simply to heap all the rubbish up around the area excavated, but at Deir el-Bahari everything must be carried away some distance to the east, to a tract which is bare of ancient remains, and where rubbish may be shot with the certainty that it will not need to be again removed. To do this it was necessary to have a small Décauville railway, which could carry away the stuff and tip it about a quarter of a mile or more away. The tips are of the same construction as those used in chalk-pits to dispose of the useless chalk. The waggons are run and the actual excavation done by local workmen. These men dig out the rubbish, which, as the whole area is desert and is never reached by the inundation, is loose and dry, and largely consists of stone *débris* and wind-blown dust (not fine sand, as the geological formation of the district is limestone), and fill the baskets, which are carried by the boys, two or more of whom are assigned to each man, to the waggons. The very looseness and dryness of the rubbish, while it renders the actual uncovering of the buildings buried in it easy and expeditious, and has preserved the condition and colour of the antiquities found intact and fresh as in the days of their making, yet has its dangers for the men working in it, especially when the mounds to be removed are high. As the men cut away on the rock or pavement level large stones are liable to come down with a run, or a heavy fragment of column or architrave may threaten to crash down on the heads of the workers at the next blow of the *turya* or *fass* (the small hoe with which all the digging of the Egyptian fellahin is done), or a mass of wind-blown dust, left jutting out into the air by the workmen cutting from under, may suddenly break off and fall with weight sufficient to stun a man who is caught by it. To avoid this, when the undercutting has gone far enough for safety, the men are sent up to the top of the mound, and a process of cutting down from the top is carried out which abolishes the overhanging mass and makes a continuous slope again. Then the cutting from under is resumed, followed by the cutting down from the top, and so on in regular succession, the heavy antiquities found being taken out, and the rubbish searched for small loose antiquities before being carried off by the basket boys to the waggons, which are run down in trains of three to the tip, where they are emptied, and a final process of search is carried out before the stuff is raked off, in case anything "*maktub*" (inscribed) may have escaped our notice at the actual place of digging and have been put into the waggons by mistake. The process of cutting from above or a heavy fall of *débris* usually sets up a tremendous cloud of dust, which is sometimes as thick as a London fog.

The work was begun in November 1903 with a force of about thirty men, each with two boys. The plan was to shave off from the north side of the mounds, that nearest to the great temple, a band of the width of the number of diggers necessary to fill one train of waggons, while the other was engaged in tipping the previous load. All this has to be very carefully thought out, and the number of diggers (and so the extent of the tract excavated) necessarily depends on the number of waggons employed and the distance of the tip from the work. At the same time another set of men were put to lower the height of the mounds from the top, the stuff removed being taken a short distance away from the excavated area by boys without the aid of the waggons, which

were kept on the flat rock level. This set of men removed a large mound 25 feet high from above the place where the north colonnade of the temple lay; we had then, of course, no inkling of what lay below. The work with the waggons soon resulted in the discovery of our first "find," an inclined plane or ramp of stone, of eighteenth dynasty work, which led up to a flat platform, apparently unfinished, which was probably intended for a large altar or shrine-base. The complete exploration of this seeming unpromising, it was left to be finished later, and the work was pressed round it into what was soon found to be an open court bounded on the north by the Hathor shrine of the great temple, on the south by a wall of splendid stonework, which proved to be but the mask of a solid mass of rock, carefully squared, about 15 to 18 feet in height. At this height the rock ceased, and was found to be artificially squared on the top as well; further, on the top was a pavement. We had, in fact, reached the platform of the eleventh dynasty temple which has already been described. No inscription had as yet told us that this was the temple of Mentuhtetep, but on its first appearance Professor Naville had diagnosed the wall, with its splendid blocks of finely squared and jointed limestone, much larger and finer than any in the eighteenth dynasty temple, as being of Middle Kingdom work, and our further discoveries soon proved the correctness of his diagnosis.

The work now to be done was the clearing of the facing-wall from below. The work of clearing this court was continued until, after the wall had been uncovered, with its base, for a distance of 120 feet in a westerly direction, it was brought to an end by the discovery of a transverse wall of the same character, running off at a remarkably acute angle ("like the bows of a boat," the workmen said), north-east to the Hathor shrine, and passing away under it. The Hathor shrine had been built over it. This wall has its coping-stones in place for some little way, and its stonework is among the finest ever found in Egypt. Where this wall was broken down in order that the wall of the Hathor shrine might be built up over it, a considerable gap was left in the latter, which we had to fill up, in order to insure the safety of the Hathor shrine above. This work of restoration in dry masonry was carried out on the advice of Mr. Somers Clarke by Mr. Howard Carter, then chief-inspector of antiquities at Thebes, who in order to enable masons to work freely in the gap to be filled up, held up the overhanging wall not only by shores but by a long and heavy beam below suspended as a cantilever from a chain anchored round one of the pillars above, which formed an arrangement to grip the suspended stone wall and hold it fast while the masons worked below. If the pillar had given way the whole apparatus would have come down with a run and possibly the wall too, but it did not give, and the operation was successfully accomplished.

Meanwhile the uncovering of the platform had been begun, and a day or two's work showed that it ceased suddenly to the east of the eighteenth dynasty boundary wall of the court. At this juncture Professor Naville was obliged to return to Europe, leaving me in charge of the excavations. He missed by one day the confirmation of his belief that we had found the sixteenth dynasty temple, in the discovery of the first pillar of the northern lower colonnade, which was inscribed with the personal name of King Mentuhtetep III., the builder of the temple. Next day a second pillar was found, inscribed with the king's second or throne name, Neb-Kheru-Ra, or Neb-hapet-Ra, and before sunset a third, with the Mentuhtetep cartouche, had shown its head amid the rubbish. Simultaneously companion pillars appeared a few feet east. It was evident that we had a colonnade of square pillars of the same type as the colonnades of the great temple of Hatshepsu, but on a smaller scale. The facing-wall of the colonnade, masking the rock-platform, had also the same batter or slope as the colonnade facing-walls in the great temple. Further it was sculptured in the same way; large blocks, with portions of a relief depicting a procession of boats, were found *in situ*. There were thirteen pillars to each of the two rows of the colonnade; they were originally 11 to 12 feet in height and are a little over 2 feet square. All are broken off short at a height of from 4 to 7 feet above the ground. The upper portion of only one was found; this was hoisted into place this season.

The excavation of the colonnade ended with a cross-wall, and simultaneously on the platform above a fine gate-threshold of red granite was found in line with this wall. The cross-wall was a ramp or processional way leading up to the east gateway of the temple or the platform. This

threshold is finely polished granite, and measures 9 feet by 5 feet. The socket in which the door turned and also the side-run or channel by which the gate could be bodily removed from the socket and replaced, are perfectly preserved.

This threshold led into the hall or colonnade of sandstone octagonal pillars which has already been mentioned. The arrangement of this marked the first divergence from the plan of the great temple. Hatshepsu's architects had evidently copied the ramp and its flanking colonnades only.

Here the first season's work of two months and a half, at an expenditure of 500*l*. only, ended, leaving us fully aware of what we had to do in the ensuing season. Instead of working from the flank as we had done, it was necessary to make a direct frontal attack, with a force of about 200 men and boys, by driving a trench up to the side of the ramp, freeing it and making a direct way into the already discovered north colonnade, and into the southern colonnade which ought to exist on the other side of the ramp. This was done, and eventually the ramp, when freed, was built up on its base-stones in its original form. The original was almost entirely destroyed, but some of the wooden beams with which it was paved were found and remain in place. The south colonnade was found, but is much destroyed.

The next thing was to investigate the nature of a peculiar appearance which had been noted at the end of the former season's work, which seemed to show that the centre of the platform was occupied by a square stone building, perhaps a pyramid. This year's excavations have shown us, as I have said, that this was apparently the base of a small pyramid. On each side of it are the hall or colonnade wall with octagonal pillars and reliefs, already described; beyond it are the shrines of the priestesses; beyond them, and also without the inner wall in the open colonnade on the north side, are their tombs.

The rubbish on the top of the pyramid-base was cleared off by Mr. Ayrton after I left, and Prof. Naville, who then arrived, opened it from the top, finding no tomb, but instead a very peculiar pavement of what is pronounced by Prof. Schweinfurth to be rock salt. The shoot, devised by Mr. Ayrton, by which the rubbish was shot from the platform into the waggons in the lower colonnade, effected a considerable economy in labour and expense.

The tombs of the priestesses and the method of clearing them remain to be described. Eleven tombs in all were opened; of these eight were on the platform. Two were incomplete or false tombs. One only (in the court) was the burial-place of a man. Each tomb consists of a rectangular shaft, from 12 to 15 feet, sunk in the platform of the temple and northern court. The pavement of the temple was laid over the tombs, and in one case tree-trunks were placed across the tomb to catch the pavement at important points. At the bottom of the shaft is the entrance to a simple rectangular chamber, closed generally by a brick wall, in one or two instances by stone slabs. In every case this sealing was found broken and the tomb violated by the tomb robbers of ancient times, and after their depredations the tomb had generally been reused by Egyptians of the time of the twentieth dynasty, where "secondary" burials were found in most cases. Enough remained, however, of the original interments to tell us who had originally been buried here and to give us specimens of the original tomb-furniture, &c.

The tomb-chamber itself was just large enough to contain the sarcophagus of white limestone; with the body were found the remains of the models of workpeople, granaries, &c., which are characteristic of tombs of this date. One of these models, of a combined bakery and brewery (the Egyptians made their beer by fermenting bread) is of unique type, and is now exhibited in the fourth Egyptian room of the British Museum. In the shafts of the priestesses' tombs were found the bones of Hathor cows, which had been buried with them. The tomb-shafts were cleared by two or three men, who passed up the baskets to boys mounted on the rungs of a ladder. When the chamber was reached either Mr. Ayrton or myself descended and remained in the chamber with the head *reis* or foreman and a couple of trustworthy men to sift and carefully examine the rubbish for small objects, remains of bead necklaces, &c. These must be removed by one's self in order that the position of the beads may be noted so as to reconstitute the necklace. It is also possible that gold objects overlooked by the early plunderers may be found. The work in the confined tomb-chamber by candle-light, in a temperature of 80 degs., amid the dust and bones of dead Egyptians, and in the reek of the fellahin workmen, which

was perhaps only made worse by the strong tobacco which one smoked to drown it, would not be appreciated by a good many people, who would have no desire to undertake the duties of a professional ghoul. The uninscribed sarcophagi in some of these tombs were not worth removal; but in one case, the tomb of the priestess Kauit, the sarcophagus was inscribed, and was, moreover, of such beauty of workmanship, being unique of its kind, that it was at once seen to be the *clou* of the excavations, the finest thing found, and its removal was at once undertaken. It had originally been lowered into the tomb in pieces, which were fitted together below, so that its removal in the original pieces was possible. I have already mentioned the shrines of the priestesses, which were placed in front of their tombs, and the reliefs which once adorned both them and the walls of the temple. A large number of these reliefs have been brought to England, and will be exhibited in July.

Both these reliefs and those from the wall of the colonnade, already mentioned, are of very great interest as examples of the best art of the eleventh dynasty, which was previously unknown to us. They exhibit to us an art which is evidently in a state of transition. With the fall of the Memphite kingdom Memphite art had also fallen into decadence, and it is the rise out of this decadence, the reaction which produced the fine artistic works of the twelfth dynasty, which we see in these eleventh dynasty reliefs from Deir el-Bahari. Here they are of the awkward type which we have hitherto known as typical eleventh dynasty work, but here again they are equal to the finest twelfth dynasty reliefs. There they show cutting of hieroglyphs in a remarkably high relief, entirely unknown elsewhere, and first found during these excavations, which is of unsurpassed excellence, but there again they are free, if not rough and careless in execution. They present us with a new chapter in Egyptian art, and Professor Naville has in them once again shown us something new in old Egypt. Apart from their artistic interest, there is also a personal interest attaching to these relics of the nascent art of the Egyptian Middle Kingdom, for they are in all probability the work of an Egyptian artist who is known to us and of his school. In the reign of Mentuhetep III., Mertisen was court sculptor and painter. He tells us on his grave-stone that he and his son were the chief artworkers of his time; they formed a "school," in fact. "I know," he says, "how to produce the forms of going forth and returning, so that the limb may be in its right place. I know how the figure of a man should appear walking, and how a woman should carry herself; the poising of the arm to bring the hippopotamus low; the going of the runner. I know the making of amulets which enable us to go without the fire giving its flame on us, or without the flood washing us away. No one succeeds in it but I alone and the eldest son of my body. The Divine has decreed him to excel in it, and I have seen the perfections of his hands in the work of chief artist in every kind of stone, of gold and silver, of ivory and ebony." Now, since Mertisen and his son were the chief artists of their time, it is highly probable that they were engaged to execute the most important works of the king's tomb-temple, and that the best work at Deir el-Bahari is to be ascribed to their hands. Mertisen was very probably the originator of the nascent art of the Middle Kingdom, as his king was the founder of its political power. This fact lends a very special interest to these reliefs.

Besides these, some other most important pieces of sculpture were discovered, and will be exhibited at the same time. Chief of these are six statues of King Usertsen or Senusert III., of the twelfth dynasty, which were found together by M. Naville in the southern court at the end of this season's work. Unluckily the legs are in all cases broken off, but the portraits are but little impaired, and show the king at different periods of his life. The features are marked, being of the type which we now know to be characteristic of the later kings of the twelfth dynasty. Usertsen III. and Amenemhat III. present the best examples of it. Another similar discovery was that of a series of sandstone Osiride figures of Mentuhetep and of a later king, Amenhetep I., of the eighteenth dynasty, who, like Mentuhetep, was venerated as a sort of tutelary daemon of the necropolis of Western Thebes. One of these statues of Amenhetep has been brought back; it is 10 feet high. There was evidently a row of them placed near the ramp, and that they were a remarkable feature of the temple is shown by the fact that a fragment of an eighteenth dynasty stela or funerary tablet depicting them has been found. Another fine find was that of an alabaster head of a cow, of

magnificent work, which will also be exhibited in July. It is of the time of the eighteenth dynasty, and is no doubt the head of one of the figures of the goddess Hathor in the form of a cow, which was venerated in the temple of Hatshepsu. Its horns and ears, which have disappeared, were probably of silver.

Not so many smaller objects have been found this year as last year, which was distinguished by the discovery in the court between the two temples of the dust-heap of the Hathor shrine, containing votive offerings, which had originally been dedicated in the Temple of Hatshepsu, and, when old and broken, had been thrown by the sacristans over the wall into the court, where they gradually formed a regular dust-heap. Many of these interesting objects, consisting of pottery cows, figures of Hathor, bead necklaces, votive eyes and ears for the cure of blindness and deafness, incense-burners, &c., are temporarily exhibited in the North Gallery (Semitic room) of the British Museum. This year, as well as last, large numbers of workmen's mallets and hoes, baskets, a fine copper chisel and a graving tool, &c., were found. They probably date to the time of the destruction of the temple and its partial redecoration by King Siptah, in the time of the nineteenth dynasty, who cut one or two reliefs of himself on the facing-blocks of the pyramid-base and ramp. The smaller boxes of antiquities were transported to the steamer on the river on camel-back, the larger ones on the Décauville railway.

The main interest of the temple, apart from the unexpectedly remarkable character of the eleventh dynasty art which it discloses, lies in the fact that it is the most ancient yet found at Thebes, and is the best preserved of the older temples in Egypt. The pyramid temples excavated by Messrs. Borchardt and Schäfer at Abusir are older, dating to the fifth dynasty, but they are not in such good preservation, nor have they yielded so many antiquities. In connection with them the salient feature of the Deir el-Bahari temple, the central pyramid, may be discussed. In their case we have great pyramids, real tombs, in which the kings were buried, with small funerary temples in front of them. At Deir el-Bahari, under the eleventh dynasty, the temple has so developed that it has surrounded and swallowed up the pyramid, which has shrunk to small dimensions, become atrophied, in fact, and is erected on a pedestal merely as an architectural feature. Probably it does not conceal the actual burial-place of the king at all, but is merely a survival, a sort of pyramidal appendix surviving in the funerary temple.

The actual burying-place of the king may or may not be a rock-tomb behind the temple; the conclusion of the excavations will show this. It is to determine this crucial point that we desire to conclude the excavations as soon as possible, but to do this the Egypt Exploration Fund needs the sinews of war, and it is my hope that a few of those who read this paper may be induced by it to become, if they are not so already, subscribers to the Fund and so help its Council and Professor Naville to complete the work which they have begun. The result in portable antiquities has been and will be a fine return to English and American museums for the small sum, 1,400*l.*, which has been spent on the excavations up to the present time.

ST. MARK'S, VENICE.

THE following memorial will be sent to the Minister of Public Works in Italy by the Society for the Protection of Ancient Buildings when a sufficient number of signatures have been obtained:—

We, the undersigned, having in view the inestimable value of St. Mark's Church at Venice as an historical monument of great beauty, submit to your Excellency that it is of vital importance that the building should be handed down to posterity intact, except for such works as are proved to be necessary to its preservation.

We feel confident that such works as underpinning, consolidation and strengthening generally will be dealt with in a competent manner by the architect now in charge of St. Mark's, but we venture to submit that the substitution of modern reproductions for the old carving, the removal of the mosaics to the tribunes or piers supporting the central cupola, and more particularly the taking up and levelling of the old floor of the church, would not in any way whatever contribute to the security of the building, whereas such works would destroy what have been for centuries its characteristic features.

We submit that no modern reproductions, however

exact, can have the same value as the original work; in the case of St. Mark's the affection of educated people in all countries is concentrated on the stones and marble themselves as they now are and as they have ever been and therefore that their disturbance and renewal would inflict irreparable injury on the historical value of St. Mark's and would destroy the infinite attraction which it still has for those who care for the past.

We therefore appeal to your Excellency to direct that the proposals to interfere with the mosaics, the carving and the floor shall be abandoned, and strictly to limit the work now being undertaken to what is proved beyond question to be necessary to the permanent stability of St. Mark's.

BIRMINGHAM ARCHÆOLOGICAL SOCIETY

A TWO-DAYS' excursion was most enjoyably spent by the members in exploring Glastonbury and Wells. On arriving at Glastonbury, says the *Birmingham Post*, carriages were in attendance to take the visitors to the ancient British crannog, or marsh village, discovered some years ago. The weather was unfortunately cold and damp, and the investigation of excavations in peat mould in a swampy field could not be other than uncomfortable. But the interest in this unique spot is so great that all discomforts were speedily forgotten.

Here, perhaps some 200 years before the Christian era, a community of very doubtful origin, and before the beginning of history in these islands, established their home. The position, unhealthy and inconvenient, had the one advantage of being easily defensible. A plot of firm ground in an impassable marsh was palisaded round, and within the enclosure dwellings were erected and a organised and even civilised life was evidently led. The houses were cribs of oaken piles filled in with "wattle and daub," the very same material of which the first Christian church at Glastonbury was constructed. The floor was clay, and as the marshy ground continually sank it had to be replaced, until in some cases six or seven successive floors are found. There are no traces of sepulture, and indeed the scanty platform won from the marsh afforded bare room for the living.

Yet the inhabitants of this strange village were very far from being barbarians. They had domesticated animals and they farmed land. They seem, indeed, to have lived pretty much as we do—on the flesh of animals bred for food and on the products of agriculture. They were industrious weavers, and to judge by the great number of perforated stone loom-weights and ornamented bone wool-carding combs found, every hut must have had its loom. They were expert jewellers, and the modern safety-pin and split-ring will find here their ancient prototypes. There are even evidences that they mixed their own bronze and smelted their own glass. It is clear also that they were expert boat-builders, and that they had a foreign trade.

Of all this there is now nothing to see on the surface. The sites excavated in the summer are covered up again and are green with grass in the spring. One oak pile was dug up for the instruction of the visitors, and when it was laboriously drawn out it was wonderful to see that the timber, hidden for 2,000 years, had been so conscientiously finished that it had all the appearance of having been turned in a lathe. But even these have to be buried again and left. Quite perfect in the peat which has preserved them for twenty centuries, they shrivel and waste away directly they are exposed to the air.

With the objects of interest discovered in this crannog the local museum is already crammed, and almost the whole life of the inhabitants can there be traced. One bronze bowl discovered is so beautiful that it has been reproduced, and copies are now having a large sale on their artistic merits. It added greatly to the interest of the visit that the Society had the great advantage of hearing full explanatory accounts from Mr. Gray, who is the hon. secretary of the Somersetshire Archæological Society, from Mr. Arthur Bulleid, F.S.A., to whose acumen the whole discovery of this precious archæological record is due, and finally from Mr. Humphreys, whose carefully compiled *resumé* of the whole history of the excavations and their teachings must have made the matter clear to all present.

The evening was spent at Wells, and in the morning the noble cathedral was very carefully examined. As this has been frequently described, it is not necessary here to occupy space with the description of details. Though small, and made smaller in appearance by the complete division of nave from choir, the cathedral of Wells is in some respects

unapproachable. No other cathedral can show such a wealth of exuberant fancy and consummate execution in sculpture as this. The nave, if limited in size, is unsurpassed in harmonious effect, and even the singular inverted arch introduced to strengthen the central tower adds to its charm. The Bishop's Palace and its grounds still form the most complete extant example of their kind, and, apart from all archaeological importance, are in every way charming. The grounds were visited by permission of the Lord Bishop of Bath and Wells, who courteously expressed his regret that he was unable to accompany the party.

After luncheon the remains of the once superb Abbey of Glastonbury were visited. The story of the downfall of this vast and wealthy establishment, as read in its still glorious ruins, is full of pathetic interest, enhanced by its climax in the shameless judicial murder of its last abbot by Henry VIII. and his unscrupulous servant Cromwell. All this was narrated in the very scenes in which the events took place by the Rev. Prebendary Grant, to whom the Society cannot be too grateful, since he devoted to their service the whole time of their two-days' visit to Glastonbury.

It remains only to say that the rather complicated arrangements for the journey were made to work with perfect smoothness by the care of Mr. John Humphreys, to whom a vote of thanks was very warmly accorded. The attendance amounted to thirty-one, a much larger number than had been anticipated.

WELSH NATIONAL MUSEUM AND LIBRARY.

A MEETING of the Privy Council was held on the 8th inst., when the following resolution was adopted:—

Whereas a committee of the Lords of His Majesty's Most Honourable Privy Council was appointed by the Lord President of the Council on the 10th day of February, 1905, to consider and determine certain points in connection with the establishment of a National Museum and National Library in Wales, viz. (1) the place at which each of the two institutions should be established, having special regard to the amount of support which is offered both to the original foundation and to the future maintenance of the institutions by the local authorities, the inhabitants of the several places which may be suggested and others; (2) the probable cost of erecting and of maintaining the institutions; (3) the contributions which may be expected from local sources, either in land, money or buildings, or gifts in kind from whatever quarter, towards the above-mentioned cost; (4) the constitution of the trust or governing body which should be appointed to manage the institutions if established; and inasmuch as their Lordships have considered the subject in accordance with the aforesaid terms of reference, and have carefully examined the documents submitted in evidence thereon, their Lordships are now pleased to report as their opinion (1) that, having regard to the circumstances set forth in the memorandum annexed hereto, the National Museum should be established at Cardiff, and that Aberystwyth should be the seat of the National Library; and (2) that the conference representative of Welsh interests invited by the Chancellor of the Exchequer to prepare the draft scheme which has been submitted should proceed to the application for Royal Charters, under the provisions of which a governing body for each institution shall be incorporated, in whom all moneys contributed by the Treasury or derived from other sources and all lands or buildings or gifts in kind devised or granted for the purpose of either institution shall be vested, and arrangements thereby made for the permanent organisation and management of the two institutions severally and respectively.

Memorandum referred to in foregoing order of report.

The committee having decided that the two institutions should be separate, and that there are preponderant reasons for placing them respectively in Cardiff and Aberystwyth, it remains to indicate the considerations that led to these conclusions.

In the first place, it will be convenient to give a summary of the amount of support, local and otherwise, which has been offered both to the foundation and maintenance of each institution, severally or collectively, under the name of each place that has applied for the establishment of either within its limits:—

I. Aberystwyth (Library).

(1) A site of 14 acres, or so much of it as may be necessary; (2) a sum of 20,000*l.* towards the building

fund; (3) that portion of the college library and collections of books and MSS. that are of national interest; (4) Llanstephan library; (5) Peniarth MSS. (subject to certain prior life interests); (6) Cwrtmawr books and MSS.

II. Carnarvon (Museum).

Carnarvon Castle, to which end the Corporation have voted 5,000*l.*; the Carnarvon County Council, 2,500*l.*

III. Cardiff (Museum and Library).

(1) Four acres at Cathays Park (20,000*l.*); (2) collections in municipal museum and art gallery (38,000*l.*); (3) a capital sum of (7,500*l.*); (4) public subscriptions amounting at present to (32,500*l.*); (5) a $\frac{1}{2}$ *d.* rate under Museums and Gymnasiums Act 1891 (1,940*l.*); (6) collections of books in municipal library (81,766 volumes and 9,118 prints, drawings, &c.) (30,000*l.*); (7) 1,000*l.* a year out of the rates levied under the Public Libraries Acts (1,000*l.*); (8) Salesbury collection of books now in possession of University College of South Wales (5,000*l.*).

IV. Swansea (Museum).

(1) The land and buildings of Royal Institution of South Wales, estimated value (25,000*l.*), or in the alternative, a site in Victoria Park, estimated value (15,000*l.*), and a contribution by the Corporation towards the original foundation of (10,000*l.*); (2) private contributions amounting to (10,000*l.*); (3) proceeds of a $\frac{1}{2}$ *d.* rate under Museums and Gymnasiums Act, 1891, a minimum of (1,000*l.* per annum); (4) contents of museum and books, MSS. records and other documents relating to Wales in the Royal Institution; (5) the Deffett Francis collection of fine art works in the galleries of the Swansea Public Library; (6) the books of reference relating to Wales at the public free library; (7) the Glynn Vivian collection of works of art; (8) private contributions of Swansea and Nantgarw china.

The committee were not insensible to the considerations that could be urged in behalf of placing both institutions under common management in the same town; but whereas the expediency of placing the museum in the largest centre of population, apart from other circumstances, obviously pointed to the county of Glamorgan as its seat, there were cogent reasons, geographical and linguistic, for locating the library elsewhere, and, besides these, much was to be said in favour of the encouragement given to students by the selection of a more healthy and tranquil atmosphere than could be found in the neighbourhood of huge industrial settlements.

In estimating the probable cost of erecting and of maintaining the institutions the committee had before them the draft scheme formulated by selected representatives of Welsh opinion, who had arrived at the conclusion that 50,000*l.* (40,000*l.* for building and 10,000*l.* for fitting) would provide the museum and 20,000*l.* the library, and that the maintenance would absorb 8,000*l.* and 2,000*l.* respectively.

These estimates were, they understand, formed after visits of inspection to the museums of Edinburgh and Dublin, and by the aid of particulars furnished as to the cost and accommodation of those museums, and in the judgment of the persons responsible are not open to much reduction looking to the progressive increase that may be expected from year to year in the contents of both museum and library.

Such expert advice as the committee have been able to obtain tends to confirm the general accuracy of these conclusions, but as regards the initial cost no confident opinion can perhaps be passed on the point until plans and specifications are submitted to competent authority. It may, however, be stated that, so far as can be foreseen and taking the expenditure upon the Edinburgh Museum, which reached approximately 105,000*l.*, as the basis of calculation, an outlay of 50,000*l.* in order to provide adequate accommodation for a collection of objects illustrative of the natural history, antiquities and early industries of Wales, with the addition, as may be necessary, of relative objects from other parts and with due regard to reasonable conditions of expansion, cannot be considered excessive.

The estimates for upkeep and working expenses do not present the same difficulty; that of 8,000*l.* for the museum includes 5,250*l.* for salaries and wages, 1,750*l.* for maintenance of the building and administrative outlay under various heads, and about 1,000*l.* for purchase of specimens, publications, &c. In the provision of 2,000*l.* for the library, a sum that may be easily exceeded, 750*l.* is appropriated to salaries and wages, 500*l.* to establishment charges, 200*l.* to binding and 500*l.* to the purchase of books, but the amount of this item would, it is stated, depend on the possibility of obtain-

ing for the library a statutory claim to copies of works published in Wales.

It being premised that the estimate of 50,000*l.* for the establishment of the museum and 8,000*l.* for its upkeep is sufficient, there appears to be in Cardiff a capital sum already available (besides the value of the site) of 40,000*l.*, and under two Acts an income of 2,940*l.* would be forthcoming, as even if the national library is not in Cardiff, it is presumed that the resources of the Public Libraries Acts could still be drawn upon for the library equipment necessary to a national museum. It may be assumed that further subscriptions will increase the capital sum aforesaid, 20,000*l.* of which might be devoted to provision and the remainder to endowment, thus bringing the income available for the last-named purpose up to at least 3,540*l.*; the county of Glamorgan and the urban authorities in the neighbourhood of Cardiff would probably procure means to supplement this sum by a considerable amount.

In regard to Aberystwyth, the estimated sum for the establishment of the library (20,000*l.*) is already found, but it is represented that a place with small resources cannot provide any endowment, and the Welsh counties generally, the councils of eight of which have pronounced in favour of Aberystwyth as the seat of the library, are in the same case; here, however, in view of the locality finding the whole capital required the problem is confined to the smaller question of maintenance, and with some support from outside it might not be impossible to find the balance in the country.

Although the estimate of the total cost under both heads is preliminary in its nature, and its absolute accuracy cannot be guaranteed, there is no question that the establishment of the museum and library in towns already the seats of well-equipped university colleges should, with intelligent organisation, contribute materially to the reduction of the charges for maintenance which would be necessary under other circumstances.

AMONG THE GREEK ISLANDS.

THE recent Archæological Congress at Athens was followed, says the *Scotsman*, by two extended excursions, in the course of which visits were paid to a large number of the most interesting sites on the mainland of Greece, among the islands and along the western coast of Asia Minor. Those sites on which excavations have recently been in progress were naturally selected for special study, and on this account the central point of the excursions was Crete, where three days were devoted to the sites on which Italian, English and American explorers have for some years past been so fruitfully active. The party had the advantage of the presence in almost every case of the archæologist who, as discoverer and explorer, had been identified with the particular site visited. The carrying out of extensive works of excavation, such as those at Ephesus, Cnossos, Delphi or Thera, means much of good to a locality. Employment is found for large bodies of workmen. There is a brisk demand for supplies. Visitors are attracted to the spot. The leader of the undertaking cultivates friendly relations with the personages of the locality, great and small, and, best of all, a sense of local and historical pride is aroused, so that the Cretans and Samians of to-day talk as familiarly of Minos and Polycrates as of their own demarch. Hence an explorer, who has identified a modern site with some ancient place or name, has appealed to this national sentiment, and won a place in the hearts of the people that no merely material service would secure. Dörpfeld has been maintaining that the Ithaca of Homer is not the modern island of that name, but the neighbouring isle of Leukas, and the Leukadians look on him as the people of the middle ages regarded a saint, who had brought their locality into fame by some miracle or wonder. Freiherr Hiller von Gætringen, who was of the party, is a great favourite in the island of Thera, for he has not only uncovered the site of the ancient city, but has written a large work on the whole island, which is as interesting from the geological as from the archæological standpoint. These considerations, ideal as well as material, combined to produce such expansive friendliness on the part of the people that, wherever the expedition came, it was received with triumphal arches, bands of music, speeches overflowing with Hellenic and local patriotism, repasts elegant as well as abundant, and gifts of cigarettes and of flowers. The last, in carefully compacted bouquets, or flung by fair hands

before the feet of somewhat embarrassed savants, were feature of these golden days of early spring. The charming popular reception was on the island of Leuk the people of which are in high spirits as the fellow citizens of Odysseus. The ordinary traveller in Greece whose relations with the people of a locality are primarily of a financial character, misses these glimpses of a kind demonstrative people, whose unaffected friendliness has been one of the most pleasant features of the tour.

Apart from the social interest of the excursions, the value from the archæological point of view can hardly be over-estimated. It would have been quite impossible for a private party, using the ordinary means of travel, to have visited so many sites in so short a space of time. Olympia, Delphi, Mycenæ, Tiryns, Epidaurus, which, with other places on or close beside the mainland, were visited in the first of the two excursions, are, of course, easily accessible to the ordinary tourist; but Melos, Delos, Cnidos, Theras, old Samos, with all Cretan sites such as Cnossos, lie out of the beaten track; and a visit even to Candia, Didymæ, by Miletus, Pergamon, or Troy, involves some outlay in time and money. The advantage of having small steamers that would go anywhere where needed, and a land party in their own boats on any desired point of rock-bound coast, is obvious, and from this the members of the expedition reaped the fullest benefit. An unprepared descent of this kind on the side of the ancient Cnidos was one of the features of the trip. The steamer approached a bare, rocky headland, descending in a serrated crest from a height of about 2,000 feet to the sea, where a flat spit of land connects it with a craggy peninsula, once probably an island, the curving coast of which forms natural shelter for anchorages. The site is, at the first appearance, utterly deserted, though cattle and goats are seen on a nearer view to be feeding freely on the slopes. As we draw closer to the shore masses of what seemed at first to be craggy rocks resolve themselves into vast piles of Greek polygonal masonry, and the mountain side is seen to be laid out in successive terraces, supported here and there by retaining walls of large squared blocks. A depression in the hillside resolves itself into the hollow auditorium of an ancient theatre. The entrance to the land-locked harbour between the mainland and the former island is seen to be guarded by semicircular towers above great quay-walls of stone. A line, which cuts the apparently almost vertical side of the mountain from the sea beach to the topmost crest, now reveals itself as the track of the massive city wall built of polygonal blocks which, when it has ascended to the crest, follows its jagged ridge down to the shore just on the further side of the harbour. The whole site, now absolutely bare of trees and so steep as to seem almost unclimbable, appears a strange one for a civilised and wealthy city, yet it is only a type of many sites of the kind, such as old Samos, Ephesus and Pergamon, where ground for houses and public buildings has been gained by costly works of terracing, and where the daily intercourse of the citizen must have involved an immense amount of going up and down stairs. We land and find the place only occupied by a few herdsmen, who bring round for sale their coins and broken terra-cottas. There are indications of the older excavations of the time of Sir Charles Newton and Sir Robert Murdoch Smith, but otherwise the place is unviolated and is profoundly impressive. Here, somewhere on this deserted hillside, stood that little shrine, open to the front and back and enclosed in a pleasant plantation of fruit trees and myrtle, within which stood the Cnidian Aphrodite of Praxiteles, to see which stranger came to the place from far and near. These terraces carried temples and porticoes, the clear-cut rectangles of which contrasted with the broken lines of the rocks and the rounded masses of the plane trees and cypresses which the pseudo-Lucian tells us once clothed the now gaunt and naked crags. How the marble columns and pediments must have sparkled from afar across the sea. What life about the two harbours, where the merchant ships were coming and going, and the war galleys lay at anchor. As the sun goes down in amber light behind the indented peaks of the island of Cos, and the violet shades of evening begin to veil the heights, the travellers turn regretfully from a scene that has touched the poetic sense more than any which they have visited.

On sites where the spade of the excavator has been effectively busy the historical imagination is hardly allowed time for this quiet brooding, so clamant are the present interests of the work in progress. Here the prevailing sentiment is scientific rather than romantic. The aspect of

the excavations themselves is as a rule anything but attractive. Most often little is visible but the foundations of walls, while the decorative details and works of art that have been discovered in the course of the operations have been removed to a museum. Without these half the interest of the place is gone. Especially is this felt at the temple of Diana at Ephesus. The site of this, perhaps the greatest and most famous of all the Hellenic shrines, lies very low, and was probably chosen on account of the existence of an earlier shrine, traces of which the recent British excavations have brought to light. It is now almost constantly under water, and presents necessarily a somewhat dismal appearance. Yet sculpture of the highest interest and beauty, as well as a unique treasure in smaller objects, has been found on the spot, and if reproductions of these were at hand the interest of the place would, to the ordinary visitor, be immeasurably increased. British enterprise, embodied in the person of Mr. J. T. Wood, achieved here a signal success, but the place does not produce the effect on the spectator that one would desire. It is a little disappointing, too, to find so much Roman work at a site like Ephesus superimposed on the Hellenic. Even the Ephesian theatre is not as it was in the time of St. Paul. On the other hand, the Cretan explorations have brought to light nothing but old work of the earliest and most interesting kind. The expedition visited five separate sites, where excavations have revealed not only the remains of great palaces, as at Cnossos and Phaestos, but prehistoric towns, with their narrow paved streets, their small closely-packed houses, their flights of steps, their suburban burying-places. One such town has been excavated at Gournia, in Eastern Crete, by an American lady, Miss Boyd, who received the party and conducted them over the carefully explored site. Miss Boyd has made herself popular in the best sense among the people, and the whole undertaking has been carried out in the most exemplary fashion.

With regard to the civilisation represented by these so-called Mycenæan remains, we are still in the dark. A fact, most conspicuous at Phaestos, in Crete, but one of which there is evidence elsewhere also, is the existence of two distinct strata of monumental structures on the sites, representing two distinct types of palace. One type, which is still in appearance the earlier, is represented centrally at Mr. Arthur Evans's diggings at Cnossos, and shows us a number of comparatively small apartments grouped, with some attention to arrangement, about large open courts. The other type is best exhibited at Tiryns, in the Peloponnesus, and here we have a plan which seems to correspond with the descriptions in Homer, presenting us with one large hall opening by ample porches into a court flanked by colonnades, all the other rooms being of quite a subordinate order. At Phaestos the latter type, the Homeric palace, has been superinduced on an earlier house of the Cnossian type, and there is some evidence that the same was the case elsewhere. Dr. Dörpfeld calls the earlier type "Carian," and the later, or Homeric, type, "Achæan," but we know too little about the Carians for this distinction to help us. One thing is clear, that the builders of both kinds of palace were remarkably artistic people, and it is evident, too, that they had similar artistic tastes and social customs, for the well-known fresco of the bull from the "Achæan" palace at Tiryns is closely paralleled by the bull frescoes on the walls at "Carian" Cnossos. The "finds" from all the Cretan sites are collected now in a large room and gallery of the museum at Candia, and the exhibition is perhaps still more attractive than the Mycenæan room in the Central Museum at Athens. The decorative instinct, the love of nature, the exquisite precision of workmanship, of which there is evidence at Candia, make the collection one of the most fascinating interest. If the work be Greek, it is curiously unlike the genuine early Greek art of the historical period, from about 600 B.C. onward, in which there is far less spontaneity of artistic expression, and less of the genial naturalism which delight us in Cnossian frescoes and Mycenæan painted pottery. It is clear that the future must hold in store for us many fresh discoveries before the problem of pre-Homeric civilisation in Ægean lands is satisfactorily solved.

M. Scellier de Gisors, the architect, has died at Paris in his sixty-first year. He was an inspector-general of civil buildings, professor at the Ecole des Beaux-Arts, architect of the Luxembourg Palace, &c.

MANCHESTER SOCIETY OF ARCHITECTS.

ON Saturday, June 3, the members of the above Society visited Norbury Church, Derbyshire, a very interesting and unusual church. Originally there seems to have been a Norman nave, to which was added a fourteenth-century chancel, and on the south side a tower. Later, in Perpendicular times, the nave was rebuilt with a north aisle, and the spaces on each side of the tower were occupied by chapels; the latter are low, and the result is a charming bit of grouping both outside and inside. The glory of the building is its magnificent stained-glass, the colour of the fourteenth-century work in the north and south windows of the chancel being something to remember. The east window is rather a jumble of bits of fifteenth-century glass from the nave, good in themselves, but not forming one design. The red brick Marton House adjoining well deserves notice.

Wootton Lodge was next visited, by kind permission of Colonel B. C. P. Heywood, who entertained the members to luncheon, and devoted the afternoon to showing them round the house and its beautiful gardens. The house is an excellent example of a stately Elizabethan mansion. The entrance front is singularly fine; two low buildings, stables, &c., mark the angles of the enclosed forecourt, through which an elliptical drive leads to a great flight of steps rising to the main entrance porch. The porch is carried right up to the parapet, and is enriched with heraldic carving. On either side of this central projection are long windows four storeys high, with great mullion and tre-moine windows, while just visible round the corner on either flank are similarly lofty circular bays. The front is surrounded by a balustrade. From a slight hill in front of the house the dignified symmetry of this front and its forecourt is impressive, and one regrets the loss of the tree-shaded avenue which in former times led over this hill straight to the entrance gates. The gardens have terraces and broad flights of stone steps, and a most charming and unexpected little "front garden" on the top of a crag behind the house.

On Thursday evening, June 8, the Society visited the Manchester Arts and Crafts Museum, attached to the School of Art. Brief comments on the principal objects of an architectural character were made by Professor S. H. Capper and Mr. P. E. Corbett, and the head-master, Mr. R. Glazier, gave an account of some of the handicrafts represented in the museum, notably of glass and pottery.

TESSERÆ.

Place Names.

NAMES were not given in old times as they too often are given now, out of mere whim or caprice, without the slightest regard to their suitability, so that a row of little ugly brick cottages by a dusty roadside is yclept "Paradise Place," and a batch of tenements, whose only view is over a hideous brickfield, is known as "Prospect Terrace," and "Abbeys," and "Priories" and "Granges" are among the common stock of the builder's nomenclature. Anciently every local name had a meaning, and was given by those who knew that meaning and because of it. It is not always—perhaps not often—possible for us, at this distance of time and with the alteration and mutilation to which our local names have been subjected in the mouths of so many generations, to determine this meaning. It is often guesswork with the best equipped philologists. But difficult as the problem is, we are sure it has a solution, and this solution is well worth any amount of trouble to discover. As archæology is the handmaid of history, so is philology the handmaid of archæology. A well-directed study of words and names is one of the most important helps in arriving at the knowledge of things. No ancient place or name is without a signification, and in these names a store of history lies, crouched, waiting to be brought to light by the science of comparative philology. In the words of Professor Earle, "When the duly-trained philological eye traverses the map of any district, it can read at a glance the traces thereon left and assign each name to the race that gave it birth."

An Egyptian Funeral Tent.

One of the objects found in a tomb some years ago at Deir-el-Bahari was a canopy or tent which had been used at the funeral of Queen Isi-em-Kheb. The tent may be described as a mosaic of leatherwork, consisting of thousands of pieces of gazelle hide, stitched together with thread of colour to match. The edges are neatly bound with pink

cord of twisted leather, sewn on with stout pink thread; each colour is a separate piece, no one section bearing two colours; thus each square of the chessboard-patterned footstool, upon which the gazelles are kneeling, is a distinct morsel stitched to its neighbours. The whole work is, in fact, a mosaic, and is the only example yet discovered of what may be called ancient Egyptian tapestry. The colours consist of bright pink, deep golden yellow, pale primrose, bluish-green and pale blue. They were wonderfully well preserved, considering that they were laid on not long after the Trojan war, and are contemporary with Solomon. Much of the surface still retains a gloss similar to that of a kid glove; the pink, yellow and green have not faded at all, though dulled to some extent by the dust of ages. The canopy consists of a great central panel 9 feet long and 6 feet wide, divided into two equal sections. One is covered with pink and yellow rosettes on a blue ground; the other displays six vultures, each surmounted by a hieroglyphic text, and divided from its neighbour by a row of pink rosettes on a yellow ground. At each side is a flap divided from the central section by four bands of colours—blue, red, yellow and green, and further ornamented with a border of a spear-head pattern. Below this comes a row of panels containing various emblematical devices, and below that again is a chessboard pattern of pink and green squares, bordered at bottom with a broad belt of pink. At both ends are flaps presenting the same arrangement of chequers when spread out flat. The entire fabric measures 22 feet 6 inches in length and 19 feet 6 inches in width, and covers a space of 201 square feet of leather.



"Scottish" Building Trades Exhibition.

SIR,—As I am receiving letters asking whether I have any connection with a "Scottish" Building Trades Exhibition, which is being undertaken owing to "the encouragement given by the increasing success of the London enterprise," would you kindly allow me to state that I have no connection whatever with this venture nor has any of my staff.—Yours faithfully,

H. GREVILLE MONTGOMERY.

The International Building Trades Exhibition,
43 Essex Street, Strand, London, W.C.:

June 14, 1905.

GENERAL.

The Painters who will assist the Corporation of Liverpool in hanging pictures for the autumn exhibition are Mr. George Clausen, Mr. Herbert J. Draper and Mr. W. Follen Bishop, of the Liverpool Academy of Arts. The receiving days are August 14, 15 and 16, but works from the Royal Academy and other London exhibitions will be accepted up to the 19th.

The Usher Hall Committee at their meeting on Monday asked Mr. Morham, who prepared plans for a new building, to report whether the Synod Hall could not be reconstructed to serve all the purposes desired.

M. Romagnol has been elected wood-engraver for the Banque de France. His first work will be a hundred-franc note, for which M. Luc-Olivier Merson prepared the design.

A Competition, limited to Carlisle architects, for a new school which is to cost 12,000*l.* has been arranged. The premiums are 75*l.*, 30*l.* and 20*l.* Mr. Brierley, of York, is the assessor.

The Design of Mr. J. E. Franck for the Hammersmith baths and washhouses has been provisionally adopted, as it has yet to be ascertained whether the work can be carried out for 45,000*l.*

Mr. A. W. S. Cross has been appointed architect for the restoration of the Shoreditch town hall, which was subjected to fire in August 1904.

The Edinburgh Architectural Association discussed on Wednesday the arrangements for the proposed autumn exhibition of drawings and photographs of architectural "refinements," lent by the trustees of the Brooklyn Institute of Arts and Science.

Mr. E. M. Gibbs has submitted his report to the housing sub-committee of the Sheffield City Council with reference to a competition amongst local architects for plans for the erection of twenty dwelling-houses on the Corporation's estate at High Wincobank. It was a condition of the com-

petition that the houses could be let at 5*s.* per week without involving any charge on the rates, and each set of designs had to be accompanied by a builder's tender. Mr. Gibbs awarded the first prize to design No. 5, by Mr. H. L. Paterson and the second prize to design No. 16, by Mr. W. Spencer Smith. Twenty designs were submitted for competition.

Mr. James A. Morris, architect, has declined to assist the town surveyor of Ayr in the rebuilding of the old bridge under conditions laid down by the works committee of the Council. The town clerk was instructed to inform Mr. Morris that they would be glad to avail themselves of his assistance in a friendly way if required.

M. Zo has obtained the "Prix National" of the Salon. Travelling studentships in architecture were awarded to MM. Despegroue and Coutan.

Mr. William H. Alexander, B.A., of Weymouth, barrister-at-law, the donor of the buildings for, and a trustee of, the National Portrait Gallery, and who died on April 28, has bequeathed to the National Portrait Gallery the portrait by Vandyke of John Thurloe, and to the National Gallery the portrait (which came from Blenheim) of a woman, by Hendhorst.

The Edinburgh Museum of Science and Art has now on exhibition the collection of arms and armour and other objects of historic and national interest gathered together by the late Sir Noel Paton in his house and studio in George Square. The collection, which numbers over 800 specimens, fills the east corridor and nearly the whole of the adjoining hall. It has been purchased as a national property at a cost of 10,000*l.*

The British Architectural Association will hold their sixty-second annual congress at Reading on July 17 to 22. The president of the congress will be the mayor of Reading Mr. M. J. Sutton. The inaugural address on the evening of the 17th will be delivered by Mr. C. E. Keyser, F.S.A., the president of the Berks Archaeological Society. Excursion will be made on the 18th to Silchester, Pamber, Padworth and Upton Court; on the 19th to Lambourn, Ashdown Wayland, Smith's Cave, Uffington, the White Horse, Spars Holt and Wantage; on the 20th to Wallingford; on the 21st to Abingdon; and on the 22nd to Newbury.

The Resolution of the Corporation of Glasgow, following on a plébiscite of the ratepayers in favour of the Sunday opening of art galleries and museums belonging to the city, came into operation on the 11th inst. The hours fixed for opening were between two and six in the afternoon. The weather was exceptionally favourable, and as a result the total attendance at the three institutions was 14,102, as compared with a daily average of about 5,000.

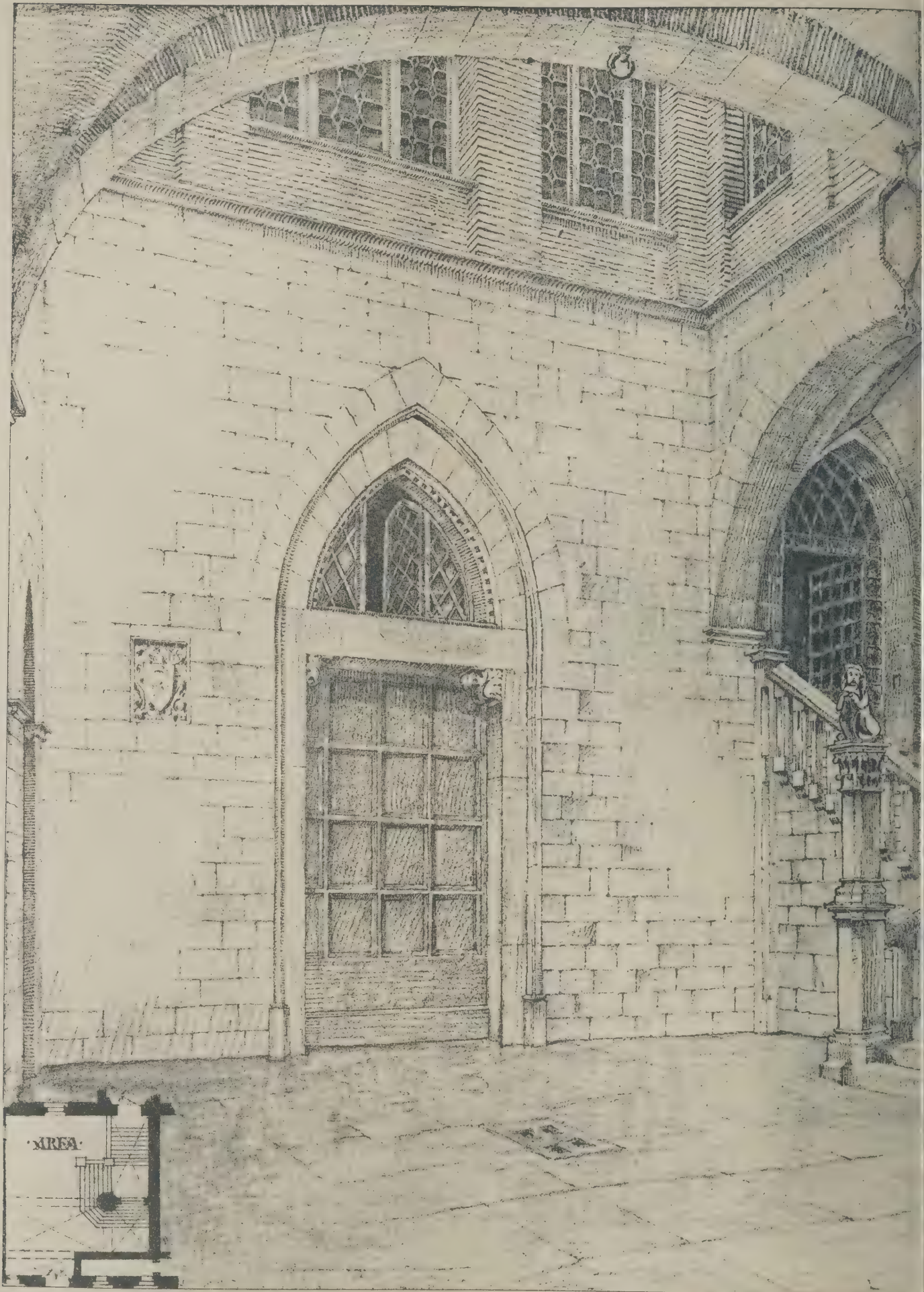
The Shah of Persia, being a sovereign prince, need not pay his debts, and if tradesmen give him credit they do so entirely at their own risk. This has been established by a French Court in deciding in favour of the Shah in an action brought by an architect who wanted to distrain on the Persian monarch's personal property during his coming visit to France.

A Competition is being organised for the erection of a County Court House in Chicago, U.S.A. Seven firms have been invited to compete, and they have been guaranteed 1,000 dollars to cover expenses. Any other architect may compete under certain conditions. The first, second and third prizes in the competition for design and plan are respectively 5,000 dollars, 2,500 dollars and 1,000 dollars. The cost of the building, exclusive of furnishings, is to be 3,500,000 dollars. The successful competing architect will receive 5 per cent. on the first million of the cost, 4 on the second million and 3 per cent. on the remainder.

A Chancel Screen has been dedicated at Ilsham parish church, Torquay, having been erected at the cost of Mrs. Snelgrove to the memory of her late husband, Mr. John Snelgrove, of St. Elmo, Torquay. The screen, which is constructed entirely of English oak, was designed by Mr. Charles Forster Hayward, F.S.A., of 50 Great Russell Street, W.C., and was carried out to the drawings and under the superintendence of Messrs. Hayward & Maynard, architects, 20 John Street, Adelphi.

The Mayor of Exeter has laid the foundation-stone of the new institute for the parish of St. David's. Mr. Harbottle Reed is the architect and Messrs. Ham & Passmore the contractors.

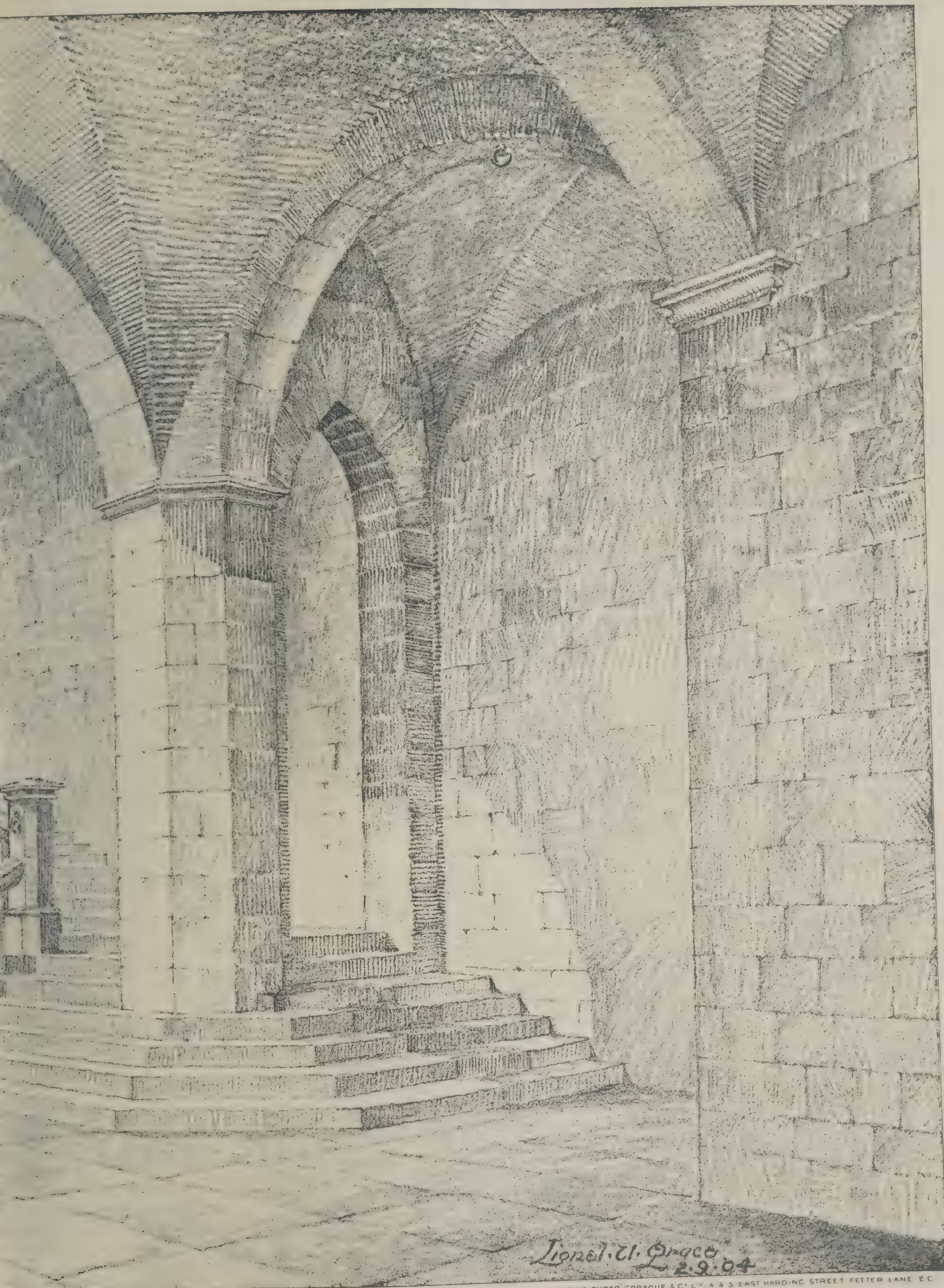
Messrs. Kerr & Watson, architects, of Johnstone, N.B., are engaged in preparing plans for a public school in that town to accommodate 800 scholars.



THE ENTRANCE C

From a Dra

16th 1905



Lionel U. Grace
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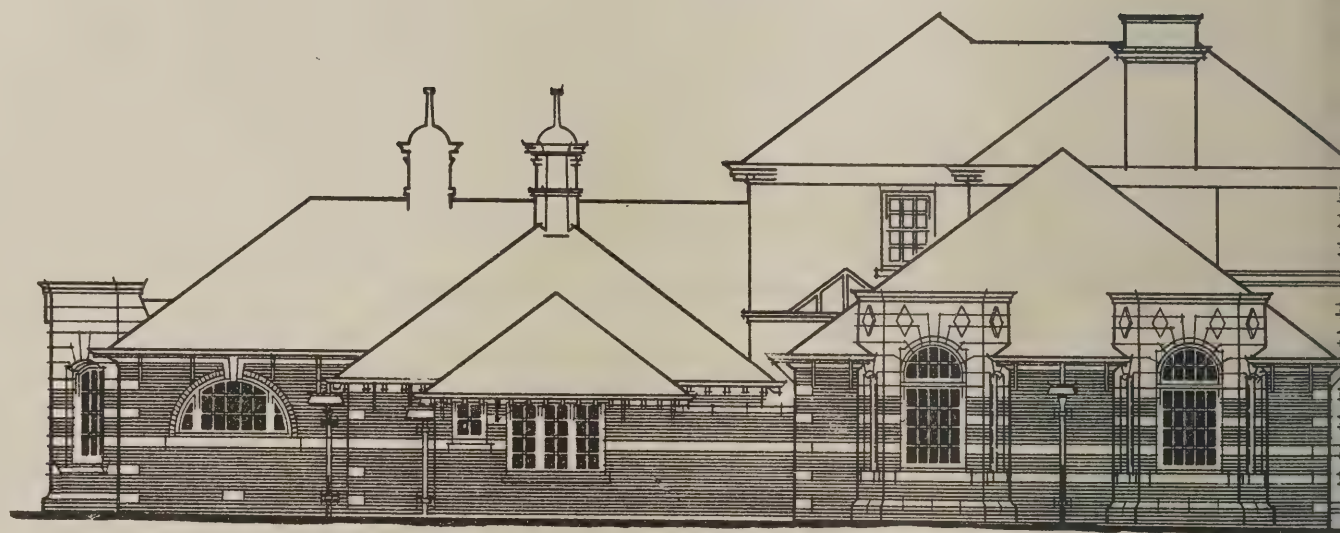
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Palazzo Chigi, Siena.

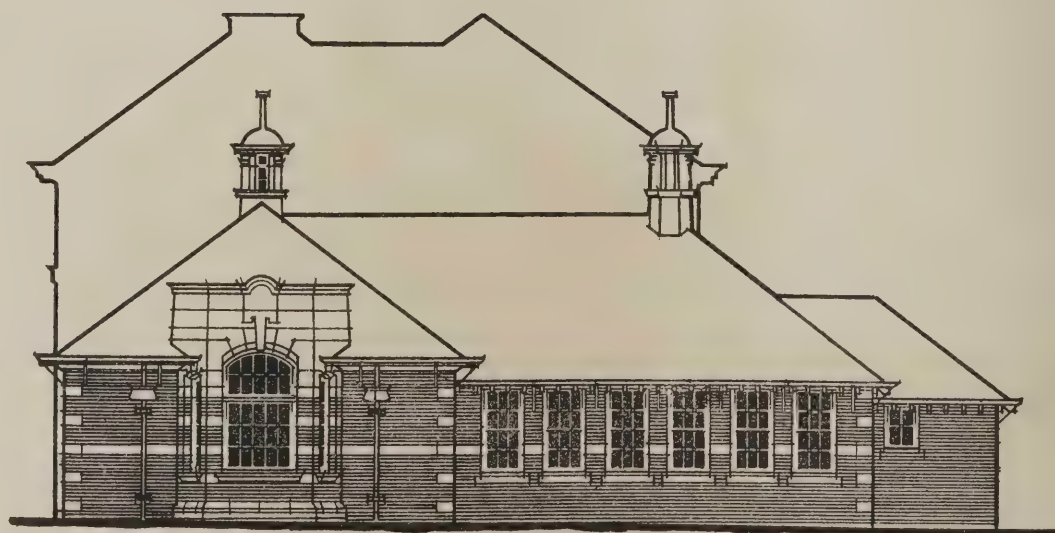
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NORTH ELEVATION.

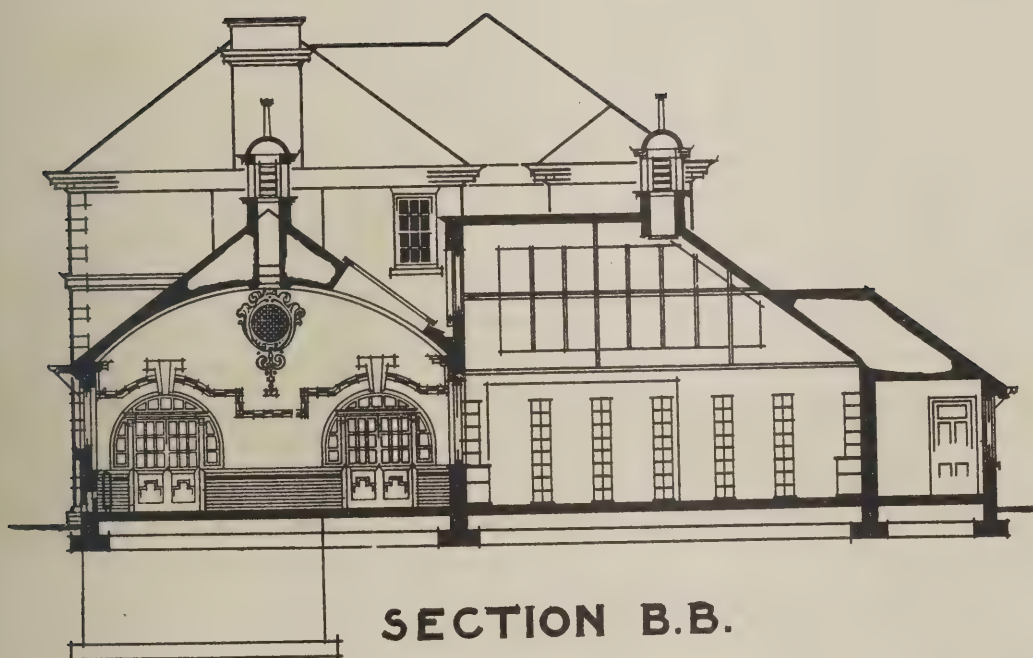
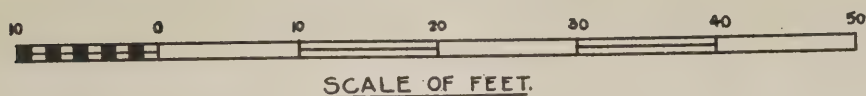


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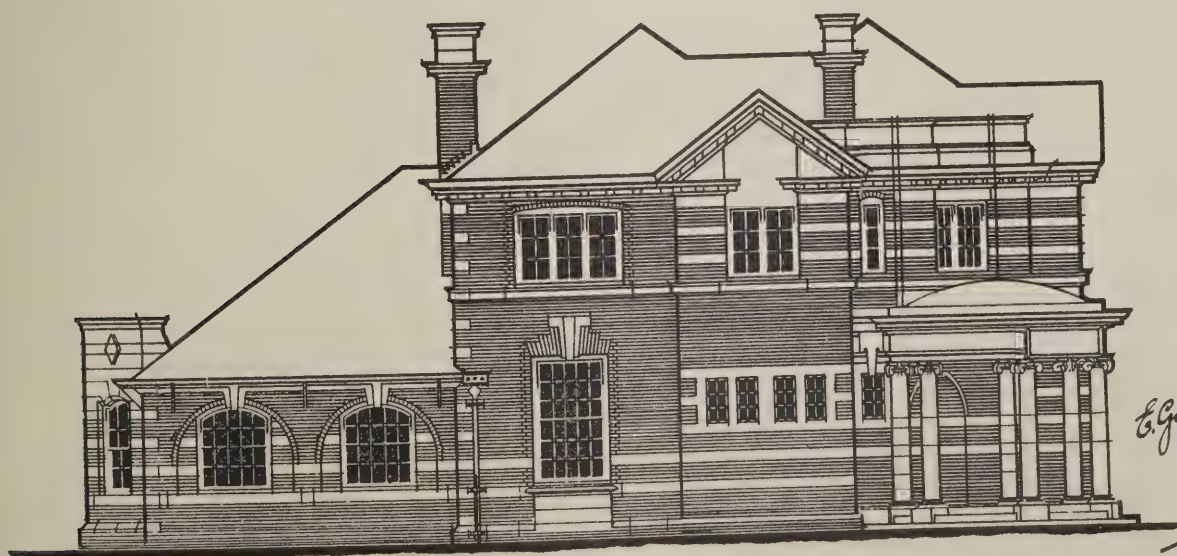


WEST ELEVATION

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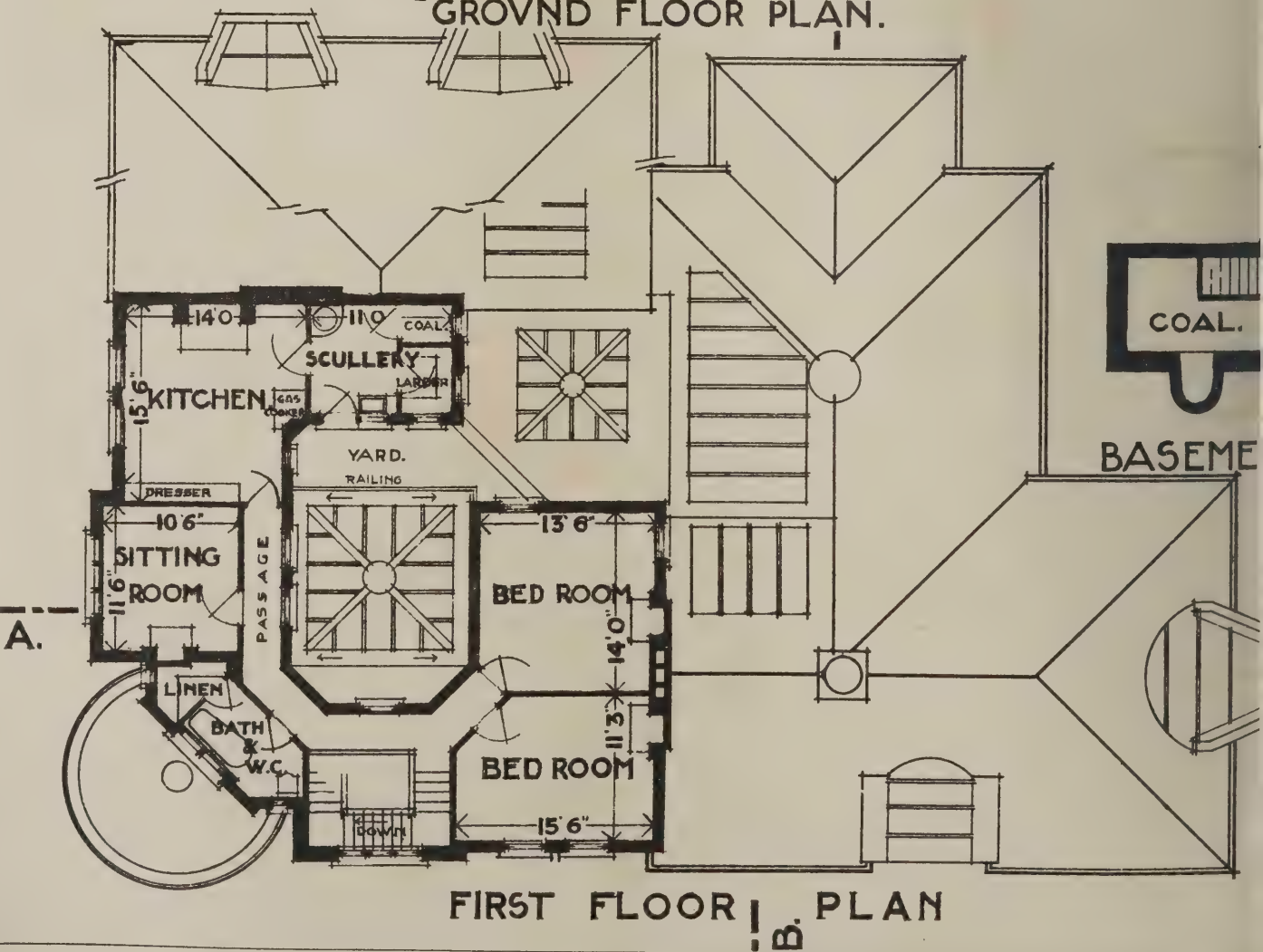
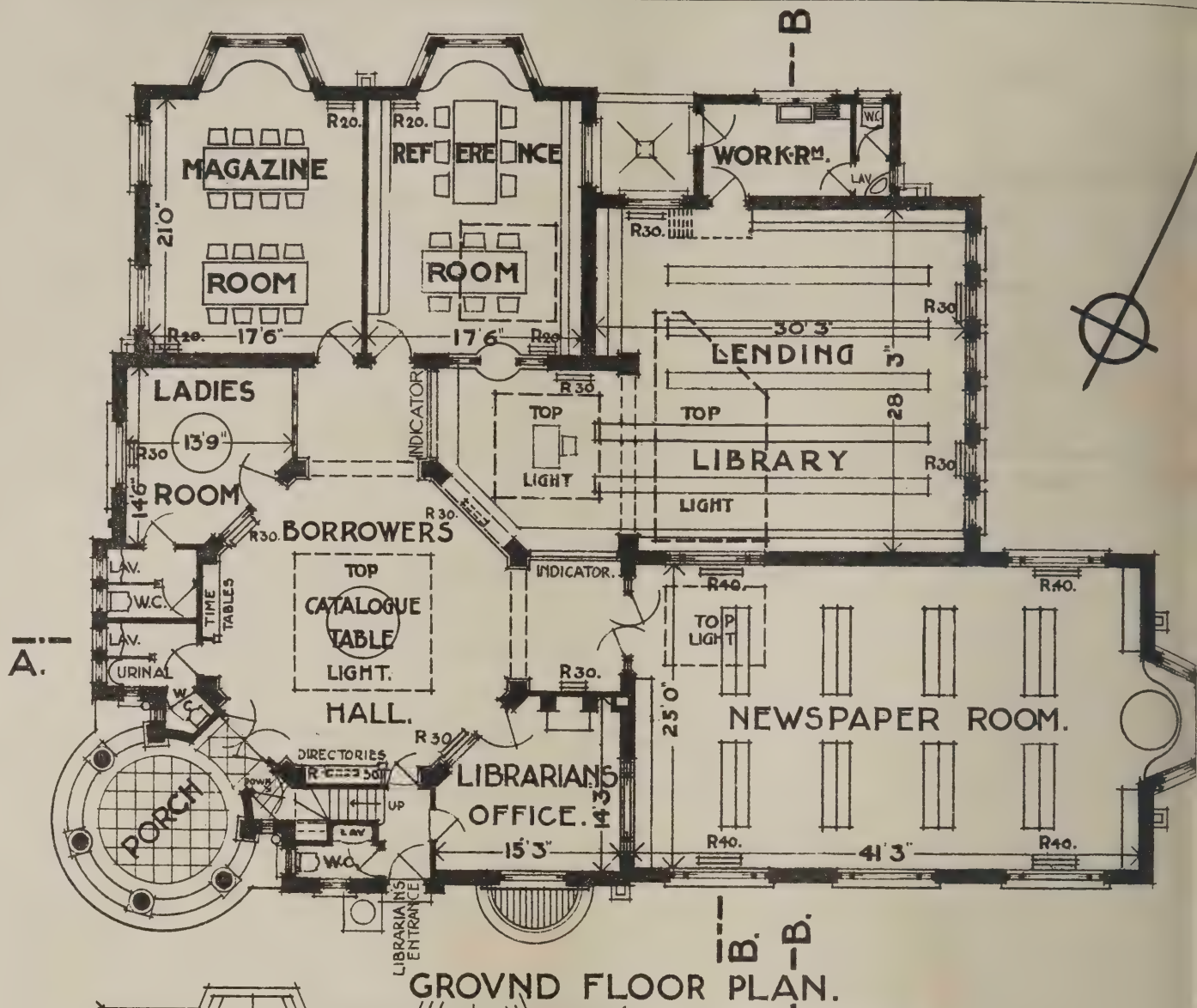


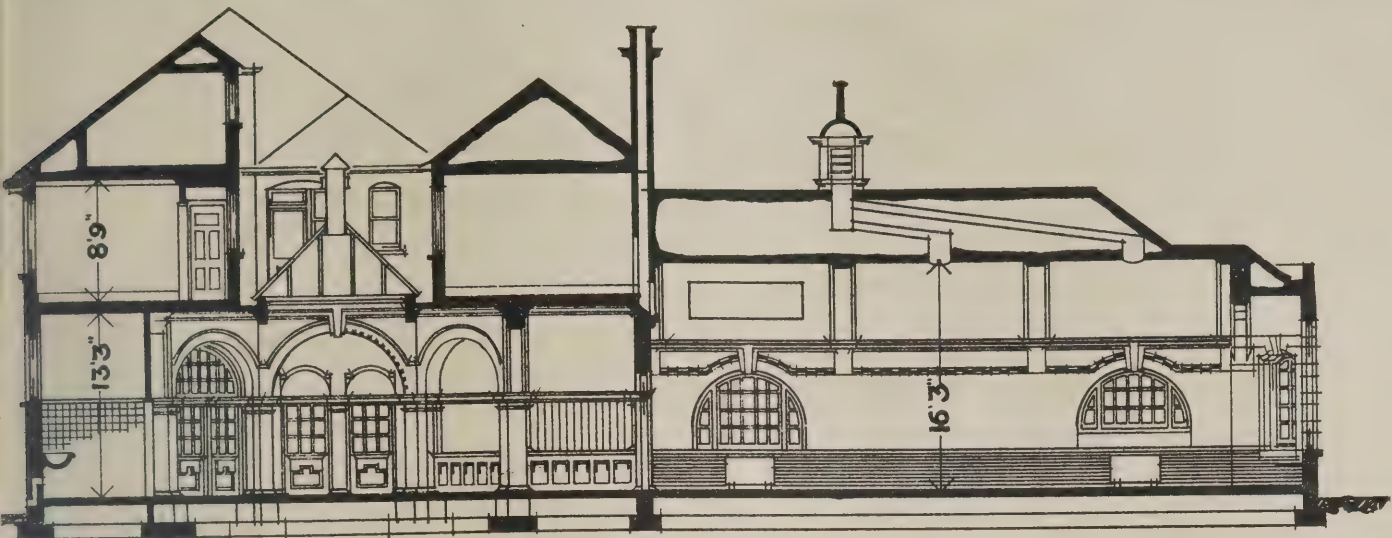
SECTION B.B.



EAST ELEVATION

*E. Godfrey Page
A.R. 1. B.A.
Gray's Inn*



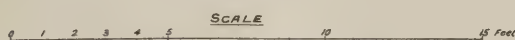


SECTION A. A.



SCALE OF FEET.

DETAIL

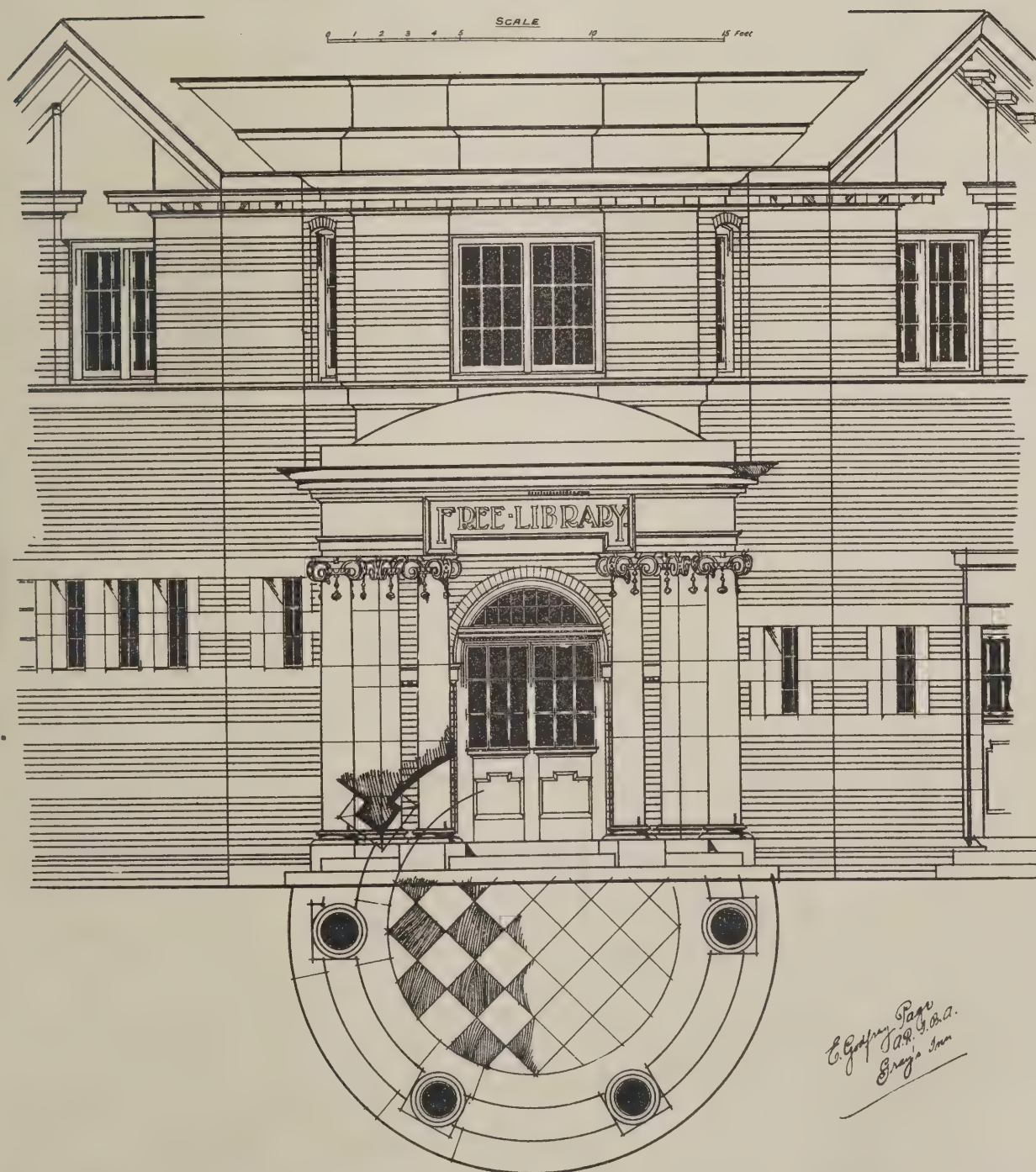


-A.



PLAN.

-A.



The Architect, June 16th 1905





PHOTOGRAPHED BY S. B. SOLAS & CO. 69, OXFORD STREET, W.

"INK-PHOTO," SPRAGUE & CO. LTD. 4 & 5, EAST HARDING STREET, FETTER LANE, E.C.

GAIETY RESTAURANT: MASONIC TEMPLE.

Messrs. ERNEST RUNTZ & FORD, Architects.

The Architect.

THE WEEK.

FOR over thirty years the late JAMES MANSEERGH was one of the foremost of English civil engineers. His works were mainly connected with water supply and sewerage, but originally he acted as a railway engineer. He was a native of Lancaster, where he was born in 1834, and he was among the early pupils of Queenwood College, where JOHN TYNDALL and EDWARD FRANKLAND were among the professors. It was an experimental school established to train youths in practical science, and there is no doubt it was a success. The influence of TYNDALL made him desirous to become an engineer, and he entered the offices of Messrs. McKIE & LAWSON, Lancaster. There were various opportunities to be initiated into a varied practice, and in his twenty-first year he was able to obtain an engagement as a contractor's engineer of a railway in Brazil. On his return in 1859 he again aided Mr. McKIE. In 1866 he joined the staff of Mr. LAWSON, and on the death of the latter in 1873 he continued the practice. More attention was then given to water supply and drainage than in former years, and it is calculated that Mr. MANSEERGH was engaged as chief engineer for the waterworks in over sixty towns. His services were not confined to this country, for his advice was sought for projects in various parts of the world. In 1900 he attained the coveted position of President of the Institution of Civil Engineers. His latest work on a grand scale was the Birmingham water supply, for which in 1892 he prepared the plans. Hitherto it has been a success. His life must be considered as exceptionally fortunate. He made his way entirely by his own abilities, and he had the satisfaction of knowing that his business would be carried on by his sons. It is believed, however, that he did not escape from the dissatisfaction which generally accompanies success, for he believed that he lost his vocation when he undertook to design and superintend works instead of contracting for them.

AN interesting point to architects has been raised in connection with the contracts for the new Art Galleries in Glasgow. It was desired to erect the buildings with expedition in order that they might be used for the purposes of the last great exhibition in the city. The contractor died, and in such an emergency it was reasonable to presume there would be a delay in continuing the work. The Corporation, therefore, offered a bonus of 5,000*l.* provided the work was done by the time originally stipulated. The architect, Mr. JOHN SIMPSON, claimed 5 per cent. on the bonus, but the claim was disallowed on the ground that the 5,000*l.* should be considered as given for a special purpose, and was not part of the cost. There is no doubt it was part of the outlay on the exhibition buildings. By the general rule the architect is to be paid his percentage on the total cost of the works which were carried out from his drawings. The Corporation have called the sum they paid a bonus, but that does not alter its character, for it was only a rough-and-ready way of giving a higher price for work than that which appeared in schedules or measurements. Seemingly because the buildings cost 200,000*l.* and the architect received 5 per cent. on that amount, the Corporation contended he ought to be satisfied. But that sort of arguing would not be listened to in any of the Scottish Courts. If the Corporation agreed to pay 5 per cent. on the total cost their liability is not diminished one jot by calling a part of that cost a bonus. We suppose the arrangement for paying the contractor the increased sum was made through the agency of the architect. If so that is further evidence of their liability.

ALTHOUGH there is a possibility of preserving the French churches by making the congregations responsible for their conservation, that kind of security is not available for the monasteries and convents. At the first Revolution buildings of that class were devoted to secular uses. Many of them lost the most interesting of their characteristics, and French archæologists, although they may not approve of the monastic system, regret the destruction of works of art which cannot be replaced. The treatment to which the Palace of the Popes at Avignon was and is subjected suggests the fate of buildings which are less renowned or may have little historical importance. The French Government, it must be said to their credit, are desirous to diminish if they cannot prevent the vandalism which seems to be inevitable. The Minister of Public Instruction and the Under-Secretary of the Ministry of Fine Arts have taken a courageous initiative by endeavouring to protect the Grande Chartreuse. From its position in Dauphiné, at a height of over 4,000 feet, it could easily be made to suffer. But, in spite of all that was done at the time of the Revolution, it contains much which has architectural importance, and especially the cloisters. What has been achieved is to induce the Commission of Historic Monuments to enter the Grande Chartreuse in the register of buildings of which they have charge. This has been done, and the precedent may be adopted for taking charge of other ecclesiastical buildings.

A FIRE broke out recently in the cathedral of Fulda, which fortunately was stopped after the upper part of one of the towers had been destroyed, including the belfry. The bell, it is feared, has suffered beyond restoration. It dates from 1415, but was recast in 1648, and the people of Fulda considered it was superior in tone to all the others in Germany. Fulda is not a very large town, and it is believed the administration was at fault or the fire might have been subdued at an earlier hour. The building has interest for Englishmen, for it stands on the site of the Benedictine Abbey which was founded in the eighth century by St. BONIFACE, the apostle of Germany, but who was a native of Devonshire. It was not until the eighteenth century that the abbey became a cathedral. The building which was so lately in danger was erected at a time when the modern Italian style was preferred to German, Gothic or Romanesque. The crypt, however, is a survival of the abbey church.

THE progress of the explorations by the German Archæological Institute at Pergamon has been described in a communication to that body. An antique building, but of what kind is uncertain, has been discovered between the second agora and the gymnasium. Apparently it was a residence for some wealthy patrician, and as such it has unusual interest. The *Hermes*, after ALCAMENES, stood in one of the halls; there was also a second figure of HERMES, of which a part remains and which evidently was produced at the cost of a Roman consul. Several large fragments of mosaic have also been brought to light. The larger gymnasium occupied the party for some time. It must have been an impressive building with halls containing many columns. Originally the latter were in the Doric style, but the Romans substituted Corinthian columns in some cases. Judging by the number of the fragments there was an abundance of sculpture. The inscriptions are still legible. One records the services of a superintendent to whom almost Divine honours were paid. It is anticipated that when the exploration is complete the gymnasium will be one of the greatest victories of the German Institute over time. The theatre revealed peculiarities of arrangement which were unexpected. In the neighbourhood of Pergamon there are also many sites which could be turned to account, but at present the city itself is more than sufficient to engross the attention of the exploring party.

WOOD-CARVING.

LORD AVEBURY acted as became a naturalist when on Monday he delivered a discourse at Carpenters' Hall to the students of wood-carving about the greatness of wood. That material introduces in our houses something of spring, summer and autumn. It was, as he said, mysteriously built up from the air of Heaven, and was watered through the agency of the exquisite machinery of the leafage. It conveyed, too, a moral lesson by suggesting the shortness of human life, for while few men expect to live a century, a tree could enjoy existence for more than a thousand years. Unfortunately mankind in general are not disposed to reflect on the blessings which Heaven has bestowed upon them. People who live in timber houses are as oblivious of the origin of the beams and quartering as if they occupied houses with walls of artificial stone. Indeed, of late years wood has been shrouded with paint to such an extent that it is only by inference we realise what it is. If paint is not used, varnish and stains are employed, so that the original appearance of the tree when it was first cut is no longer presented. Women, as a rule, are inimical to plain wood; they prefer to see it painted. Sometimes a compromise of the man's and the woman's ideas is obtained by varnishing the outsides of doors and painting the inside.

It is well to have arrangements made for the study of wood-carving. It is not, however, a new art, as some members of the Carpenters' Company suppose. For in England, as in all northern countries where timber abounds, the natural instinct of man compelled him to try and impart an ornamental appearance to the wood he used. It was much easier to carve than stone, and there was always a liability to over-charge it with ornament. Enough remains of the work of the Mediæval carpenters to suggest their competency as well as their extravagance. It is, however, in the work of the early Renaissance that we can see the prevalence of the skill which was to be found in England. The timbering of the exteriors was sometimes wrought into fantastic forms. But it was within doors the carvers were allowed to revel. They were not always inventive in the creation of patterns. Nevertheless, if they employed stock forms, they were prodigal in the use of them. The advantage of blank spaces in giving effect was neglected, and we may see Elizabethan work which is as covered with carved forms as a piece of room paper with a printed pattern. In buildings which are known to have been designed by architects we find more restraint; but the English carver of the Renaissance period loved profusion, and if contracts were not illiberal his modern successor would gladly imitate him.

Whether it was recognition of a principle or inability to imitate natural models cannot now be decided, but the greater part of the ornament introduced in those days was of a conventional character. However, under the STUARTS fruit, flowers and birds were more often imitated. Carvers like GRINLING GIBBONS believed themselves independent artists, and all classes seem to have been smitten by their imitations. Although something about art has been taught in schools, it must be sorrowfully admitted that English people in our time are no less susceptible to the carver's skill in imitating natural products. In a building like St. Paul's, happily, the work of GIBBONS is not easily recognised; it is lost among other details. It is only in a mansion where he was allowed full sway that we can judge of the taste of the spectators. In Petworth the whole of the Greek marbles are not considered to be equal to the pears, apples or cherries or the birds which GIBBONS and RITSON were allowed to execute. If the end of art is to give pleasure there can be no doubt the carvings have attained that end, but they could not have been set up under the direction of any architect acquainted with the principles of his art.

Carving can be utilised in such a way as to become

an aid to architecture. Italians and Frenchmen have carved figures and ornament during centuries which are still delightful to look upon. But those artists were able to recognise their true position and that they were only auxiliaries in the production of a kind of art which was comprehensive in its character. English independence, apparently, does not allow of that kind of co-operation. Give a wall-painter or a plumber, a stained-glass designer or a sculptor an inch, and he is sure to take an ell. He will endeavour to make it appear that his particular work is the most important of all, and he consequently endeavours to have attention drawn to it, regardless of all other considerations.

The condition of things has so changed that there is only opportunity to use carving to a limited extent in a modern house. In the council chambers of municipal buildings and special rooms in public offices it may be feasible to have panelling with some ornamental carving covering the walls, but in houses, whether large or small, there are difficulties, for panelling and carving have been superseded by other modes of decoration. When tapestries first came into vogue panelling became unnecessary. At a subsequent period painting claimed possession of the walls. In some old English mansions it is possible to see paintings which are hung upon panelling, but as the lines of the latter rarely correspond with the frames of the picture, the panelling is concealed and the painting suffers. When it is possible to assign a certain number of portraits to a room panelling could be arranged to accommodate them, but cases of that kind are comparatively few. People who possess pictures like to be able to change their positions or to introduce others in their places without detriment to the appearance of the apartment.

The Gothic Revival must be credited with the increased esteem which was given to woodwork, whether plain or adorned. The principle of honestly displaying materials and workmanship brought about a great improvement in carpentry and joinery. As churches were the foremost fields for Gothic art it became necessary to employ carving as well as substantial woodwork. The demand for carving incited invention, and the clergy sometimes found joy in stalls which were mainly the product of machines. It was discovered that the style lent itself to that mode of execution. But we are now living in a different period. Forms which then were admired because they were supposed to be archaic would not now be tolerated. Old English houses may be erected, but any carved ornament introduced must be of more refined form than was displayed by the originals. Woodwork may vie with Scandinavian examples on account of its massiveness. Yet the simplest incised ornament must have a grace such as was unknown to the Vikings. If we still show alliance with northern art it has also to appear that we are under Italian and French influence, and that the Renaissance spirit is stronger now than at the end of the sixteenth century. Carving can only be sparingly employed, but it has to be of a very high class.

At the present time a sculptor who could work in marble and bronze would hesitate before producing a panel in wood. If he made the experiment he would find he could not gain a place for it in an Academy Exhibition. Seeing that wood-carving must be restricted in the extent of its employment, and that carvers can never receive the prices which are given for other classes of artistic work, the question ought to be raised whether it is the employment which should be encouraged among ordinary students. It is the sort of work which could well be combined with joinery. At least, the kind which is most in request need not be produced by a specialist. Anyone, however, who would look at the programme of a technical institution in town or country will see that wood-carving is set down as one of the most prominent items, although a little inquiry would show that even competent men can only expect precarious employment.

CHESTER ARCHÆOLOGICAL SOCIETY.

THERE is hope for the study of antiquity in England so long as there are such societies as that which represents the county and city of Chester and North Wales. The time seems to have vanished for making broad generalisations. Our capacities are only limited, and fortune has favoured us by originating a belief in specialists. The archæology of Great Britain is too vast a science to be grasped by an individual, and for the majority of men there is often more than enough for a single person to comprehend in the survivals of his own parish. The example which GILBERT WHITE displayed to his countrymen in the district of Sherborne should be more frequently followed by archæologists. What is nearest to us, says Dr. JOHNSON, appeals to us most strongly, and it is fortunate that in Great Britain few places exist in which the imagination cannot find work to do in restoring the past. Chester, no doubt, is especially well favoured, for its history goes back to an ancient date, and many times it was the scene of important events. But in archæology the distinction between great and little should be disregarded, for objects which at first sight may appear to be of no value may eventually be discovered to be as useful as the fragments of bones which CUVIER and OWEN employed to recreate beings which had vanished.

The first paper in the Journal for 1904-5 is by the Archdeacon of CHESTER, and relates to the churchwardens' accounts of the parish of St. Bridget, Chester, 1811-47. The beginning of the nineteenth century may be considered as hardly coming within the province of archæology. But owing to defective memories and indifference a still nearer date seems as remote as the time of the PHARAOHS. Brief as is the period, it is remarkable that the church was removed from Bridge Street, and another erected in Castle Esplanade, which has also vanished. Chester is without a church to St. Bridget, although we may assume from the dedication to the saint that one must have been standing for many centuries. The cause of the removal was that it stood in the way of the approaches to a proposed bridge. The new parish church was commenced in 1829, WILLIAM COLE, jun., being the architect. It was consecrated in 1829. The people could not have been annoyed at the removal, or the churchwardens were very forgiving. THOMAS HARRISON, who designed the new bridge, died in April 1829, and was buried in St. Bridget's churchyard. A sum of 15*l.* was paid for the grave, which was returned to the executors "as a testimonial of the great estimation in which that gentleman's abilities were held by the rector and parishioners of St. Bridget's." The bridge, with its arch of 200 feet span, was regarded as a marvel in those days. HARRISON was an architect who erected several important buildings in England, and he suggested to Lord ELGIN the advisability of obtaining casts of the marbles of the Parthenon. The county authorities were more generous to architects at the beginning of the nineteenth century than they are at present, for the house in which HARRISON died had been presented to him as a recognition of his services. It is now the vicarage of the united parishes of St. Bridget and St. Martin. What the new St. Bridget's Church was like cannot be ascertained, for there was no drawing made of it.

The people of Cheshire, and of Great Britain also, have reason to be proud of the 22nd Regiment of Foot. It was the first regiment raised to uphold the principles of the revolution on the accession of WILLIAM and MARY, and its creator was the Duke of NORFOLK, who might be expected to be in favour of the old régime. The earliest active experience of the regiment was in Ireland, and it fought at the Boyne, Athlone and at Aughrim. In India, under Sir CHARLES NAPIER, the regiment further distinguished itself, and there are memorials of its services in Chester Cathedral.

Mr. W. E. B. WHITTAKER has a paper on "Peculiars," with special reference to the "Peculiar of Hawarden."

"Peculiars" are parishes which are exempt from the bishop's jurisdiction. Several of them were at one time connected with monasteries, or obtained the privilege from the Pope. Hawarden until 1257 belonged to the Abbey of St. Werburgh, Chester. About that date the Baron DE MONTALT obtained this independence in exchange for certain lands. Hawarden was particularly careful to avoid indebtedness to Chester. If the services of a bishop were needed, some Irish bishop who was on his travels was called in. There is nothing in the history of the parish to show that the people of Hawarden were the gainers because they differed from ordinary parishioners. Mr. WHITTAKER, however, says:—"Though a 'peculiar' might be out of place at the present time, we must not make the mistake of thinking that they were merely abuses of prerogative on the part of the Popes and others. In those days of large dioceses and imperfect communication, it must have been rather an advantage than otherwise for a bishop to have several large parishes cut off in this way. The proving of wills locally, though it fostered abuse, was still a convenience to the poorer classes."

"Horns" being treated by Dr. BRIDGE, it might be supposed at first that one important class of musical instruments was described. On this occasion Dr. BRIDGE regards the horn as the symbol of legal authority. In this country prior to the Norman invasion, when it was not convenient to have deeds drawn up by a lawyer and inscribed on vellum, a horn took the place of a conveyance and was recognised just as copyholds are at the present time, although there is nothing to show but an entry in the manorial register. The subject might be thought to be outside Dr. BRIDGE's province, but he has investigated it with a fulness that would do credit to a Chancery lawyer of the old school. The Pusey Horn is one of the best known in England, and it was given by King CANUTE to WILLIAM PUSEY with a manor as a reward for acquiring information about a contemplated ambushade of the Saxons. Sir HENRY AUBREY FLETCHER owns the Borstal Horn, which was a gift from EDWARD THE CONFESSOR. The Hungerford Horn confers the right of fishing and shooting on those inhabitants of the town who possess common rights. In Cheshire there are several horns. In York Minster is a Charter Horn. ULPHUS, it is recorded, "went to York, and, taking the horn wherein he was wont to drink with him, he filled it with wine, and kneeling upon his knees before the altar, bestowed upon God and the blessed St. PETER all his lands and tenements." FRANK BUCKLAND said that the horn reminded him of the tusks of the mammoth found in Siberia. Figures on tombs of knights are sometimes represented as grasping a horn. One in Pershore Abbey is believed to be WILLIAM DE HARLEY, who fought in the First Crusade, and by having the horn in his right hand it is concluded he held his lands by cornage or horn-geld.

The concluding paper, illustrated by several views, was prepared by Mr. EDWARD HODKINSON, the honorary secretary to the Society, and is called "Notes on the Architecture of Basingwerk Abbey, Flintshire." It was a small Cistercian house, but the characteristics of the style of the Order were as much recognised as in a larger building. The forms were severe, yet refined. Mr. HODKINSON describes its present condition by saying:—"Of the state of the ruins of the once beautiful abbey of Basingwerk it is painful and useless to speak. Our Society, and many of our members individually, have done everything possible to raise up some enthusiasm for their care in their immediate neighbourhood and elsewhere, but, unfortunately, without avail. Not many years must now elapse before every vestige of this once important house (save perhaps the remains of the refectory) will have disappeared." Among the most interesting parts are some half-timbered buildings which were used for storage, guests and other purposes. Some parts of the structures were removed for the benefit of other churches. Mr. HODKINSON's paper with

its illustrations should be sufficiently persuasive to those possessing wealth for a combined effort to preserve so admirable an example of Mediæval work.

BUILDING MATERIALS.*

ALTHOUGH building can be regarded as one of the most important of the national industries, it is remarkable that we have not yet a museum containing a representative collection of materials and appliances. In the Geological Museum we can see some building stones; where, however, there is so much else relating to minerals in general it is difficult to concentrate attention upon them. The woods at Kew lose their interest for a similar reason. At South Kensington, in one of the dreary galleries, there used to be odds and ends relating to building, yet few of them were worthy of a builder's attention. The Parkes Museum shows some excellent sanitary appliances, but wisely the character of the collection has been restricted. There is no museum in any other town where a young student could go with a book like Mr. MIDDLETON's in his hand in order to test the accuracy of the descriptions, and to gain that knowledge which is only to be derived by the aid of the eyes.

One of the reasons for the absence of a building museum is that the scientific aspects of materials were not always considered. This we can see from the commission which was appointed to discover stone to be used for the construction of the Houses of Parliament. DE LA BECHE and the two SMITHS possessed experience as geologists. The question at stake, however, was what stone would resist the London atmosphere, not what stone would support an ordinary load. Now that was a problem of chemistry, and in those days the connection of geology with chemistry was not recognised. Consequently no chemist was employed to test the stones, and we all know what followed. Some years afterwards, when the Geological Survey was established, one of its chiefs was BEETE JUKES. He had made surveys of a large part of the globe. He was an enthusiast for his science, and he was among the earliest to perceive that a knowledge of chemistry was essential for a geologist. He therefore studied that subject and imagined that he had succeeded sufficiently to write the chapter on chemistry and mineralogy, which was to be the first in a treatise he had undertaken to prepare. He submitted his manuscript to a chemist, who, he said, "pointed out to me many errors into which I had fallen, not so entirely from any fault of my own as from the absence of precise information on certain points, and the presence of certain anomalies in the use of terms which characterise every elementary book." At the time the sole work worth consideration was GMELIN's "Handbook," but it was only obtainable by members of the Cavendish Society.

We do not wish to exaggerate the advantages of science. The Mediæval builders knew little about either chemistry or geology, and yet they succeeded in combining stones in ways that were hazardous. But if materials are to be studied under the microscope and tested by the aid of chemistry and special machinery, then the science which should be applied must not be partial. A little knowledge is often dangerous, and it is quite possible that excellent materials will be rejected which would serve under all conditions of ordinary practice.

When Mr. MIDDLETON confesses, "I have learned a great deal during the preparation of this book, and

all that I have learnt I have endeavoured to express therein for the benefit of others; but fresh knowledge comes to me almost every day," he merely expresses the surprise of all honest students when they endeavour to thoroughly understand the mysteries of materials. In specifications much which may be stereotyped is adopted, and qualities and conditions are prescribed with the confidence which was originally derived from the specifications copied in the early days of pupillage. Mr. MIDDLETON has not compiled his book from other treatises, for wherever possible, he says, he travelled in order to see things for himself. No doubt similar information is to be obtained elsewhere, but all through the pages we see an endeavour to express only facts as far as they were realised by the author.

There are forty-five chapters in the book. A great many of them contain numerous facts arranged in tabular form, while others have summaries, "notes for users" containing deductions from what has been stated. The author begins with the mineral kingdom, describing different varieties of stones, cements, limes, bricks, &c. Next timber is treated, and afterwards the metals used in construction. Then we have chapters on paints, varnishes, glass, papers, asbestos, uralite, slagwood, ruberoid, &c. It is difficult amidst such a mass of information to take any extract, for all the paragraphs are united. The following, however, relating to sand will help to suggest the condensation of the descriptions:—

It is well to bear in mind (1) that the individual grains of sand contain no salt; (2) that the salt merely coats the grains or lies between them, having been deposited there by the evaporation of salt water; (3) that the salt is soluble in water, and may be entirely removed by careful washing; and (4) sea sand so washed is quite as good for building as any pit or river sand of equal fineness and smoothness of grain. Other methods of "killing" or neutralising the effect of the salt in sea water have been tried at various times, but they have hardly proved successful. Salt is the most harmful substance which sand can contain. It has so great an affinity for moisture that a wall in which it is used is rendered permanently damp. Any sand which is salt to the taste, including all sea sand and a good deal of pit sand, dug from comparatively recent under-sea deposits, should consequently be rejected for all purposes other than for use under water, unless it be first properly washed. Sea sand is also generally rounded by attrition, and consequently wanting in sharpness; and so to a less extent is river sand. Pit sand is of all qualities, it being impossible to lay down any rule. An excellent sand is obtained in the process of washing decomposed granite for the extraction of kaolin, but it is only used locally, the cost of transport being prohibitive. Sand does not absorb water in any appreciable quantity, its bulk is not diminished or increased by cold or heat, and does not contract in drying; therefore the greater the quantity of sand used in mortar in proportion to lime the less probability there will be of the mortar shrinking and breaking.

Mr. MIDDLETON's book meets a necessity of which most architectural students must have had experience. It should always be kept at hand for reference, for the information in it will be found adapted to all classes of buildings.

Mr. RICHEY, who has prepared Messrs. WILEY's handbook, is a representative American, for he has had experience as carpenter, contractor, architect and superintendent of construction. His handbook is of wide scope, in order to be useful to those who are prepared to utilise all opportunities of advancement which may come before them. There is therefore information not only on ordinary building, but on drawing, mensuration, hydraulics, &c. American pocket-books are well known from their encyclopædic contents, and Mr. RICHEY's can take a place among them. It would be interesting for anyone who wishes to understand American building to compare the pages with those in similar English guides. The author gives ample extracts from the latest building codes of various American cities, and we can therefore realise the

* *Building Materials, their Nature, Properties and Manufacture*: a Text-book for Students and others. By G. A. T. Middleton. Illustrated with 197 diagrams and twelve plates from photographs. (London: B. T. Batsford.)

A Handbook for Superintendents of Construction, Architects, Builders and Building Inspectors. By H. G. Richey. 357 figures. (New York: John Wiley. London: Chapman & Hall.)

standards which are sought after. A large part is occupied with fireproof construction, and more attention is given to heating than is usual in England. The valuable specifications which are introduced are all official, and the book may be taken as representative of American work under favourable conditions.

ROYAL INSTITUTE OF BRITISH ARCHITECTS.

A MEETING of the Institute of Architects was held on Monday evening last, Mr. John Belcher, A.R.A., president, in the chair.

Royal Gold Medal.

The PRESIDENT in his address said:—It is my good fortune this evening to conclude my year of office in a way that affords me an especial pleasure. Surely no president can desire anything better than as his last official act in the session to be called upon to confer high honour upon an esteemed friend and colleague. The Royal gold medal which I am here to present to Sir Aston Webb is a distinction conferred by His Majesty the King on the unanimous recommendation of Sir Aston's brother architects. For me to point out how this great honour has been won, and how richly it is deserved, might well seem superfluous if not impertinent; for there is no man better known or more highly esteemed in the profession than Sir Aston Webb—and probably nobody who has achieved a greater general popularity. Yet there are a few things I should like to say, and no doubt, too, a few things on which you will naturally expect me to give you some information. I am not going to give you a biography of our friend here, though it does seem the fashion nowadays to write (and even publish) an account of a man's life long before he has passed over to the majority. Dr. Johnson is said to have remarked that if he really thought Boswell was making notes of his life with a view to publication, he would take his (Boswell's) life first. The Doctor was a distinctly truculent old fellow, and Boswell might well have been afraid to avow his sinister design. But I have had many an experience of Sir Aston Webb's geniality and kind-heartedness, and am therefore prepared to say a few things about him, even though he be still, as I am glad to say, very much alive.

Firstly, let me point out how closely, from the commencement of his career, our former President has identified himself with his profession, and how readily he has lent all his energies and abilities to serve the true interests of his brother architects. The very year after he was articulated to Mr. Banks (of Banks & Barry)—that is, some thirty-eight years ago—he became a member of the Architectural Association, and from that time onward continued to serve the Association in one capacity or another, until finally, in 1884, he was elected its President.

Similarly with our own Institute. In 1874—that is, the year after he won the Pugin studentship—he joined us as an Associate, was elected a Fellow in 1883, served as member of Council, hon. secretary and vice-president, and finally became our President in 1902, bringing to the chair a wealth of experience and ability which won the admiration of all. Neither increasing honour nor the burden of works growing every year, both in number and importance, was allowed to interfere for a moment with his duty to the profession generally or with his kindly consideration for his fellows. In the advancement of his own fortunes he has never permitted himself to forget others; he never misses an opportunity of furthering the interests of those who are still painfully climbing the ladder. We usually allow our Presidents, when once they have passed the chair, to slip back into a sort of background of semi-obscurity, and thus practically, though not intentionally, limit their opportunities of service. This course has the advantage of making such demands upon new and rising talent as to provoke it to give of its best in the cause of the Institute; but I cannot help thinking that it is a pity we have not some sort of "Upper Chamber," not as a kind of *otium cum dignitate* refuge for men who have done their work, but as a standing committee in all matters of the highest importance, matters, viz. which call for the judgment and experience of years rather than the energy and impetuosity of youth. Fortunately for this Institute, Sir Aston Webb has not ceased to take a practical and working interest in its welfare. He remains, as you know, chairman of the Board of Architectural Education—a most important movement initiated during the term of his presidency, and fraught, I feel sure, with

very great and valuable results. Outside the Institute the list of his activities and responsibilities is a long one. He is the representative of architecture at the London University, and holds, as it were, a "watching brief" in its interest at the Royal Academy, to which he was elected an Associate in 1899 and Academician four years later. He supervises the work in the architectural school there, and many can testify with what ready sympathy and encouragement he meets all who come to him for help and advice. He is a trustee of Sir John Soane's Museum, also of the Architectural Benevolent Society and of the Artists' General Benevolent Institution. There are many other ways, too, as many know well, in which less publicly, but not a whit less truly, he is found serving the cause of art.

Now let me turn to speak of some of Sir Aston Webb's works—those monuments by which he is already generally known, and by which in time to come he will be famous. His peculiar distinction—and I might say peculiar good fortune too—lies in the large number of important public buildings that have been entrusted to him. Many of these have been won by sheer weight of merit shown in competition. Amongst such are to be included the Victoria Courts at Birmingham, the Metropolitan Life Assurance Society's Offices in Moorgate Street, and the Christ's Hospital Schools at Horsham, all carried out in partnership with Mr. Ingress Bell. The first named, the Courts at Birmingham, have served as a model for many similar buildings since. Our present interest, however, centres in the great works committed to him in London, viz. the completion of the Victoria and Albert Museum and the National Monument to Queen Victoria, both of them won in competition; also the Royal College of Science, opposite the Imperial Institute, and additions to the Admiralty Buildings at the east end of the Mall, both of which he received by direct commission. When not long ago I visited the new buildings of the Victoria and Albert Museum I conceived a great admiration for the arrangement of them. The planning is simple and readable; there are long vistas, and a great central octagonal hall; moreover, all the galleries are of noble proportion. The whole of the interior is to be treated as a background for the exhibits, with little decoration, and depending upon good form and colour. The staircases and galleries are so arranged as to afford glimpses from different levels of the larger objects on view. The external effects can hardly as yet be realised, but I know that the sculptor's art is to be called in to aid in setting forth the nature and purpose of the building. As is so often the case with our public buildings, there is no central approach; but in the present instance it would appear possible to open up the Square opposite, so that there might be at least an open space from which to view the museum, and where carriages might stand out of the way of the ordinary traffic. By this means not only would an important centre be more or less adequately indicated, but the great central entrance itself would receive a marked accession of dignity. If we want to appreciate to the full the advantage of a fine approach to a great public building, we have only to note the result of Sir Aston Webb's treatment of the Mall in connection with the National Monument to Queen Victoria. Indeed, after viewing the Mall now, we are compelled to admit that the present front of Buckingham Palace, to which it leads, is unworthy of it. As regards the rest of the scheme, the work is not yet sufficiently advanced for criticism. We still wait for the colonnades which are intended to enshrine the monument, but eventually, when Mr. Brock's great work is in its place, these columns will stand in rank almost like architectural grenadiers in attendance on Her Majesty. A very important, interesting and ingenious part of the scheme is on view in the Architectural Room of the Royal Academy. The entrance to the Mall from Charing Cross is marked by a building with curved frontages, one to the Mall the other to Charing Cross, so that the change in the line of access at this point will not be so noticeable. The entrance to the Mall will be through arches. Within the last week the keeper's lodge has been completed, and its position, centrally facing Buckingham Palace Road, is seen to be most effective.

These examples are among the happy results of Sir Aston Webb's competitive efforts; but for the consolation and encouragement of less fortunate men, with whom I have every sympathy, I may say that he has not always been so successful in competition—as, for instance, in the cases of the Admiralty, the War Office buildings, the Imperial Institute and the Freemasons' schools at Bushey. But when he has scored a win he has taken such a full advantage of his opportunity, and achieved such good results,

that he has received many direct commissions which were in themselves a flattering testimonial to his ability. The Admiralty entrusted to him the new Britannia Royal Naval College at Dartmouth. In conjunction with Mr. T. M. Deane he will build the College of Science Government offices in Dublin. He and Mr. Bell together are responsible for the Royal United Service Institution adjoining the Banqueting House, Whitehall, the new University of Birmingham now in course of erection, and for certain additions to Caius College, Cambridge.

Then, too, he has done a good deal in the way of churches, both restoring and building. The most important and most interesting of all these is the restoration of St. Bartholomew the Great in Smithfield between the years 1880 and 1890. He has restored three churches in Worcester, Burford Church, Herefordshire, and Witley in Surrey. He has built St. George's, Worcester; the French Protestant church and schools in Soho, and churches in North Wales.

Then there are various domestic works: mansions for Sir Offley Wakeman, near Shrewsbury; Sir Augustus Webster, at Hildon, Hants; and many others. The flour mills and granaries for Messrs. Mumford are amongst his most successful buildings in this kind. Altogether it makes a long list—an appallingly long list, we might say—when we consider the vastness of some of the undertakings. Such as it is, it shows what rare ability and power of work Sir Aston Webb is endowed with. Few men could accomplish all that he has accomplished. He is not an artist only, but an excellent man of affairs also, and possesses a tact and readiness of resource which is given to but few. His character shows itself in his work. The intellectual versatility and refinement, the brightness and felicity of temperament which we recognise in the man, all reproduce themselves in the examples of his art. Above all, by his sincerity and straightforward dealing he has won the confidence and esteem of all who have come into contact with him. It was his distinctive and characteristic work and personality which won for him the honour of knighthood in November last—an event which gave the greatest satisfaction to his friends and brother-artists. What more shall I say? Tennyson tells us that when the little *Revenge* was taken the stately Spanish men praised Sir Richard Greville "to his face with their courtly foreign grace." But it takes a Spanish Don to do that; besides, Sir Richard was very badly wounded. I think I have said as much as our national reserve will allow, enough to convince Sir Aston Webb of our high appreciation both of himself and his work, and in particular of his generous, self-denying labours in connection with the Institute.

In making the presentation, the President said:—I have much pleasure, Sir Aston Webb, in investing you with the Royal gold medal, and in assuring you of the high regard in which you are held by the whole of the profession.

Sir L. ALMA-TADEMA, R.A., said as a member of the Royal Academy he felt that in the name of their Institution he had a right to stand up and express to Sir Aston Webb the great pleasure it gave them when one of their number was so worthily recognised in his talent and in his endeavours to serve the great art of which he was such a distinguished representative. After what their President had said little remained to be told. While on his way to the Institute a friend had remarked that in conferring the gold medal, the last honour had been paid to Sir Aston Webb. What could they give next? He would repeat the reply he had given—the continuation of that respect for the artist and for the man, and that brotherly love of his friends, his co-architects.

Mr. ALFRED EAST, A.R.A., thought they could cordially congratulate Sir Aston Webb on such an eventful occasion, because the highest mark of approval that could be shown to any artist was found in the good opinion of the men whose knowledge he valued. The gold medal conferred by architects conveyed with it the good wishes and the high appreciation of brother artists. Sir Aston Webb was the friend of all young artists and architects. He was the man they needed in the present day, because he believed in the responsibility of the great art which he followed.

Sir ASTON WEBB, in response, said:—The presentation to me of this Royal gold medal given by His Majesty the King on the recommendation of my brother-architects, the members of this Institute, fills me with an overwhelming feeling of gratitude which unfortunately I have not the power adequately to express; while the long line of my illustrious predecessors makes me keenly alive to my own shortcomings and makes me appreciate still more

your forbearance in selecting me. I ask you to accept my grateful and heartfelt thanks, for I hold this honour as the highest that can be offered to an architect by his professional brethren, and the medal with the recollection of its presentation this evening will always remain with me as one of my most cherished possessions; and, sir, if I may say so, the pleasure and honour is greatly enhanced by receiving it at the hands of so distinguished an architect and so old a friend as yourself—one with whom it has been my pleasure to work for so many years, accompanying it, as you have been kind enough to do, with words which have still further increased my pleasure and obligation. You have also, sir, with that high imagination with which you are gifted, painted a portrait of me for which I thank you most gratefully, all too flattering though it be. I do not propose to-night to interfere with the work of a brother artist who has made much out of such poor material; for though it is certain that from my very intimate knowledge of the sitter I could add a few realistic touches which would undoubtedly increase the likeness, at the same time I fear they would spoil your picture, and so I feel the best thing for me to do is to leave well alone.

Again, it would ill become me on such an occasion as this to speak of my work which you, sir, have already referred to in so flattering a way. The drawings shown here to-night (by special request) show what great opportunities I have had, and I am afraid also how far short I have come to realising them. I can only say I have tried my very best and done my best, and where I have failed it has not been through idleness or neglect on my part.

There is, however, one work on which I am engaged on which I should like to say a word, viz. the architectural surroundings for the great National Memorial to Queen Victoria, by Mr. Brock, in front of Buckingham Palace. Owing to the time this great work of Mr. Brock's necessarily takes to execute, we have been enabled to proceed with the architectural work of preparing the site in sections, doing a portion of the work (such as alterations to roads, &c.) each autumn at a minimum of public inconvenience, and thus (as we architects usually have to do) painting the picture, as it were, wash by wash, in the full gaze of the public, who, apparently, and not unnaturally, seem to think that each last wash is the final one, whereas I need hardly say there is much yet to be done. The next work will probably be finishing the piers that form the three gateways into the enclosure with groups of sculpture emblematic of the three great self-governing colonies, for which three eminent sculptors have been commissioned under the general direction of Mr. Brock. A start will also shortly be made with the foundations for the building at the east end of the Mall through which, under three archways, will pass the great road into Charing Cross. The idea of placing the building, as shown is to form a worthy termination of the Mall and also to screen the change of axis between the Mall and the Strand. But when all the architectural work has been done, it will still be but a frame without a picture, and the public must be kind enough to suspend its final judgment until Mr. Brock's splendid work is completed and forms a magnificent centre to the whole, all the other work being subsidiary and complementary to it. With regard to the general effect, time only will give the trees needed to turn the broad walk through the Green Park into a shady avenue like the broad walk in Kensington Gardens, to which it is equal in width, and time only can make the trees meet overhead and shade the footways on either side of the Mall from the Palace to Charing Cross.

Ruskin long ago pointed out the main distinction of architecture over the other arts, in that we architects alone amongst artists are called by necessity to "fraternity of toil," and on an occasion such as this one naturally thinks of the number of fellow-workers to whom one is of necessity so largely indebted before a great building can be erected and finished. Many of my fellow-workers have honoured me by being present here to-night, and I thank them for their presence. To my friend Mr. Ingress Bell, with whom I have shared many successes and disappointments during the last twenty years, I owe most of all, as do the buildings in which we have been jointly associated, not only in matters architectural, but in many other walks of life in which his example has inspired me. The work we have done together has always, thanks to him, been to me one of my greatest pleasures: one of the results of it is shown here to-night in the new buildings for Christ's Hospital.

To my staff I am also largely indebted, ever changing as it is, for it is my happiness to have young men and to see

them one by one launch out for themselves. When they leave me it is as personal friends, and I hope they feel they have had a real share in the work we do together, and that they have helped me to the honour you have done me to-night, as they most assuredly have. I often feel they have all the drudgery, I have all the fun; but their turn will come. I have also been most highly favoured in having had the advantage of life-long friends to work with in almost every department. My surveyors, Messrs. Corderoy & Selby, have worked with me from the very beginning. We all know the invaluable aid surveyors give us in the preparation of the indispensable quantities and interminable measurements, and in the unravelling of apparently hopelessly tangled accounts, and in many other ways relieving us from much anxiety and leaving us free to more congenial work. I often feel their work is hardly recognised as it should be. In the main and great branch of our work represented by the builders I have also been most fortunate, and I owe them much in every way, especially for their skill in setting out the work and fulfilment of one's designs, for which, again, I fear we do not always give them full and adequate recognition. In no time, I believe, was better and more lasting work done than at the present time. Very important also to us are our clerks of works: many have served me faithfully for years, and they are also represented here to-night, for they also have materially aided to the event of this evening. Then there are a crowd of craftsmen and artificers to whom I am greatly indebted for many years of highly skilled assistance carefully rendered, but whom it would be impossible to mention in the time at my disposal, though I hope it may appear to you but right and just that I should make this slight acknowledgment of the invaluable assistance I have received on such an occasion as the present, and will pardon me for having after all spoken more of myself and my work than I had intended. I will promise, however, not to so offend again.

My predecessors in this honour—and I am amazed indeed to find myself in such fine company—have usually, I think, spoken on these occasions on the condition of architecture as they found it in their time and the different phases they have represented, each no doubt firmly believing they were on the right track, from Cockerell, the first medallist and the most refined of Greek architects; through Barry, the most refined Renaissance architect; and so on through the Gothic school of architecture to the archaeological Gilbert Scott, the vigorous Street, the scholarly Pearson and the practical Christian, and now what do we find? Much progress, as it seems to me, much improvement, a closing up of the ranks, a desire to pick up the strain of English Renaissance where we last left it, giving it a distinct flavour of our times, making tradition our servant rather than our master; so that while we endeavour to make our buildings as beautiful as we can, we are determined at the same time to build sanely and reasonably, and, so far as in us lies, beautifully; to make the necessities of the building develop the design, and not to be content until we have met all modern requirements of planning, and naturally combined these requirements with a fitting architectural exterior and interior, not ignoring what has gone before, but eschewing whatever appears to us to be evil and holding fast only to that which is good; that I verily believe to be the tendency of to-day. I have always been an optimist in the work of my brother-architects and am so still. I see in this tendency to work on parallel lines a possible, indeed probable, loss of individuality; and in a recent case, where I had some 130 anonymous designs before me, I found it impossible to recognise the authors by their drawings. I say there is a certain loss in this, but I believe it will be made up by a general improvement and levelling up of work executed.

We must believe in our art if we are to advance it; we must believe in and encourage each other's work if we are to go forward, as I believe we shall go forward; for there are signs of a greater pride of citizenship arising, and a dawning of belief in the necessity of the city beautiful as well as the city useful. Let us see that we are ready to realise these aspirations as they arise, for hard-headed, practical men are beginning to realise that noble dispositions in a town, noble streets and buildings, are an education as necessary for the higher development of patriotism and public spirit as good water and sanitation are necessary for the bodily well-being. A certain sinking of individuality may be necessary to secure the harmonious whole: this we must be ready to give; the general result on the city and on our building must be our sole and chief concern, and we

must be content to sacrifice ourselves if necessary for the general good. Will you pardon me if I quote Ruskin once more on fraternity of toil? He said in that famous lecture of his before the Architectural Association:—"In those misty and massive piles which rise above the domestic roofs of our ancient cities there was—there may be again—a meaning more profound and true than any that fancy so commonly has attached to them. Men say their pinnacles point to Heaven; why, so does every tree that buds and every bird that rises as it sings; but this they have of distinct and indisputable glory, that their mighty walls were never raised and never shall be but by men who love and aid each other in their weakness, that all their interlacing strength of vaulted stone has its foundation upon the strong arches of manly fellowship, and all their changing grace of depressed or lifted pinnacles owes its cadence and completeness to sweeter symmetries of human soul." This, I take it, is the poetical way of saying we must pull together and work together, look forward and not look back, and believe in ourselves, in each other and our art; and this, I take it, is the main purpose of this Institute of ours. It seems to me to-night as if it were but yesterday that I first commenced to practise, and yet this function reminds me that I am rapidly arriving at the other end. No matter, this is as it should be. We hear the next generation already trampling at our heels, ready to take up the work and to carry our art, as I believe, further than has ever been done before. Mr. President, ladies and gentlemen, I have trespassed on your time and patience too long. It only remains for me once more to thank you with all my heart.

Mr. T. E. COLLCUTT asked the President to accept on behalf of the Institute a portrait of Sir William Emerson, painted by Mr. J. J. Shannon, A.R.A. The speaker said he lacked the words to fully express the great esteem the Institute had for their past President. Sir William Emerson would be remembered by all for the soundness of his judgment, his tact and courtesy, and for the fearless manner in which he expressed his views—views that were sometimes a little controversial. As an architect Sir William Emerson had made a name that commanded the respect of all his brother artists.

The PRESIDENT formally accepted the portrait, and remarked that Sir William Emerson appeared to be looking upon a great and important work that had been entrusted to him, and it was on such occasions that an architect looked his best. They could congratulate and thank Mr. Shannon for enriching the Institute with one of the most successful of his many wonderful portraits.

THE ANCIENT BRIDGE OF STIRLING.

THE low state of the river Forth has enabled investigations to be made in connection with the vexed question of the site of the bridge over the river existing at the time of Sir William Wallace's famous victory in 1297. These have resulted in the discovery of the foundations of two piers in the bed of the river about 65 yards above the present old bridge and nearly parallel to it. The centre of the north pier is about 25 yards from the north bank of the river. The distance between the north and the south piers from centre to centre is from 20 to 25 yards, and from centre of south pier to south bank a distance of 25 to 30 yards. The piers are about 28 feet long by 14 feet broad, and have been constructed in a similar manner to the piers of the present old bridge, having a jacket of dry stones round them for support. This interesting discovery confirms the views set forth in a recent paper read before the Stirling Natural History and Archaeological Society by Mr. W. B. Cook, and which are also held by ex-Bailie Ronald, an eminent local antiquary, that the ancient bridge of Stirling was erected at or near the site of the present old bridge, and that the local tradition of a bridge at Kildean is a mere myth. Further investigations will probably be made in order to definitely settle the question,

Mr. W. A. Ducat on behalf of the Local Government Board held an inquiry on the 16th inst. at the Public Buildings, Smethwick, into the application of the Town Council to borrow 15,000*l.* for the erection of the new municipal buildings. The present town hall was erected in 1866, and only accommodates a few of the municipal departments. The cost of the proposed buildings is estimated by Mr. F. J. Gill, the architect, at 17,000*l.*

NOTES AND COMMENTS.

Long before the war of 1870 the different kingdoms, principalities and dukedoms aspired towards an unified Germany. That spirit produced remarkable results, but it did not expire after the ceremony in Versailles. It still exists, and is displayed with vigour in commercial and manufacturing contests. An English firm has not to compete only with a similar firm in Germany. He has as opponents all those who are willing to combine in order that Germany can claim a victory. This mode of action is so contrary to English practice as well as to the dogmas of the political economists that many people in Great Britain believe it is only a subterfuge invented as an excuse for the deficiencies of English manufacturers. Nevertheless, when we find that four syndicates of coal merchants, pig-iron merchants and producers of steel are prepared to grant bounties on the iron and steel manufactured for the export market, it becomes evident that a strategy is being followed out which the old-fashioned system of attack and defence cannot meet. With all their metallurgical and chemical knowledge Germans cannot produce steel at less than from 5*l.* to 5*l.* 10*s.* a ton. But a foreigner who has been dealing with an English firm can obtain an unlimited quantity from Germany at about 4*l.* 5*s.* a ton. There is, of course, a loss, but it falls only partially on the manufacturer of steel. He is helped out of his difficulty by representatives of allied trades who are likewise eager to have a share in the German monopoly which is expected to be the result of underselling English producers. The only remedy in such a case is a similar combination, but the conditions under which English trade has been conducted for centuries are unfavourable to this solution.

THE corps of Royal Engineers have been connected with Chatham since 1812. The corps itself does not date beyond 1783, previous to which any engineering duties required were undertaken by officers of the regular army. Chatham was selected because fortifications were needed and experiments could be made on a small scale which were afterwards to be carried out in important seaports. A new idea of army organisation now prevails, and it is considered advantageous to bring the Royal Engineers into closer contact with the Army, leaving the Navy to make use of the Engineers' buildings at Chatham. Cooper's Hill College will be used as a training school; it will, no doubt, have to be enlarged; the battalions are to be transferred to Tidworth, where there are barracks. The change cannot be accomplished without a large expense, but if efficiency is gained the outlay will not be regretted. Many costly works which were executed by the Engineers at Chatham will, we suppose, be demolished. They served their purposes as means of training officers and privates in construction.

THERE is no certainty that the Royal Hibernian Academy will be able to have suitable galleries erected and provision made for the education of students at the expense of the Treasury. The subject has yet to be investigated by a commission. But the application for aid was received with so much favour, it is easy to understand that various other societies would hasten to try and obtain a share of the bounty. With that object a deputation of the Royal Society of Antiquaries of Ireland met the Chief Secretary on Monday. The President stated that the Society was originally established at Kilkenny in 1849 under the patronage of the Marquis of ORMONDE, and it had gradually grown in public favour until it had become the largest of its kind in the United Kingdom. The Society established with the aid of donations a museum which was practically public property. It remains at Kilkenny, but

some of its most important contents were made over to the National Museum in Dublin. The Society was at present housed in Stephen's Green, where its tenure was precarious, and the accommodation available for its library and fine collection of Irish photographs was such as to preclude their general use. The Society asked to be placed in the same position as the kindred societies in England and Scotland. If the Society is the largest of its kind in the United Kingdom it ought to be able to meet the necessary expenses. There are various archæological bodies in England and Scotland who do excellent work without receiving a shilling from the Treasury. It should be understood that money is not advanced from a Government office unless something is offered in return. The Irish antiquaries would soon discover that they lost much of their independence. The Royal Irish Academy and the Royal Dublin Society were allured by the simple-minded officials of South Kensington to play a game of give-and-take, but they quickly realised that it was intended from the first that they should be losers.

ARBITRATION cases in England which relate to building or engineering contracts are found extremely profitable for lawyers and those who serve as judges. Economy appears to be disregarded, and therefore a Scotch case which has just been ended will probably be regarded with contempt. It arose out of the erection of the Colinton Mains Hospital, which cost between 60,000*l.* and 70,000*l.* The builder, Mr. JOHN LOWNIE, claimed 11,140*l.* for extras, whilst the Corporation of Edinburgh counterclaimed 3,255*l.* for delay. At the beginning of the investigation it was resolved that economy should prevail. Both questions were submitted to Mr. JAMES WALKER, a surveyor, as sole arbitrator. It was further agreed that only one expert should be employed on each side. After several days' hearing the builder's claim was reduced to 6,987*l.* 8*s.* 10*d.*, with interest at 5 per cent.; the counterclaim was set aside. The arbitrator's fee was 600 guineas, his solicitor's 126*l.* 1*s.* 8*d.*, while the builder's expenses were put down at 578*l.* 1*s.* There were no counsel engaged, the whole of the legal work being conducted by solicitors. The arbitrator was able to say at the close of the inquiry:—"At this the completion of our proofs and hearings, I desire to express my great satisfaction with the able manner in which the agents of parties have throughout conducted their cases, and I desire to express the belief that, although counsel had been engaged in the case, the interests of parties could not have been better expressed and the case placed before me in an abler manner than has been done by Mr. GRIERSON and Mr. ROSS. To these gentlemen and to all others interested I owe my thanks." If so important a case had to be decided according to English methods the city of Edinburgh would have had to impose a much larger burden on the ratepayers.

ILLUSTRATIONS.

CATHEDRAL SERIES.—ST. ASAPH: VIEW ACROSS NAVE, LOOKING SOUTH-EAST.

GAILETY RESTAURANT.—THE GRILL ROOM.

A HOUSE ON THE SUSSEX DOWNS.

ELLESBOROUGH PARISH HALL, BUTLER'S CROSS, NEAR WENDOVER BUCKS.

ARNMORE, FROGNAL LANE, HAMPSTEAD.

GREENWICH:

GREENWICH, and some few of the records of its interesting past in stone and story, formed the subject of the second summer ramble of the members of the Upper Norwood Athenæum on Saturday, May 20. Mr. V. T. Vincent, the able exponent of the antiquities of the whole of this riparian district, selected Greenwich in place of the proposed visit to Cheyening, postponed by the death of Earl Stanhope. Arrived at Greenwich, the members and friends were met at the church of St. Alphege by the vicar, the Rev. S. Martyn Bardsley, M.A., who very kindly gave an interesting account of the church in the vestry, and then escorted the party over the building, explaining each point of interest in a genial and interesting way. In the registers he showed the entry of the baptism of Charles George, son of Henry William and Elizabeth Gordon, on February 28, 1833; the record of the burial of General Wolfe in 1759, whose grave in the crypt was also seen, and to whom the stained-glass window in the church was erected by a former churchwarden in memory of "a noble Greenwich man." In another register is recorded the marriage on November 18, 1685, of "ould" Cooper, aged 108, to Margaret Thomas, aged 80, by special license. In the church itself the Vicar pointed out the beautiful carved woodwork, the pulpit with its quadruple hour glass—one glass for each quarter-hour of the sermon—the royal pew, the windows with figures of St. George and St. Alphege, commemorating General Wolfe and the Rev. Brooke Lambert, others recording the Christian rites in their application to former royal residents of Greenwich, and tablets in memory of Tallis, the musician, d. 1585, and Airy, the astronomer. After the crypt had been inspected the party proceeded to the park, where the small but interesting remains of the recently-discovered Roman pavement were examined under Mr. Vincent's guidance; then to the park-keeper's house, where the many objects of Roman antiquity found in the park were examined with interest, including the coins of forty Roman emperors, from Marcus Antoninus, c. B.C. 35, to Honorius, A.D. 395-423. Proceeding through the beautiful naturally-arranged gardens formerly called the Wilderness, and passing by the site of Montague House and the Ranger's House, the twenty or more barrows at the top of Rooms Hill were seen and described by Mr. Vincent.

At the evening meeting Mr. Vincent read the following paper:—

Greenwich is the Anglo-Saxon word Grenawic, meaning the green town or village on the river bank.

As recently as the reign of Henry V. (1420) it was but a fishing village, but the river was always such safe anchorage that the whole of the Danish fleet lay here for three years in the reign of Ethelred (1011) while the invaders, camping at Blackheath, ravaged the country round. It was here that they murdered Archbishop Alphege, whom they had brought prisoner from Canterbury. The first mention of Greenwich is in a deed dated 918, in which Ethruda, otherwise Elfreda, daughter of King Alfred the Great, bequeathed the manor to the Abbey of St. Peter at Ghent, a bequest of doubtful advantage to the Flemish monks owing to the reluctance of the tenants to be taxed by foreigners, and possession was virtually abandoned some time before the arrival of the Conqueror. In 1414, when the alien priories in England were dissolved, the manor came to the Crown, and it has been State property ever since. But there was a Royal manor here from the time of Edward the Confessor (1060) and frequently a Royal residence. The park was laid out by Humphrey, Duke of Gloucester, in 1433, under a grant which permitted him to enclose 200 acres of Blackheath, and he built the palace or pleasure on the site now occupied by the college, museum and hospital, which, when the duke died intestate and childless, was taken possession of by the Crown. The common expression "to dine with Duke Humphrey" refers to the builder of Greenwich Palace, but its meaning is a little obscure. The residence was enlarged by Edward IV., Henry VII. and Henry VIII., whose birthplace it was, and the birthplace also of his children. The park has been the scene of many tournaments, and Henry VIII. was especially fond of seeing and taking part in contests with the sword, lance and battle-axe. Queen Elizabeth was very partial to Greenwich, and made it her chief summer residence. Her successors of the Stuart dynasty followed her example, and although in the time of the Commonwealth it was proposed to sell the house and park, they were retained for the use of Oliver Cromwell. At the Restoration the house was found to be much out of repair, and

Charles II. spent 36,000*l.* on building a new palace, of which Christopher Wren was the architect, but did not finish the work. He also put a wall round the park as we now see it, in place of a wooden fence, and he built the first Royal Observatory on the site of a tower which Duke Humphrey had erected on the hill. The new palace remained unfinished until the abdication of James II. and the accession of William and Mary, when it was completed and converted into a hospital and asylum for decayed seamen. About 50,000*l.* was spent, but it was not until Queen Anne was on the throne in 1705 that the first hundred pensioners were admitted. Every man in the navy paid 6*d.* a month to it, and the funds were so swollen by gifts and legacies as to maintain 2,000 old seamen and 140 orphans. The Greenwich pensioner was a well-known character for 160 years, when the hospital began to grow unpopular, and it was abolished in 1869, the revenues being converted into out-pensions. The buildings remain as a noble monument of good intentions. The hospital school for the sons of seamen, which was part of the original scheme of the hospital, continues to do excellent work, providing for about 1,000 lads, most of whom, though under no obligation to do so, enter the Royal Navy.

The parish church of St. Alphege is named in honour of the Archbishop of Canterbury who, as just stated, was martyred about 1011 by the Danes, who stoned him to death. The original church was probably erected soon afterwards and on the spot where he died. In 1710, having become much decayed, the roof fell in, and the present building was erected in its place. Part of the old walls may be seen worked into their successors.

Greenwich Fair, always more or less of a riotous character, was formerly held in the park, but in 1838 it was expelled the park, and the booths and stalls were set up in the streets near the church, where it continued to be a public nuisance until its final suppression in 1856.

A few more words about the park. In the reign of Henry VIII. the park was at the height of its glory, and right royal revels were held there. In the spring there was the ceremony of bringing home the May, at midsummer there were bonfires and fireworks, and at Christmas there were all manner of frolics in the palace. The lower level of the ground near the principal gates was used for tournaments, and a stand was erected for the ladies. The jousts were usually held in February or May, and lasted a week, from two till five in the afternoon. As many as 300 spears were sometimes broken in a day. Bluff King Hal, who was a good horseman and a powerful and skilful fighter, generally came out victorious. Queen Elizabeth's favourite spot was the old oak which bears her name. It was a hollow trunk even in her time, and was convenient for refreshment. Charles I. was the last sovereign to occupy the palace, but the Princess Sophia resided in the Ranger's House in 1816, as did Prince Arthur, now Duke of Connaught, while he was studying at Woolwich Academy. As a public recreation ground the acquisition of the park was a slow and gradual process, not completed until the last century. For many years privileged persons had keys of the gates, but the liberty was gradually extended, and as long as I can remember there have been no restrictions whatever, except that the upper portion of the ground was until recently enclosed as a garden for the Ranger's House. This is now thrown open to the public, and is much appreciated. Near the Ranger's House is a curious bath, discovered in 1890 when an old summer-house was demolished. The sides of the bath and the steps were then covered with white tiles. It was in close proximity to a bricked-up gate in the wall of Montague House, in which Queen Charlotte once resided when separated from her husband, the Prince Regent, afterwards George IV. Nearly opposite the bath is a miniature redoubt constructed by Prince Arthur when he was a cadet at Woolwich.

Many traces of the Roman occupation have been found in and about the park, the most important being the discovery in 1902 by Mr. A. D. Webster, late superintendent of the park, of a tessellated and concrete floor, which had undoubtedly at some period 1,500 or 2,000 years ago formed part of a Roman villa. The remains were found while probing the soil with an iron rod to find traces of an old road which Mr. Webster believed to have formerly existed near the spot, and the site is an artificial mound near the Vanbrugh Castle Gate. The area of the floor is not extensive, and there are no walls left, but it is clear from the character of the workmanship that the house when it stood was occupied by a person of rank and wealth, and that it was large. The reason why it was erected in such a spot

is also very obvious, not only from the surrounding scenery, but from the abundant water springs now forming the ponds on the hill. The villa itself, however, is not so remarkable as its contents. The area it covers is not one-hundredth part the size of the Roman villa at Darenth, and yet in this limited space, and round about it were collected a hoard of curiosities quite as numerous, as varied and as distinctive of the Roman era in Britain as were gathered and preserved when the Darenth villa was unearthed in 1895. There were no fewer than 320 coins discovered, dated from 35 B.C. to A.D. 395, and representing forty of the Roman emperors who reigned within that period. There were also some barbarous British imitations. The other articles exhumed included some early British as well as Roman pottery of various types, implements and ornaments in ivory and bone, bronze and iron, pieces of wall plaster elegantly decorated, and much burnt wood, with nails and staples attached.

Quite on the other, or western side of the park, are twenty-five or more British barrows, all of which have apparently been opened and plundered, but each of which marks the burial-place of some important personage of probably prehistoric times. About ten others are found in other parts of the park, and twelve were destroyed when the adjacent reservoir was built in 1846, and a number of stone implements were found, which are now in Greenwich Museum. We read that fifty such mounds were opened here in 1784, under authority, but only one skeleton was found, and only a few of the ornaments such as the ancients interred with their dead, a fact which is not remarkable, seeing that a parkkeeper named Hearn had seventy years before opened all the barrows on his own account.

It may be mentioned as an item of antiquarian interest that several subterranean passages in the park have recently been explored, and may be visited by small parties, but will hardly repay the trouble, for they are all probably the culverts which formerly supplied water from the hill to the palace and other dwelling-places round about. They are for the most part 6 feet high and 4 feet wide, and well built of brick.

A meed of praise is due to the late superintendent, Mr. Webster, for the work he did during the comparatively short time he was in charge of this park. He has now been advanced to the more important but less attractive superintendence of the Regent's Park, but his work here remains. Mr. Webster is a second Richard Jefferies, "The Gamekeeper at Home," for he is not only an expert woodcraftsman and student of nature in all its forms, antiquary and scientist, but he has the literary capacity for embalming his ideas and knowledge in books, "Greenwich Park: its History and Associations," being the outcome of his labours in this direction.

THE ROMAN CAMP, LANCHESTER.

THE members of the Durham City Field and Research Club lately visited the Roman Camp and the parish church of Lanchester, under the guidance of the Rev. A. Watts, the president. According to the *Durham Advertiser*, the Roman walls of the fortress are still standing round almost the whole of the six acres which formed its site. They were of great thickness, 8 feet at the base, narrowing to 4 feet. But the facing stones have been taken away to erect field walls and modern buildings, and only the core remains. The great northern Watling Street ran past the Roman station at a few yards distance from it on the eastern side, cutting the Lanchester and Wolsingham road nearly at right angles. After a tour round the walls Mr. Watts said the British camps were circular, Roman camps were square. Our ancestors had a stronger eye for the artistic. The Romans were for utility. That camp was probably built about the year 120. The Romans, if they could get it, built their walls with millstone grit. If they could not get the latter they got the finest hard sandstone that could possibly be found. The facing stones of that camp were, as he had shown them, of a wedge shape. This was for the convenience of carriage. A man could carry two, one on each shoulder. They felt pretty sure that that camp was built in 120, because 100 years later it had fallen into ruin, and another emperor, Gordian III., found it necessary to rebuild the barracks and arsenal. Gordian III. died in 244, so that the repairs must have been made before that. They might say roughly that the arsenal and barracks of that camp were repaired by Gordian II. in the year 240. The same emperor built public baths and a basilica.

This seemed to indicate the fact that that was not only camp, but that a considerable population had gathered, and that Lanchester had sprung into being a place of some importance. There was an old saying that cleanliness was next to godliness. He often thought they got that saying from the fact that in the Roman worship washing formed an important part of the service. Here they had the temple built alongside the public baths. It was probable that the four large monolithic pillars in Lanchester Church, each out of a single block of stone, were once pillars supporting the arcade of the basilica. They knew full well that in early, middle or dark ages English masons were not capable of work like that. The Romans were experts at it. Although it could not be said with any degree of certainty yet it was exceedingly probable that when they came to build Lanchester Church, instead of getting and working pillars for themselves, they came and unearthed the tumble-down pillars from the ruins of the old Roman camp, pillars which had formed part of the heathen temple erected by the Roman emperor Gordian III. about 240. Well-preserved stones in the Dean and Chapter library recorded the names of the civil and military governors of the camp at the time the repairs were made, when the barracks and arsenal and also when the new buildings were erected—the baths and basilica. After Roman times they fell upon the dark ages and the camp was of no practical use. There were very few people in Lanchester. There would not be more than two or three persons to the square mile in the county of Durham until the seventeenth century. The camp, therefore, suffered no destruction except at the hands of nature. Some features gradually crumbled away, but the character of the stone was such that it suffered very little in that way. The very tool-marks of the Roman masons might be seen on the face of the stone. Each man had his own method of using his chisel. They cut their lines in certain directions and so the work of one man was distinguishable from that of another. Beyond all doubt two hundred years ago that would be a splendid camp, but the same spirit which led Church people to take the monolithic pillars from the temple and use them in the church at Lanchester moved the farmers around, and when the population began to grow they wanted to make building easy, and so took the worked stones from the face of the wall of the camp. They came and got them for themselves. That was how they found the whole face of the camp defaced till there was nothing but the core of the wall left. That had been done almost within living memory. This showed what little respect there was for ancient things. It also showed how ignorant the people must have been. They did not know and did not appreciate the value of these things, nor of their evidence as links to the past. For instance, Canon Greenwell himself told how his grandfather was a chief mischief-maker in the camp. He got almost all his material for building Ford from the camp. The first description of the camp appeared in 1850, almost within their own time. That fact also showed how little interest people took in it. No one had left a written description of the appearance of the camp until McLaughlan's survey of Watling Street. He told them that at that time there were four towers standing at the four corners. There were remains of a building in the interior of the camp. There was now nothing but a green mound. In the north-west corner were two buildings with rounded ends. They were built for hypocausts, which showed that the Romans heated their camps by hot air. Mr. Watts went on to refer to Watling Street. He said this great Roman road was not called Watling Street by any of the old recorders. Simeon of Durham spoke of it over and over again in his records, but always in the county of Durham called it Deor Street. They had there probably the derivation of Durham.

Referring to a Roman altar in the porch of Lanchester Church, Mr. Watts said the baths built by Gordian III. were supplied with water brought some three or four miles by aqueduct from the high ground away towards Rowley. It was brought by two branches, and they could trace the aqueduct for a considerable distance in land never touched by plough. Another part of it could be traced through the channel at the back of Marjory Flat. One source where good springs were found yielded the altar. It was manifestly erected to commemorate that an important and permanent supply of good water had been secured. The inscription recorded the fact and the purpose for which it was erected. This altar carried them back to pre-Christian times. The Romans were not Christians. They were persecutors of Christians during the time of the early persecutions. Mr. Watts referred to another precious stone

and a few years ago when the church was being enlarged to make provision for an organ chamber. In breaking through the walls they found this stone had been used as a building-stone. He was glad to see it where it was. A portion of a memorial stone next engrossed attention. It doubtless marked the burial-place of a heathen. There is no Christian symbol whatever, but a rude representation of the sun. He might mention that the other source of water supply for the camp yielded an altar and by Mr. Edward Balleny, of Little Greencroft. It was found close to a place where the water had to be carried over a little ravine. The aqueduct at that point would be about 30 feet high. Probably that is its highest point. The altar was preserved by Mr. Balleny in his grounds. The astonishing part of the whole thing was that these stones had been discovered within the last 100 years. This showed how utterly oblivious of these valuable records were their ancestors. Mr. Watts next referred to two floriated crosses, one belonging to a crusader of the Middle Ages. A pair of shears on the stone indicated that one had been placed over the tomb of the crusader's lady. The short sword on the other indicated that it was the tombstone of a man. Had he been a priest there would probably have been a cup, showing that he had ministered Holy Communion. Passing into the church, Mr. Watts said that originally this church, like most Norman churches, was a simple rectangle. The south wall stood where the south arcade is, and the north wall where the north arcade is. The chancel arch was a very noble representation of Norman work, almost equal to that in the style of Durham. When they built on the north aisle they brought these monolithic columns from the Roman camp. Mr. Watts directed particular attention to the striking difference between the small stones built to form the pillars of the south aisle added later, and when there were no pillars to pillage from the Roman camp. He was glad to see in one of the recent changes at Lanchester Church they had supplied a new font from local stone, Frosterley marble. He thought that in all their churches and work they ought, as far as possible, to use the stone of their immediate neighbourhood. Mr. Watts went on to refer to the beautiful markings in the Frosterley marbles, and was glad to say that three years ago they found a new bed of good black marble, which was being worked and sent all over England.

SCANDINAVIAN INFLUENCES ON NORMAN SCULPTURE.

IN the recently-issued part of the "Saga-Book of the Viking Club" there is a long and learned article by the Rev. H. J. Dukinfield Astley, of Rudham, on "Scandinavian Motifs in Anglo-Saxon and Norman Ornamentation." He contends that while much of the art of those periods was derived from Byzantine, Saracenic and Late-Celtic sources, more of it owed its origin to Scandinavian and later Viking motifs than was generally admitted, and that these might be carried back to the art of Halstatt and La Tène and perhaps to earlier days still. Some of the Scandinavian influence is exercised directly and some indirectly, through the Normans. Mr. Astley contends that the interlacing pattern was derived from the snakes and dragons of Norse mythology. The dragon Fafnir, slain by the sword of Sigurd, is represented in Sweden, Norway and England. Continuing, Mr. Astley says:—"So the animal fades away and the ghost alone remains in what to ordinary eyes is only an entwisted fibre, as for instance in the detail on Tatton's Cross, Lancaster; that on a stone coffin in Cambridgeshire; on the Saxon fonts at Deerpur and Bridekirk, and on many a Norman font, of which those at Tofrees, Shernborne, Burnham Deepdale, Ingoldisthorpe, and Sculthorpe in North-west Norfolk, are among the most perfect examples." With the exception of Shernborne illustrations of these fonts are given. In an appendix on the illustrations the writer adds:—

"The font at Burnham shows on three sides a representation of the Anglo-Saxon Calendar, and on the remaining side, that reproduced here, foliage like that on the tympana. Lions, with interlacing tails, run round the top edge of the font. The font at Tofrees is perhaps the finest example shown, with its intricate pattern of cablework and its grotesques. Similar patterns are seen on the fonts at Shernborne and Sculthorpe, which latter contains, on the east side, the representation of the Magi bringing their offerings to the infant Saviour. The character of this mode

of decorative ornamentation has been sufficiently discussed in the text, and need not be further entered upon here; but an interesting question arises as to how it is that so many specimens of this style should remain in an outlying corner of Norfolk. Were they peculiar to this district, or is it possible that they were equally numerous in other parts and have survived here owing to the comparative isolation of the county, and the fact that it seems to have escaped the ravages of the Civil Wars of the fifteenth and seventeenth centuries? The fact remains that, in seeking for illustrations to my paper, I had no less than a dozen examples to select from in this particular district, while only Deerpur and Bridekirk could be found in the rest of England. This is not, of course, to say that other examples do not exist elsewhere, but none, I am persuaded, that would so fully answer my purpose. I am hoping to publish a complete monograph on all these fonts shortly, with illustrations, in the Transactions of the Norfolk and Norwich Archaeological Society."

MR. T. H. MAWSON'S CLAIM.

THE debate which took place in the Court of Session on the relevancy of the action in which Thomas Hayton Mawson, garden architect, sues the Dunfermline Carnegie Trustees for £3,101. 11s. 2d. for services said to have been rendered to the Trustees, lasted a whole day. The following statement of the points in dispute has been published in the *Dunfermline Free Press*:—

The pursuer, in his statement of claim, says that he is an Honorary Associate of the Royal Institute of British Architects, and carries on the profession and business of a garden architect at Hazelwood Offices, Windermere, and 28 Conduit Street, London. On or about September 25, 1903, the pursuer received from the interim secretary to the defenders a letter, dated September 24, in the following terms:—

"Clydesdale Bank Buildings, Dunfermline :
September 24, 1903.

"Carnegie Dunfermline Trust.

"Dear Sir,—At a meeting of the Trustees on Tuesday last I was instructed to communicate with you and send you the enclosed print of the Trust deed, Mr. Carnegie's letter and Dr. Ross's address. The Trustees will be glad if you will undertake to furnish them with a report on the laying out of the park and glen, and the erection of the needed structures suggested by Mr. Carnegie in his letter.

"I do not think it necessary to give you any instructions, but I might suggest that you arrange for an early interview here with our chairman, Dr. Ross. If you can give this question your earliest possible attention I shall feel much obliged.—I am, yours faithfully, JAS. CURRIE MACBETH,
"Interim Secretary."

The address referred to was given by Dr. Ross, the chairman of the Trustees, at their first meeting held on August 28, 1903. After consideration of the letter and accompanying documents, the pursuer went to Dunfermline, and on October 2, 1903, met the defenders, Dr. Ross and Mr. Henry Beveridge, at the former's office. At this interview the pursuer was shown a plan of Dunfermline, with Pittencreef Park lined round in red, and the pursuer pointed out to the said defenders that the success of a design for the park would depend very largely on its entrances and direct communication with the town, and that unless the park was to be separate from and not a part of the town, direct communication with the main thoroughfares of the town was a necessity. In particular, the pursuer stated that an entrance at the end of Bridge Street was most essential. Dr. Ross replied that the Trustees had already considered this, and had made inquiries with a view to purchasing the property necessary for an entrance. The sum asked for was considered too high to justify them in purchasing at present, but that the pursuer's design might be arranged with a view to the acquirement by the Trustees of the property necessary to provide said entrance when a favourable opportunity occurred for purchasing same. Thereafter, on the same date, the pursuer, along with Dr. Ross and Mr. Beveridge, inspected Pittencreef Park and glen and the rest of the property acquired by the Trust, as well as other property adjacent to the park and glen which Dr. Ross pointed out as likely to be acquired by the Trust. Dr. Ross proceeded with Mr. Beveridge to the manse, at the back of which Dr. Ross suggested an entrance might be made. At the end of the meeting with Mr. Ross and Mr.

Beveridge, the pursuer said that if he could arrange the entrance to the park satisfactorily, so as to give the park and glen their proper connection with the town, he thought he could give the Trustees a satisfactory scheme. The impression left on the mind of the pursuer was that the defenders, before definitely deciding how they were to carry out the Trust, desired to obtain from him skilled advice as to the best methods of laying out the park and glen, erecting the necessary buildings, improving the vicinity, and generally giving effect to the views expressed in the letter and address which had been sent to him as part of his instructions.

In accordance with the instructions received, the pursuer proceeded to prepare surveys, sketches and plans of Pittencrieff Park and glen, and of projected improvements and alterations thereon for the purposes of the report, which was completed and sent to the defenders on or about February 24, 1904. The secretary to the Trustees wrote a letter to the pursuer in the following terms on June 23, 1904:—

"St. Margaret's Hall,
Dunfermline: June 23, 1904.

"Thomas H. Mawson, Esq.,
Hazelwood Offices, Windermere.

"Dear Sir,—I beg to forward you herewith the following excerpt from the minutes of a meeting of the Trustees which was held this afternoon:—The report by Mr. Mawson, which had been circulated amongst the Trustees, was considered. After an interchange of views, it was resolved to retain the report for after consideration, it being impossible at present to give effect to the suggestions contained in it. The secretary was instructed to convey the thanks of the Trustees to Mr. Mawson for his report, which they felt had been prepared with great care, and with an earnest desire to furnish useful guidance in carrying out the work of the Trustees.—Yours faithfully,

"J. H. WHITEHOUSE."

On the same date the secretary wrote to the pursuer a second letter, requesting him to forward a statement of his account against the Trustees in connection with the report, and asked him also to furnish the Trustees with twenty-five additional copies of the report. The pursuer furnished these additional copies, and on July 5, 1904, sent in an account for his professional services, which he limited to the sum of 817*l.* 6*s.* 7*d.* The defenders refused to pay this sum, and on July 29 the secretary of the Trust wrote to the pursuer informing him of this, and stating that the Trustees had agreed to offer him the sum of 300*l.* in full of his services and outlays, including the printing of the reports, but reserving all objections to the account if that sum were not accepted. In reply, the pursuer pointed out that the sum of 300*l.* did not even cover the cost of outside assistance and out-of-pocket expenses, much less anything for his personal time and the time spent upon the plans by his office staff. He accordingly withdrew the account which he had rendered for the sum of 817*l.* 6*s.* 7*d.*, and stated that he was willing to refer the whole matter to the arbitration of a disinterested authority capable of dealing with the question, such as the President of the Royal Institute of British Architects. As the defenders refused to accept this proposal, the pursuer offered, as an alternative, to place the instructions received from the defenders, and his report, plans and proposals dealing with the park and adjacent buildings only, foregoing all claims for suggestions dealing with town improvements, before a measurer appointed by either the Glasgow or Edinburgh Architectural Societies, or the Royal Institute of British Architects, and according to his finding to accept payment on the schedule of the Society selected, with such portion of out-of-pocket expenses as might fairly be judged due to the pursuer. The defenders did not accept this proposal, and the pursuer then offered as a further concession to submit to the decision of a barrister, provided he were nominated by the Royal Institute of British Architects, explaining that he made this proviso because there would be the assurance that the assessor so nominated would be a man used to and capable of dealing with disputes of the kind in question. The defenders, however, refused to agree to the pursuer's proposal, and adhered to the offer made by them on July 29, 1904. Pursuer adds that the sum of 817*l.* 6*s.* 7*d.* did not by any means adequately represent the amount to which he was legally entitled as fair and reasonable remuneration for his services, and in reimbursement of the expenses incurred by him in consequence of the defenders' instructions, although he was willing to accept

that sum on the assumption that he should receive immediate payment thereof. He subsequently prepared and rendered to the defenders an account charged in the ordinary way, and amounting to 3,101*l.* 11*s.* 2*d.*, the sum now sued for.

The Trustees then entered into a large number of details relating to the park and to the property which were suggested for its improvement. They consider that the park and glen could not contain the buildings, designs and works suggested by the pursuer. A plan of the park furnished by the pursuer extends far beyond the bounds of the park and glen, and shows that parts of the town itself would have to be destroyed, even to give room for tennis or bowling-grounds suggested by him, and there are numerous extraordinary and extravagant suggestions wholly outside the scope of the pursuer's employment or even experience, e.g. the building of a concert hall to cost 60,000*l.* It is impossible to extract a scheme for the treatment of the park and glen from the report and relative plan furnished by the pursuer. In so far as he deals with these it would be necessary in order to give effect to his ideas to acquire properties not fewer than eighty in number belonging to different proprietors who, even if they were willing to sell, would not part with their properties under 200,000*l.*

The pursuer's own estimate of the costs of the work connected with his scheme is 110,437*l.*, which is exclusive of the acquisition of the requisite properties. It is accordingly impossible to utilise within the park and glen any portion of the pursuer's report. The pursuer, however, declines to curtail it or modify it, or "make it deal only with the park and glen and glebe" as suggested to him in Dr. Ross's letter of February 29, 1904. In these circumstances the defenders, while willing to make allowance for the pursuer's evident mistake as to his position, have been in a difficulty how to act as to making any payment to him, but they considered that they would not be exceeding their duty if they offered him 300*l.* so as to get rid of his claim, and to be remuneration on the amplest scale for any services of the pursuer. The defenders aver that the account now sued for was not incurred and is extravagantly charged.

The pursuer in his answers to the defenders' statement of facts denies that there was any undue delay in furnishing his report. He alleges that the defenders' offer of 300*l.* is quite inadequate.

Lord Dundas remarked that the case seemed to be a very appropriate one for parties to make some friendly arrangement between themselves. It looked at present as if there had been misunderstandings on both sides, and it would be a pity if the matter was not settled without the expense and heat of a disputed litigation.

SCOTTISH ECCLESIOLOGICAL SOCIETY.

THE Scottish Ecclesiological Society held their third annual excursion on Saturday, when over fifty members visited St. Andrews. At St. Salvator's Church Mr. Maitland Anderson read a paper on the history of the building. He pointed out that it was originally a collegiate church, and not merely a college chapel. Bishop Kennedy's idea was to combine into one institution a collegiate church and what would now be called a university college in order that religious observances might not merely be fostered, but that men might be trained up to perform them intelligently as well as to study and interpret the Holy Scriptures. The clergy connected with the foundation included a provost and three canons, besides various prebendaries, chaplains and choristers. The church was richly ornamented with costly furnishings of all kinds, and on festival days must have presented a scene of splendour unrivalled by any other collegiate church in Scotland. At the Reformation, although no rude reformer laid violent hands upon it, the church was closed and all that belonged to it disappeared. In 1563 it was fitted up as a commissary court-room, and remained the official seat of the Commissary until 1823. In the sixteenth and seventeenth centuries it was occasionally used for worship in connection with the parish church of St. Andrews, and in 1633, at the instance of Archbishop Laud, an effort was made by King Charles I. to convert it into a university church or chapel. Having stood for a long time void and neglected, the Leonardine congregation was transferred to it in 1754, and remained there until July of last year, when the new church of St. Leonard's was opened. Shortly afterwards St. Salvator's Church was reopened as a

iversity chapel with a view to the regular celebration of the worship during the winter session.

At St. Regulus Church and Tower, Mr. MacGregor read a paper dealing with the probable date of building, which he considered would be the latter part of the tenth century.

Mr. David Henry, architect, St. Andrews, read a paper dealing with the building and history of the cathedral and its tower. He traced the course of construction of the cathedral, which he stated was begun in the Transitional style of the middle of the twelfth century, a style that adhered to till near the middle of the thirteenth. Half a century later, viz. in 1271, Bishop Wishart began and completed the nave in the new style then prevailing. Prior to the completion of the age of building and the approach of the age of pulling down. Referring to the researches of recent years, Mr. Henry was of opinion that they had not added very much to our knowledge. A number of pieces of painted glass had been found in the north transept, which were probably the remains of the glass at fire of 1378. Probably the most interesting find had been the stone coffins of the seven priors, whom we knew were buried in the chapter-house, two in the old and five in the new, between the years 1304 and 1416. Mr. Henry concluded his paper with a reference to the grave slabs of several canons of the cathedral. The oldest dated gravestone in St. Andrews was that of Canon Robert Cathine, who died in 1380.

St. Leonard's Church and St. Mary's College were described by Mr. Maitland Anderson.

RUSKINISM IN SHEFFIELD.

THE annual report on the Ruskin Museum for the year ending March 25, 1905, has been published.

The museum was open on 312 days during the official year, and the total number of visitors was 50,736, as against 48,357 the year before, an increase of 3,379. This increase, tokening a wider interest in the Institution and the objects of its founder, has been brought about no doubt mainly by the special exhibition made during the year which is referred to below, by the illustrated lectures to the public, and to the school classes, and also by the notifications placed in the libraries and educational institutions of the city indicating the facilities for the inspection and study of the collections. The increase has been greater in proportion on week-days than on Sundays, the comparison being 9,799 against 36,541, and 10,937 against 10,816 last year.

In the library and print department the figures were well maintained, the number of visitors who made application for perusal and study of the works being as follows:—The total for the year was 622 against 639, and the number of works issued 889 against 901, the latter figure being the record number of issues. The averages for the five years previous were 615 and 777 respectively, last year's figures being therefore progressive over the period stated.

The sale of the illustrated museum handbook shows a remarkable increase during the past year, 526 copies having been sold compared with 433 in the year 1903-4. In addition to this 500 copies of the supplementary catalogue, with descriptive notes of the "Masterworks of Engraving," were disposed of. Of the library catalogue twelve were purchased against twenty-four last year. A supplement to bring this publication up to date is now being prepared.

During the year a special exhibition was made, and took the form of a series of examples illustrative of the masterworks of engraving. The majority of these were loaned by Mr. G. P. Wall, of Sheffield, and supplemented by examples from the museum collections, selected with a view to showing the origin and development of etching and engraving in the various styles of wood-cut, line-engraving, etching, stipple, mezzotint, &c. The exhibition proved a great attraction, and was thoroughly appreciated by many students and visitors throughout the year. A supplementary catalogue with descriptive notes was issued, and two illustrated lectures, which were well attended, were given by the curator on the history and methods employed in these arts.

The curator was instructed to attend the meetings of the Museums' Association held in July at Norwich, and a report of the proceedings thereat was presented at a subsequent meeting of this committee. In connection with a subject which has been much discussed at these conferences and mentioned in the report, viz. "Museums as places of instruction for scholars," communications were made to the Education Department with an offer to give a series of

illustrated lantern lectures at the museum to the senior classes of the boys and girls' schools, at which from fifty to sixty scholars might be accommodated at one time, instead of the limit of twelve or fifteen as in the usual demonstrations in the galleries which count as school attendances, the scholars to afterwards identify the originals of the illustrations in the museum. A list of the lectures offered is given below, the subjects chosen being treated with the express purpose of giving the boys and girls an elementary introduction to the study and appreciation of the collections. In response to this, during five months eight schools made appointments and brought an attendance of 240 scholars.

The museum lectures were also continued during the winter months in connection with the free public lecture scheme inaugurated three years ago. The lectures given by the curator last season were as follows:—Two lectures on etching and engraving: November 12, "The Works of the Early Masters;" December 10, "Later and Modern Works." Two lectures on the art of Carpaccio: February 18, "The Story of St. Ursula;" March 18, "Carpaccio's St. George." A lecture was also given to the members of the Sheffield Art Crafts Guild on "Mural Sculpture at Venice and Rouen as Illustrated by Casts in the Museum." These lectures were fully illustrated by specially prepared lantern-slides of the engravings, drawings, paintings and casts dealt with, and 500 tickets were issued during the season, the lecture-room being well filled on each occasion. A complete list of the lectures which have been given in this connection is appended to this report. In addition to the lectures demonstrations have been given to scholars and other parties who visited by appointment.

On St. George's Day the members of the Guild of St. George met for their annual meeting at the museum. The master, Mr. Alderman Baker, J.P., of Bewdley, Mr. Councillor Thomson, J.P., of Huddersfield, trustees, and the companions of the Guild were received and entertained by the chairman and other members of this committee. After the usual business had been transacted the members expressed in favourable terms their appreciation of the arrangement and satisfactory preservation of the collections, and, amongst other resolutions with regard to future work, decided to actively associate with the movement for the abatement of smoke pollution.

At the close of the meeting the ladies were each the recipients—from the host—of a dainty pair of scissors of Sheffield steel and workmanship, as a memento of their visit to the city.

An interesting and beautiful set of examples of decorative needlework has been sent to the museum by Miss Twelves, principal of the Ruskin Linen Industry at Keswick. These skilful and artistic pieces of linen embroidery, now exhibited in the print-room, are thoroughly representative of genuine hand-woven material and art handicraft carried out by the artisans of the district. It is worthy of note that this is the only industrial art school having Mr. Ruskin's authority to call its work by his name, and is now intimately associated with the work of the St. George's Guild.

The Sheffield Ruskin Club continues to hold the meetings of the Meersbrook Circle at the museum, the chairman of this committee being president, and the curator honorary secretary. During the year about thirty meetings of the different circles have been held. The members of the club meet to read and discuss the works of John Ruskin, with the view of ascertaining how his teachings may be applied to present-day life and effect the betterment of social relations and conduct. The last work dealt with was "The Seven Lamps of Architecture," and the present one "The Eagle's Nest," whilst the books which have been carefully gone through in the past include "Sesame and Lilies," "Unto this Last," "The Two Paths," "Time and Tide," "A Joy for Ever," and "Munera Pulveris." The club held its annual reunion and conversazione in the museum last year by permission of this committee. The members and friends conveyed their thanks for the privilege, stating that it was greatly appreciated and enjoyed.

Several selections of drawings by Ruskin and other artists have been loaned to various institutions. Those returned from the Nottingham Art Gallery were sent to the Huddersfield Art Gallery, others to the Liverpool Ruskin Society, the Guild and School of Handicraft, Chipping-Campden, and the Whitechapel Art Gallery.

Sixty etchings and engravings from Ruskin's works, previously presented by Mr. George Allen, have been framed by the Corporation for use in the room used by the school classes and the Ruskin Club.

Amongst the additions to the collections the following are of special note:—

The volumes issued to date of the library edition of Ruskin's works, presented by Mr. George Allen and the literary executors under the will of the late Professor Ruskin, and reproductions of prints in the British Museum, sent by the trustees. A complete list of the additions is given below:—

List of Museum Lectures.—Ruskin and Social Progress, the Ruskin Museum and Treasures of St. George, the Purpose of the Museum, Minerals and Crystals, Mural Sculpture at Venice and Rouen, Architectural Examples of North France and Italy, Early Italian Masters, the Museum Library, Florentine Painters, Venetian Painters, the Early Drawings of John Ruskin, Drawings for Illustration by John Ruskin, the Later Drawings of John Ruskin, Early Works of Etchers and Engravers, Later and Modern Works of Etchers and Engravers, the Story of St. Ursula as told by Carpaccio, Carpaccio's St. George, St. Jerome and St. Tryphon.

List of Lectures for School Classes.—John Ruskin, an outline of His Life and Work; the Ruskin Museum, what it is intended to Teach; Useful Metals, Precious Metals, Crystals and Gem Stones, a Piece of Flint and some of its Relations, the Beauties of St. Mark's Cathedral, the Story of the Great Palace of the Doges, Some Great Painters of Old, the Story of the Books, Natural History Drawings.

HARVARD HOUSE, STRATFORD-ON-AVON.

A PICTURESQUE building of considerable historic interest was sold by auction at Stratford-on-Avon on Wednesday. Every pilgrim to the shrine of Shakespeare, says the *Birmingham Daily Post*, makes a point of stopping to admire the old gabled house situated in the High Street, and known as Harvard House. It was built in 1596 by the parents of Katherine Rogers, the mother of John Harvard, the founder of Harvard University, and in that house she was born. The front of the house is elaborately carved, the massive supports to the overhanging first floor representing the bear, the badge of the Beauchamps, Earl of Warwick, and the bull, the badge of the Nevilles. The rose and the fleur-de-lys are to be found on several parts of the building, and under the window of the first storey may be seen the initials and date "T. R. 1596. A. R.," standing for Thomas and Alice Rogers. The Rogers family resided in Stratford through many generations from the fifteenth to the seventeenth century, and in 1663 one was a bookbinder in the town. An attempt has been made to localise John Harvard's English home in Devonshire, but it has been indisputably proved that John Harvard was one of the sons of Robert Harvard, of the parish of St. Saviour's, Southwark, and that he was baptized in that parish on November 29, 1607. Robert married the aforesaid Katherine Rogers, and left the old country with a band of Puritan pilgrims and settled down in New England. At the Commencement Dinner at Harvard College in 1885 President Eliot said:—"We have only known about our first benefactor that he was a Master of Arts of Emmanuel College and a Nonconforming minister, that he had a well-chosen library of 300 volumes and some property, and that he was admitted a freeman in this colony in November 1637, and died at Charlestown within a year, leaving his library and half his estate to the infant college at Cambridge, which was thereafter called by his name." The mother of John Harvard must have known Shakespeare when she lived with her parents at Stratford, and afterwards when she was in residence close by the Globe and Blackfriars theatres in London. Harvard's grandfather, Thomas Rogers, was at the time of his death an alderman of Stratford, and Harvard House is considered one of the oldest, and certainly the best remaining example of ancient domestic architecture in the borough.

THE "AULD BRIG" OF AYR.

A PROTEST against the rebuilding of the "Auld Brig" has been sent by the Society for the Protection of Ancient Buildings to the Town Council of Ayr. It states that the committee of the Society have carefully considered the various reports which have been made upon the structural condition of the bridge and have had the advice of a member, who is an engineer, upon the recommendations. The committee express regret that the Town Council should have come to the conclusion that the bridge must be rebuilt, for it is possible to make the bridge structurally secure

without rebuilding in the following manner:—The mortar of the arches has been dissolved by water that been allowed to leak through it, and the arches have therefore moved and lost their shape, throwing undue strain on parts of the arch stones and making them open at the parts, the distortion being increased by the haunches being overloaded. This could, in the opinion of the committee, be corrected by raking out the perished mortar, filling the joints with good cement mortar, and driving slate wedges into the cement. If the undue weight on the haunches were removed, the arch would take a new bearing and would be quite safe. The mortar in the piers has also perished and dissolved. This could in all probability be remedied in the same way as the barrage across the Nile was repaired, drilling holes into the piers and forcing cement grout into them under pressure. The grout would find its way among the sand and stones and fill all vacancies and thus bind the whole firmly together. Although it is not likely that the piers would thus be turned into masses of concrete, enough would be done to make them secure. The success or otherwise of this treatment would be easily shown by the quantity of grout forced into the masonry. With regard to the foundations of the piers, the committee does not consider that underpinning is essential. There has been some settlement of the piers such as would be expected with a clay foundation actually higher than the bed of the river, but it has not been excessive, nor is there apparently any reason to think it is increasing. All that appears to be necessary is to prevent scour around the piers and to prevent the clay foundation from squeezing under their weight into the lower bed of the river. The committee believe that these ends could be gained by driving sheet piling round each of the piers, dredging a trench 5 feet or 6 feet deep across the stream above and below the bridge, and filling with stones large enough to resist the scour of the stream, and then covering the bed between the trenches with similar stones. The bridge so rendered safe for many years to come would be Burns's Auld Brig of Ayr, whereas a new bridge would merely mark the site where the Auld Brig had been.

YORK MINSTER.

THE clerk of the works (Mr. R. C. Green) at York Minster recently reported to the Dean of York on the progress of the restoration at the Minster as follows:—Since your last occasional paper was issued, an addition of 60 feet in height was added to the south-west tower scaffold. The eight pinnacles at the top of the tower were found to be in a very insecure condition. Six of the pinnacles were taken down and renewed. The iron lewis bolts to which the scaffolding rods were attached in the other two pinnacles were cut out and copper lewis bolts substituted. All the iron cramps were also removed and replaced with copper. These pinnacles were completed and the additional scaffold taken down before Christmas. Immediately after Christmas the work on the three lower stages of the scaffold was completed and these stages of scaffold taken down. A scaffold was then erected to the pinnacle over the west gable; the work on this is now proceeding. Although a great deal of work has been done on the lower stages of the scaffold, there still remains a considerable amount to be done before the west front is completed, but I hope to have the greater part of the scaffold removed before the end of the year. The stonework of the west tower was in a very bad condition, caused partly by the increasing smoke which has tended so much to bring about the present rapid decay, partly through the gargoyles and finials having been fixed with iron cramps and dowels instead of copper, or bedded so shallowly in the walls that many were in a very precarious condition, and some had already fallen off at different times. Also during the past century defective stones have been simply veneered over instead of being replaced with sound ones. For instance, note the gargoyle in the string-course under the sill of the belfry window, and also the gargoyles at the springing of the pinnacles. In many cases moulded jambs which, with the exception of one or two badly decayed stones, appeared to be in good condition, have, after the decayed stones were removed, proved to be simply veneer. This not only applies to jambs, but the work generally. The total amount of stone used up to date in the restoration of the south-west tower is 7,128 cubic feet. The weight of this would be about 475 tons; 188 gargoyles and grotesques, 3,030 crockets and 264 finials have been carved. A scaffold is now erected to two buttresses on the north side of the nave and pinnacles, and flying buttresses are now being

pared for these. The old Minster Library is now undergoing repairs. It was found necessary to partially renew the window jambs, mullions, tracery and arches. The necessary repairs to the stonework of the chapter-house windows are completed. The outer glazing is also completed with the exception of the casements.

Mr. Green also reports that he had found embedded in the garden wall of the old residence almost the entire fragments of one of the flying buttresses, namely, seven stones and eleven pieces of coping.

TESSERÆ.

Local Circumstances in Architecture.

If we direct our attention to the venerable remains of Egyptian grandeur we find them, as standing earliest in time, characterised by the greatest degree of simplicity and by the least of what may be called experiment in art. What is the huge pyramidal mountain of stone but the astonishing ideal of simplicity? What is the tall obelisk, the rude compound of the human and bestial forms in the giant Sphinx, but a monument of the same quality? The like may be observed of the Egyptian temple, imposing it was for massive dignity. Again the situation in which, as well as the time when, this style of architecture happened to arise will be found to have imparted to it many of its principles and decorations. Exposed to the beams of a hot sun, the apertures of structures in that country were small compared with the masses placed in a region seldom visited by rain; the temples had no pediments or inclined roofs. The palm-tree and the lotus, rising on all sides, furnished the builders of the day with elegant foliage for the capitals of their columns. The reed from the banks of the Nile, single or grouped, afforded them bands for their entablatures and large hollow cornices—whence, in all probability, the Greeks of after times derived their triglyphs. The bright sun, ever riding over their wide plains, was portrayed above their temple doors as symbolical of the presiding genius of the land, and not unfrequently associated with other celestial deities. The serpent, the crocodile and numerous animals, the objects of their veneration, provided them with additional forms of architectural embellishment. If we further take into consideration the varied observances of sacerdotal mystery by which the disposition of the sacred edifices was regulated, and the different contemporaneous events which frequently conferred a character on the collateral decorations of those edifices, we shall be prepared to allow the great influence of contingent circumstances in constituting the Egyptian style what it was.

Signet Rings.

The Greeks are supposed to have derived the use of the signet ring from Asia. As no mention is made in Homer of rings, Pliney concludes that in those days they were unknown. As with the Egyptians, the primitive use of the ring was to serve as a signet, hence, to prevent fraud, Solon enacted a law that no seal engraver was to keep by him the impression of a ring he had cut; whilst Pythagoras, out of reverence, forbade the images of gods to be worn in rings. In the earlier ages the rings were all of metal, then stones were set in them. The art of gem engraving became in consequence much cultivated, and the Greek engravers arrived at a high degree of perfection in it. No gems certainly known to be of the Pheidian period exist. It is believed that gems were not mounted in rings prior to the sixty-second Olympiad. Alexander the Great appointed Myrgoteles to be his "engraver in ordinary," and alone to execute his portrait in gems, just as Apelles and Lysippus in marble. Greek rings occur of gold, of silver, and of bronze; women wore them of ivory and amber. The Greeks wore their rings generally on the annular or fourth finger of the left hand. The Etruscans were marvellously skilful goldsmiths, in which art their skill has never been surpassed. They had a peculiar method of fusing and joining metals without the use of solder, and this is the secret how to detect Etruscan jewellery in its genuine state. Gem engraving was practised with them at a very early period; it was rude at first, but subsequently of such a nature as to rival that of Greece. The Etruscans rarely worked in cameo. Rings of extraordinary beauty are found in the tombs of Etruria; in fact, they abound, yet seldom do two occur of the same design or pattern. Silver rings are rarer than those of gold; iron and bronze rings are for the most part gilt; specimens of all sorts are to be seen in

museums. The so-called Egypto-Phœnician rings come from the excavations in Sardinia. There is no nation with whose individual and personal history the finger ring is so closely connected as the Roman. At first the Romans wore rings of iron, the gold ring being given to those senators only who were sent abroad as ambassadors; then it was adopted by the senators. Under the Republic and the Empire its use was regulated by laws. The ring of gold was the sign of equestrian rank, and the *jus annuli aurei* became the height of a Roman's ambition. Prætors and quæstors had the right of conferring the *jus annuli*. In later times the privilege was much abused, and in consequence the distinction became depreciated in public estimation. Then the use of rings became immoderate in number and inconvenient in size.

Chiaroscuro in Sculpture.

With respect to the chiaroscuro of sculpture, it is to be considered in two different ways—as the sculpture is a principal or as it is only an agent. Where it is a principal, as in groups and figures in the round, the masses of light and shade, or, in other words, the agreeable or majestic effect of the work in all its possible views, cannot be too much attended to. The taste of lines and harmonious flow of the parts or several members of the work (whether a group or a single figure), their variety and their combined unity, are the efficient causes of that light and shade which give ease and satisfaction to the eye of the spectator, and engage him, as it were, to enter into the contemplation of those still more essential beauties of a higher order which result from the sublime conception of the form and character, and the graceful or pathetic expression of the subject. As to the oppositions of chiaroscuro that are effected by differently coloured marbles, they ought to be rejected altogether. The less the opposition in the colour of the materials, the less offended is the sight. The mixture of bronze with marble in any imitation of natural objects is always displeasing. There are, no doubt, great authorities for the using bronze as the material of statues, and certainly it may, from the weight and sensibleness of its colour, do extremely well, perhaps better than anything else in insulated works which have the air for a background and are to be seen at a distance, as is the case of Falconet's monument of Peter the Great, that of Marcus Aurelius and many others; but in most other cases, in those of enclosed situations, the bronze should be gilded. The light and shade of a gilt figure is no doubt less agreeable than that of a figure in marble, but it is, notwithstanding, much more eligible in confined situations than that of bronze. Sculpture may, in all sepulchral and other such monuments, be considered as a principal or sole object, carrying with it its own laws; and, from the junction of alto and basso-relievo, affords a noble opportunity for those artist-like attentions to the fine effects of composition and chiaroscuro of which it is susceptible in a high degree, and of which some great moderns have given such illustrious specimens as incontrovertibly demonstrate the advantage of the undertaking, whether there had been any ancient examples for it or not. As works of this nature must be regulated by the consideration of the distance at which they are seen, and their aspects respecting the spectator, and also respecting the light, whether they receive it perpendicularly, laterally, or in front, their situation ought always to be previously determined, in order to make these essential circumstances coincide with the just and happy expression of the subject.



A Warning.

SIR,—A few evenings ago, about eight o'clock, a person called to see me. Being too unwell to see anybody, my wife interviewed him. He announced himself as Sir Thomas Drew, son of the late eminent Dublin architect, on whose death he succeeded to the title. I opined at once that he was a swindler, and, as soon as I was able, wrote Sir Thomas Drew, whose courteous reply confirmed my opinion. As this individual is apparently very anxious to get the hall to himself for a few minutes he ought not to be left, except in the company of a policeman. Anxious as he was to see me I have not heard from the gentleman since.

—Yours faithfully,

June 20.

GENERAL.

It has been now practically decided that the marble required for the Victoria Memorial Hall, Calcutta, shall be obtained from Indian quarries.

Sir Thomas Drew, president of the Royal Hibernian Academy, is to receive the honorary degree of Doctor of Laws of the University of Dublin.

The French Commissioner of the recent St. Louis Exhibition has presented a plaster cast of the *Le Penseur*, by M. Rodin, to the Metropolitan Museum, New York.

The Newport Guardians have received communications from various architects submitting terms for preparing a report upon the provision of additional accommodation at the casual ward. Four of the architects volunteered the report gratis, some wanted five guineas and some ten guineas. The question was deferred.

The Loan Collection of examples of process engraving, comprising photogravure, photo-lithography and kindred reproductions by means of photography, which has been on view for the past three months at the Victoria and Albert Museum, South Kensington, will be closed on Sunday, 25th instant.

The Hurricane which occurred in Constantinople on the 11th inst. destroyed a great many houses. The great minaret of S. Sophia was cut in two, and the part which was removed fell on the church of S. Irene.

Mr. Arthur Thompson, who was one of the early members of the new English Art Club, died on the 14th inst. He was an excellent landscape-painter, as well as a writer of articles relating to art.

The Old Library on the south side of the nave of York Minster, which has been in disuse as a library for many years, and in more recent days has served for the storing of the rolls of the Consistory Court and of other ecclesiastical muniments, and as a song school, has been restored, and was reopened on Monday.

The Studentship of 50*l.* offered by the managing committee of the British School of Archæology at Athens, tenable during the session 1905-6, has been awarded to L. J. W. Tillyard, B.A., Caius.

M. Laloux has obtained from the Académie des Beaux-Arts the Prix Berger, of the value of 15,000 francs, for his terminus of the Orleans railway on the Quai d'Orsay, Paris; and the Prix Bailly, of 1,500 francs, has been awarded to M. Ballu for his work on the restoration of the ruins at Timgad.

Sir John Wolfe Barry, F.R.S., has been unanimously elected to succeed the late Mr. James Mansergh, F.R.S., past president of the Institution of Civil Engineers, as chairman of the Engineering Standards Committee, which post Mr. Mansergh had occupied since the formation of the committee in 1901.

M. de la Sizeranne is to deliver a lecture in the Doge's Palace, Venice, on John Ruskin, about whom he has published an interesting book.

The Southampton Record Society has been instituted. The objects of the Society are to print and publish, subject to the consent and approval of the Mayor and Corporation, the more interesting and important of the ancient documents of the borough; to prepare and publish other works, such as books of plans or collections of essays calculated to elucidate the history of Southampton.

A Meeting of the Edinburgh Parish Council was held on Monday, when there were twenty-one applicants for the position of architect to the parish council. Seven were selected for voting, viz. Messrs. A. Lorne Campbell, R. M. Cameron, Grogan Fulton, Henry F. Kerr, William J. Kennedy, Charles Craig and David M'Arthy. In the final vote Mr. Cameron and Mr. M'Arthy, both members of the Town Council, appeared, and both received an equal number of votes. By the chairman's casting vote Mr. Cameron, 53 Great King Street, was elected. The emoluments are a retaining fee of 50*l.*, 3 per cent. on new work and 5 per cent. on alterations.

Raeburn's Portrait of himself, which was bought at the recent Tweedmouth sale for the sum of 4,500 guineas, has now been placed in the Scottish National Gallery, Edinburgh. The work has been placed on a screen in the centre of the third gallery.

The Ceylon Government have resolved to organise a competition for designs for post offices in minor towns.

Mr. George Henderson, of 26 Hermitage Gardens, Edinburgh, a member of the firm of Messrs. Hay & Henderson, architects, of Edinburgh, who died on March 21 last, has left a personal estate in the United Kingdom valued at 1,875*l.*

An Exhibition of the works of the late G. F. Watts, has been arranged for, and will be opened in the Scottish Academy galleries, Edinburgh, in October. James Guthrie, P.R.S.A., Mr. Robert Gibb, R.S.A., and others of the National Gallery, and several Academicians, others have interested themselves in the matter. A greater part of the Watts exhibition now open at Westminster has already been promised on loan.

The Plans prepared for the education committee of the city of Gloucester by Mr. J. Fletcher Trew, M.P. for Gloucester, for new schools to accommodate 700 boys, girls and 400 infants have been passed by the Board of Education.

The Competition for the Radcliffe free library has been adjudged as follows:—First premium, 50*l.*, Mr. H. I. Manchester; second premium, 30*l.*, Mr. Adshead, Manchester; third premium, 20*l.*, Mr. David Bird, Manchester. Forty-nine sets of drawings were submitted to the assessors. Mr. G. H. Willoughby, Manchester.

Mr. Percy Lindley has produced another of his interesting booklets, with illustrations, which is intended to serve as a guide to a series of tours in some of the less known side valleys of the Rhine, easily and inexpensively reached by the Great Eastern Railway Company's routes to Harwich and the Hook of Holland and Antwerp.

The Whitechapel Art Gallery will open on July 14 a Country-in-Town Exhibition. The object is to further movement in favour of garden cities, suburbs and villages by means of models, plans, designs, pictures, &c. An endeavour will be made also to show what has already been done and what might be done in London and other large cities to improve and beautify crowded areas and unattractive districts. The loan of suitable exhibits is sought from the Secretary.

Repairs are about to be undertaken to St. Margaret's Church, Marton, near Gainsborough, which is noteworthy for the Saxon tower erected about the eighth century. The interior of the church includes the various styles up to the sixteenth century. There is some Saxon carving built into the wall, and it is expected that much more Saxon work will be brought to light when the defacing plaster has been removed. The scheme will cost 800*l.*, and will be carried out under the direction of Messrs. Harold Bailey Wood, of London and Newark.

The Driving of the piles which support the vast wooden foundation on which the new Campanile will stand having been completed, the work of surrounding it by a solid wall 10 feet thick, made of large stones from Istria and Muggia is in progress. This wall, from the outward radius, will be graduated in steps to the top, so that at the level of the piazza it will correspond with the size of the original Campanile, which it is supposed will rise from there nearly to the spring.

People whose æsthetic tastes will not allow them to wholly approve of the plans for the Liverpool Cathedral says the *Liverpool Courier*, will welcome the announcement that a model of the proposed edifice is being prepared. The pictorial representations of the prospective mother church of the diocese have been quite faithful, but from a model a much better idea of the building can be gathered. The model which will shortly be placed on public view will be a perfect miniature representation of the cathedral and will contain all the fine detail which will add grace to the massive edifice. An expert suggests that too severe a criticism upon the design for the new cathedral should not be passed until the model has been seen.

The New Façade of the Naples Cathedral, which has cost some 260,000*l.*, has been inaugurated; a further sum of about 16,000*l.* will require to be expended on the towers of the building.

Orders have been issued to troops of all kinds in the London district to adhere strictly to the decision of the London County Council that, owing to the defective condition of Lambeth Bridge, no vehicle exceeding 2½ tons in weight is to pass over it, that no traffic shall proceed at more than a walking pace and that large bodies of people of any kind shall not be allowed to congregate on or to cross the bridge. It is considered that the bridge is incapable of bearing the strain of troops on the march.

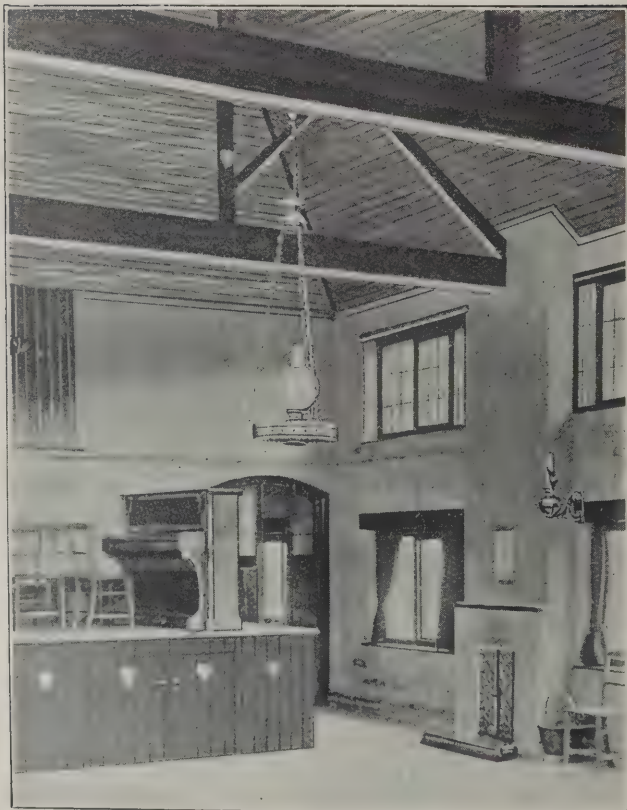
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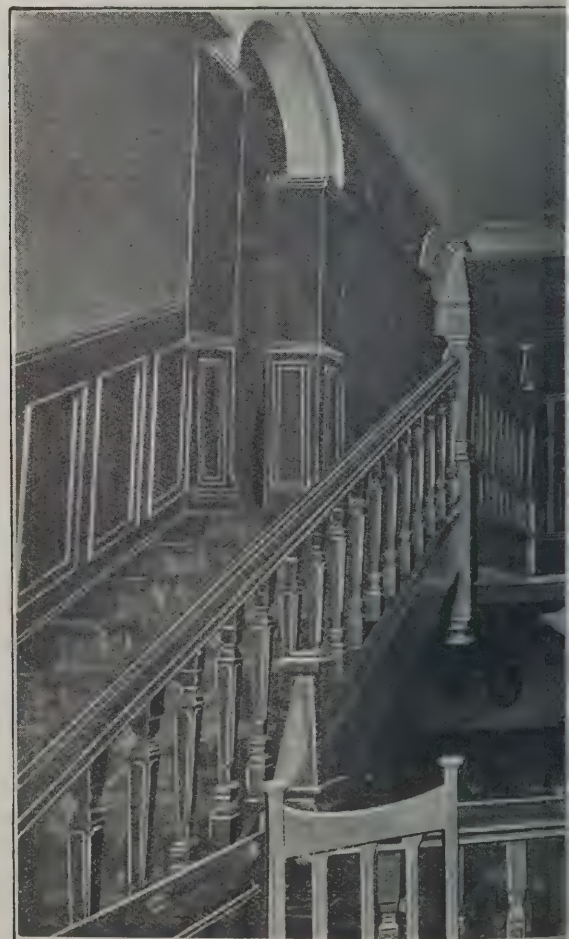
View from Butler's Cross.

ELLESBOROUGH PARISH HALL, B

Ellesborough Parish Hall.



Corner of Large Hall.



View

"ARNMORE," FR

The Residence

Messrs. STANLEY E

25, 1905.



View from Ellesborough.

CROSS, NEAR WENDOVER, BUCKS.



Staircase.

LANE, HAMPSTEAD.

ry Dobb, Esq.

DRIVER, Architects

Ellesborough Parish Hall.



Corner of Large Hall.

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GAIETY RESTAURANT

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23rd 1905



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THE GRILL ROOM.

& FORD, Architects.

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The Architect, June 23rd 1905.





PHOTOGRAPHED BY CHAS. R. H. PICKARD, 5 PARK LANE, LEEDS.

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CATHEDRAL SERIES, No. 526.—ST. ASAPH: VIEW ACROSS NAVE, LOOKING SOUTH-EAST.

The Architect.

THE WEEK.

WE referred last week to the difficulties which sometimes arise in the selection of building stone. Another instance has lately occurred in Dublin. According to a pamphlet by Mr. WILLIAM BUTLER, architect, the external jambs, arches, mullions, strings, &c., in Christ Church Cathedral, Dublin, which the late Mr. STREET had specified to be executed in Caen stone, are decaying. The photographs show that the surfaces of the masonry courses vanish in large flakes, while some of the capitals may be said to have lost their ornamental character. The atmosphere of Dublin is more favourable to stone than that of London, and the material employed must have been exceedingly defective. Mr. STREET supposed that some stone which he found in the cathedral, and which had endured the wear and tear of centuries, was from Caen. Some Dublin masons told him it was not, and that Caen stone was not adapted for external use in Ireland. Mr. BUTLER declares that "if anyone wishes for a proof of the error in Mr. STREET's judgment, let him go to the west door and look at the band of old stone found by him, which is to be seen alongside the Caen stone, and observe how the former is absolutely uninjured by the weather, whilst the latter is crumbling away. It is possible that if STREET had lived he should have had to replace this decayed work with proper stone, at his own expense, in order to save his name." The moral to be drawn from the failure is that the eye is not always to be trusted, and that some kind of analysis or microscopic examination is desirable, in the case of monumental works especially. The defects, which we hope will only be partial, may be said to have a pathetic interest. The church was restored at the expense of Mr. HENRY ROE, who in undertaking so colossal a work had over-estimated the extent of his fortune. It is sad to think that the historic building he sought to preserve seems doomed to an early decay.

AN effort was made at the last meeting of the Sheffield education committee to obtain a more generous treatment of architects. Owing to competition and eagerness to obtain commissions the fees paid at present amount to no more than $2\frac{5}{8}$ per cent. of the contract amount, whilst in other places the lowest rate is 4 per cent. It was therefore proposed that the rate of remuneration should be referred back for further consideration, and one of the members said that he could not understand why a sweating system should be adopted in dealing with architects while standard prices prevailed with workmen. To this it was replied that there was no standard rate recognised by architects. That unfortunately cannot be denied, for the general tendency now is to go as far below the 5 per cent. standard as possible, and never to allow that rate to be exceeded. It was further argued that school buildings were repetitions. It was pointed out in support of the reduced rate that formerly the Sheffield architects received 5 per cent. commission, and it was their interest to increase the cost of the works. Now the arrangement was to calculate the commission according to the number of children accommodated. Originally the sum was 6s. a head, now it is 7s. 6d. Economy is an influential force, and as architects have few friends it is easy to make them appear as its enemies. In Sheffield they must therefore be satisfied with a 7s. 6d. rate, although it will bring in no more than a $2\frac{5}{8}$ per cent. commission.

THE first Church History Exhibition was opened in the town hall, St. Albans, by the Bishop of the diocese on Tuesday. It will close on July 15. Several lectures will be given, including three on the history of the abbey of St. Albans and on Gothic architecture.

The Archbishop of CANTERBURY has lent some manuscripts from the Lambeth Library. They comprise:—

1. *Service Book with Music*, supposed to have been written for St. Albans Abbey (large folio). Dr. FAIRFAX, organist of St. Albans, is said to have written the music (fourteenth century).
2. *Wycliff's Bible*.
3. *Missal* belonging to Archbishop CHICHELE (early fifteenth century), with initials, miniatures (with sacred history), and many scroll ornaments of the letters, with the arms of CHICHELE.
4. *A Psalter* of Flemish school (fifteenth century). The calendar to this manuscript has beautiful marginal ornaments in filigree work of blue and gold.
5. *A Psalter* (fourteenth century, on vellum), with a superb initial letter "B," in which is painted the "Jesse tree" and seventeen medallion pictures. The backgrounds of many of the illuminations are of burnished gold, with tessellated or mosaic-work architecturally treated.
6. *A Processionale*.
7. *A Book of Hours of the B.V.M.* (illuminated). All these manuscripts are fully described in the "Art Treasures, Lambeth Library," by Mr. S. W. KERSHAW, F.S.A.

GREEK archæology, which in many countries is studied with enthusiasm, owes much to Professor ADOLF MICHAELIS, of Strasburg University. He is one of the men who upholds the greatness of Germany, and his seventieth birthday, which fell on Thursday of last week, was celebrated with cordiality. His book on the Parthenon may be considered a classic. He is on the side of those who maintain that the scenes represented by the Elgin Marbles relate to the Panathenaic Procession rather than to the preparations for that ceremony. Like other able men in Germany, Professor MICHAELIS belongs to a family of teachers. At the time of his birth his father was professor in Kiel. From the first his studies were directed towards archæology, and with that object he spent years in close study in Italy, Greece, England and France. It was not until 1862 that he accepted the post of supplementary professor of archæology. Three years afterwards he became ordinary professor in Tübingen, and in 1872 he was advanced to Strasburg, where, in spite of all temptations by other universities, he has remained. With Professor MICHAELIS archæology is made to include ancient languages, for he believes that there was a close connection between art and literature, although each followed its own course.

THE experiment of the Guildford Town Council in cottage building will be watched with interest, for it relates to one of the necessities of our time. In so large a town it might be supposed speculators would be willing to provide accommodation. It may perhaps have been with the intention of inviting enterprise that it was proposed to borrow 15,000*l.* in order to erect fifty-six cottages and provide roads and sewers. Afterwards the scheme was reduced, and the loan desired will only be for 4,441*l.* for the erection of eighteen cottages. Plans were sought from three local firms, viz. Messrs. CLEMENCE & MOON, Mr. A. J. STURGES and Mr. T. J. CAPP; the borough engineer also sent a plan. The last was estimated to cost 258*l.* per cottage, while Mr. CAPP's was only 175*l.* The other competitors' cottages would cost 190*l.* and 195*l.* respectively. The cubic rate for the borough engineer's cottage was $7\frac{1}{2}$ *d.* and for the others 6*d.*, the difference arising from the quality of the materials used. The committee decided that a terrace of ten cottages should be erected from Mr. CAPP's design, but the frontage is to be 16 feet instead of 15 feet, and the front elevation below rough-cast to be of red bricks instead of stock. In that way 5*l.* 10*s.* will be added to the cost of each, making the total 183*l.* The architect's fees in addition to the 20*l.* premium are not to exceed 50*l.* Two blocks, each of four cottages, are to be erected from the borough engineer's plans, at a cost of 230*l.* The work is to be carried out by local builders if their tenders are reasonable.

THE FLORENTINE BAPTISTERY.

IT is usual in histories of architecture to connect the Baptistery of St. John at Florence with a Queen of the Lombards. Mr. FERGUSON, while adopting the belief, expresses some doubts about its accuracy. According to him the Baptistery "was originally the cathedral of the city, and was erected to serve as such apparently in the time of THEODELINDA, queen of the Lombards. If this was so, it certainly had not originally its present form, and most likely those columns which now stand ranged round the walls at that time stood in the centre, as in the Roman examples. If the original roof was of wood, it was probably in two storeys, like that of the Baptistery of CONSTANTINE, or it may have been a dome of more solid materials, like that of Sta Costanza." THEODELINDA is a somewhat mythic personage, and BOCCACCIO was not afraid to introduce her into one of his novels. She lived in the sixth century, when Florence, like other Italian cities, contained ruins which were spoils for builders. It is said there is still a stone in the Baptistery, although few visitors have seen it, which bears the name of AURELIUS VARUS, the Governor of the Florentine district. Many scholars have believed there was no rebuilding by THEODELINDA, for the Baptistery retains in plan at least the form of an octagonal temple, which might have been dedicated to MARS. The President DE BROSSES, who visited Florence in 1739, describes the building as "an ancient Temple of Mars of an octagonal form, which was metamorphosed into a baptistery contrary to the intention of those who founded it." It is hardly necessary to say that in the days of Imperial Rome MARS was regarded as the protector of Florence. At one time it was imagined that the civil and other wars arose from abandoning MARS and adopting St. JOHN THE BAPTIST as his substitute. DANTE, the poet, makes JACOPO OF ST. ANDREA announce himself as a Florentine by saying:—

I of that city was which to the Baptist
Changed its first patron, wherefore he for this
For ever with his art will make it sad.

DANTE seems to have had more affection for the Baptistery than for any of the other Florentine buildings. In one of the cantos of the "Inferno" he describes the holes in the rock which contained men who, like Lord BACON afterwards, for money delivered unjust judgments, and those who practised simony. He says:—

To me less ample seemed they not, nor greater
Than those that in my beautiful Saint John
Are fashioned for the place of the baptisters,
And one of which, not many years ago,
I broke for someone, who was drowning in it;
Be this a seal all men to undeceive.

The words are plain enough, and are intended as a rebuke to the enemies of DANTE, who charged him with the crime of breaking a font in a church which all Florentines were bound to reverence. LAMI, whom some accept as a great authority on the ancient city of Florence, interprets the lines as meaning that DANTE fell into one of the basins of water which surrounded the principal font and nearly lost his life. They used to point out one of the flags of the pavement and say it was there DANTE brought his stool whenever he wished to meditate. It may have been on one of those occasions that he was able to rescue the youth who, we suppose, was cooling his hands by dabbling in the water and overbalanced himself.

Did DANTE's thoughts, while he was seated, ever endeavour to create a history of the edifice? He was an admirer of the ancient Romans, and after his banishment from Florence he must have seen many of their ruined buildings. But when he sat in "mio bel San Giovanni" he probably was unable to realise the analogy between the building and some of those circular structures with which the Romans were fascinated. DANTE must have been acquainted with San Giovanni before ARNOLFO altered it. That architect removed various arches as well as tombs which surrounded the exterior, and

he cased the eight walls with black marble. Simple as the operations may appear when briefly noticed by VASARI, it is possible that much was sacrificed which was expressive of the original character of the edifice. GORI supposes that the building was erected in A.D. 430. But when we go back so far there is little difficulty in making an additional step and reaching the period when Romans rather than Lombards were the rulers of the floral district through which the Arno runs. As late as DANTE's time San Giovanni served as a cathedral. There was a new spirit in Italy through which Paganism ceased to appear as only an abomination, and the bishops would be more anxious than their predecessors to remove all features which were distinctly suggestive of pre-Christian ideas. For it is remarkable that almost simultaneously ARNOLFO altered or purified the Baptistery and prepared plans for a cathedral in Florence which was to be one of the wonders of the world.

The beautiful doors are now the chief attraction to most visitors, or, rather, the two by Ghiberti, which Michel Angelo considered were worthy of Paradise. Originally there was only one door to the Baptistery. When the single altar was removed in order that Ghiberti's gates might be inserted, it may have been feared that many other changes were to follow, but in subsequent years the building was untouched. The arrangement for baptisms was of a different kind to what is now seen in modern churches. The basins were of capacity to contain sufficient water to drown a youth. Provision was evidently made for the christening of others besides infants. It is impossible to determine the materials which were used for fonts, or how it was that DANTE was able by his unaided strength to break a basin and rescue a youth who was in danger. There can be no evidence on the subject, since one of the fonts which was supposed to be the most important centre of a group was destroyed by a prince of the Medicis in 1577. New arrangements were afterwards made, and the building still continues to be used for baptisms. Since the fifteenth century a register of the young Christians has been kept, and statisticians should know it was the earliest attempt of the kind in Europe. At first there was much opposition to so novel a record.

It is not to be supposed that the people of Florence became indifferent to the Baptistery when it ceased to be used for cathedral purposes. In 1506 a commission was given to GIOVANNI RUSTICI for the figures in bronze of St. JOHN THE BAPTIST, the Levite and the Pharisee. RUSTICI was a friend of LEONARDO DA VINCI, and it was believed by VASARI that the great master worked on the models. The figure of the Precursor has qualities which recall LEONARDO, and the contrast between the two flanking figures is worthy of him. The *Execution of John the Baptist*, which is the companion work, consisting of a central figure between columns, with the *Executioner and Salome*, is the work of VINCENZO DANTI. A third group by ANDREA SANSOVINO represents the Baptism of CHRIST. The silver altar was produced by sculptors or silversmiths, but it is noteworthy as suggesting that congruity was not always recognised, for the style of that costly example of metalwork comes nearer to Gothic than to Renaissance. For many amateurs the most important incident in the annals of the Baptistery is the competition for the gates. ANDREA PISANO had completed the southern gate, which alone was required in 1330, for, as we have said, there was only a single entrance to the building. The work was considered a marvel, and DANTE would have rejoiced if he could have seen such an adornment of his favourite building. When completed the work was received by Florence with as much delight as was shown towards CIMABUE's *Madonna*. Some seventy years afterwards the memorable competition was arranged for designs for the northern and eastern gates. Ghiberti, as is well known, succeeded, and his scenes, from Bible history, which are in remarkably high relief, receives greater attention from visitors than the building itself. It must

is admitted that the exterior of the Baptistery does not possess much architectural merit. ARNOLFO no doubt is responsible for the veneering of marbles, in which squares and oblongs preponderate. Ghiberti's gates appear to have more massiveness than the upper part of the structure.

The Baptistery will always have interest on account of the association with it of DANTE and many of the greatest sculptors and painters of Italy. But the archaeologist must continue to wish for information respecting the origin of the building. We know that in primitive days a division was made between worshippers, and there was secrecy not only about many of the dogmas of Christianity, but strangers were not allowed to be present at services. Hence it was that, where the opportunity offered, a supplementary building was used as a baptistery. The word is older than our era, for the "baptisterium" was a part of the Roman baths. However, a baptistery without a cathedral or a church, as was the case in Florence, is not easily understood. At a later period a round or octagonal church could be supposed to be an imitation of the Holy Sepulchre, like some of the English Mediæval churches. That stage was not reached when the Florentine Baptistery was erected. The building is therefore somewhat of a mystery, and there are no archives to aid in removing the obscurity of its early history.

THE CATHEDRAL OF ST. ASAPH.*

THE illustrations in this week's *Architect* complete the series devoted to the cathedral of St. Asaph. We pointed out in January last that ASA or ASAPH was head of the monastery and bishop of the district. It is not improbable he was one of the men ruled by St. KENTIGERN OF GLASGOW, who was the true founder of the see. The district was remote from either Winchester, York or Canterbury, and the history of the see during more than a thousand years was unknown to the majority of English ecclesiastics. There may have been records, but they were likely to have been interrupted during the conflicts between the Welsh and the English nations. It is, therefore, impossible to say with certainty whether there was a formal dedication of the church to St. ASAPH. In 1282 the Bishop was ANIAN II., who when a monk had accompanied EDWARD I. in one of the Crusades. He was appointed to the see in 1268. The whole region was in a state of tumult, for LLEWELLYN, though a vassal, to EDWARD, was eager to make Wales independent; and Bishop ANIAN was charged with aiding and abetting his efforts. It was, however, impossible to prove overt acts of treason. The Bishop was pardoned and allowed to undertake the erection of a cathedral which is supposed to correspond with a large part of the existing building. He died in 1292, and an old effigy of a bishop is presumed to represent him. His successor was LEOLINE DE BROMFIELD. A cathedral in those days needed a singing choir as an essential aid to the services. Bishop DE BROMFIELD, having obtained the approval of the Dean and Chapter, ordained that all the vicars choral who shared in the revenues arising from the benefice of Godelwern, in Merioneth, should alternately be present in the cathedral at all canonical hours and should chant the service (*cum notâ*) in regular course, according to the direction of the precentor. The dean and prebendaries of Vaynol and Llanufydd should provide three priests, being good singers and experts in the science of music, to assist the vicars choral at the time of Divine service, and that the archdeacon should send a person skilled in singing and organ-playing. The prebendaries of Alt Meliden and Llanvar were required by the same authority to furnish four boys, being good singers, as choristers for the daily celebration of Divine service. The arrangements continued until the close of the

seventeenth century, for the choir was upheld by the cathedral staff. "If they had not been gentlemen of generosity and zeal," according to BROWNE WILLIS, "the church must have lain in ruins, and inferior members could not have subsisted." These facts are interesting as evidence of a desire to uphold the efficiency of the cathedral, although it was only small in size, and stood in a district which might not be regarded as favourable to ecclesiasticism. One bishop sought to increase the revenue by a weekly market at St. Asaph; an annual fair was held with a similar object. The quarries from which stone was obtained for the cathedral were let out at a rent. The funds were always limited owing to local disturbances and the peculiar position of the diocese, which could be considered as English or Welsh according as an objector was disposed. The prelates who ruled over the see have sometimes Welsh names, but the majority of them must have been Englishmen. One of the latter, Bishop THOMAS GOLDWELL, is supposed to have taken part in the deliberations of the Council of Trent and was the only English prelate present.

Among the post-Reformation bishops was JOHN OWEN, who was elected in 1629. He seems to have been an innovator, for he destroyed the throne which RICHARD REDMAN had set up at the close of the fifteenth century. But he introduced one of a different design for himself; he provided seats and forms and erected a large organ. He was doomed to suffer during the Civil War. He was not only imprisoned and fined, but his lands were sold. The palace became a beer-shop, calves were penned in the choir, horses and oxen in the nave, and the font was converted into a trough. GEORGE GRIFFITH, who succeeded in 1660, must have experienced difficulty in cleansing and restoring the building. ISAAC BARROW was another eminent cleric, and WILLIAM LLOYD, who followed him, was one of the seven bishops charged with conspiring against the Government, whose trial led to the flight of King JAMES. MACAULAY describes him as "a pious, honest and learned man, but of slender judgment, and half-crazed by his persevering endeavours to extract from the Book of Daniel some information about the Pope and the King of France." He was one of the very few bishops who assisted at the coronation of WILLIAM III. WILLIAM FLEETWOOD paved a part of the cathedral and spent about 100*l.* in painting and adorning the choir. There was a storm in 1714, when the upper part of the tower fell into the choir, and the reparations were carried out at the expense of Bishop WYNNE. During the eighteenth century there were restorations which were still more fatal, and one of the ancient builders could not recognise the structure under the coating of stucco which LOUIS WYATT considered to be the best way of concealing the defects of the Gothic builders.

About 1850 the cathedral was visited by an archaeologist, and his remarks will suggest the characterless aspect of the building, which was produced by all the most important features being hidden beneath the respectable covering of cement. He says its great peculiarity is that it has no peculiarity about it. It is more uniformly built than English cathedrals in general; any further comparison only serves to point out its defects. We look in vain for some of the most beautiful features of the cathedral church—the lady chapel, the cloisters, the chapter-house and even the monuments. RICKMAN describes it as a plain cross church, principally in the Decorated style; and it certainly is a singular example of what appears a paradox, viz. Plain Decorated. We have only two dates to keep in mind—1284, when the walls and pillars now remaining were erected, at which time (EDWARD I.) the Decorated style had just been introduced, and 1490, when Bishop REDMAN put in the east window and raised the walls to the height at which they now stand; and then the Perpendicular had fully developed its distinctive features. A close examination supplies a proof of the fact of the different periods of building, for the upper part of the nave is not of the same workmanship as the lower;

* See Illustrations.

and while most of the church is built of a red soft stone, the east window is of white freestone; while the windows of the nave and transepts are Decorated, the five in the clerestory show that they owe their shape to the times of the Tudors. Among the beautifyings of modern times the clerestory has entirely disappeared from the inside. The ceiling is plain in the worst sense of the word, consisting, as it does, of plaster vaulting, with a few lines here and there to represent tracery. In the nave this style of roof has only lately succeeded a timber one of unornamented beams and rafters. The tower rests on four Pointed arches, in the western of which is the screen and organ. The transepts are blocked up to serve the purposes (north) of chapter-house, vestry and (south) of library. The choir is mainly "a modern re-edification, with much attempt at the imitation of ancient work, but with no real resemblance to any style, though the intention seems to have been the imitation of Perpendicular." The canopies of the stalls alone remain to attest the short-lived beauty of the original choir.

A building in that condition was not easy to restore. The mere removal of the stucco was insufficient. From the time of the Civil War the edifice had been subjected to much vandalism, and partial attempts at restoration would leave it still a ruin. The illustrations we have given reveal how skilful was Sir GILBERT SCOTT's treatment, especially if we compare the illustrations of the cathedral which appeared prior to its restoration. The principal window was flanked by a pair of hideous monuments, and indeed all parts of the sanctuary were mean. The pews extended almost to the altar-railings, and the pavement was broken. The nave and its aisles, said one writer, are plain almost to meanness. The columns are without capitals; instead of vaulting there are beams and rafters. Beneath the tower was plaster vaulting, and here and there were ribs and keystones without corresponding groining. In fact, the cathedral was not worthy of its name, whilst now it suggests not only its purposes, but the style which was favoured when Bishop ANIAN ruled the see.

HOLYROOD PALACE AND OLD PARLIAMENT HALL.

BY command of the King certain new arrangements are to be brought into operation connected with the admission of the public to the historical apartments at Holyrood, the objects of which are the better preservation of the rooms and furnishings, and the comfort of the many visitors who, in increasing numbers, make a pilgrimage to the ancient Palace. These involve, says the *Scotsman*, the employment of an increased staff of warders and cleaners, and it is in contemplation to attempt to regulate the circulation of visitors in the Palace, as is done in other places of the same kind, by taking them round the apartments in groups. This will tend to the better preservation of order and more efficient watching than is possible at present. It is interesting to note that on the Glasgow Spring holiday this year no fewer than 5,000 people visited Holyrood, and it is no uncommon thing during the summer season for 1,000 to 1,500 visitors to pass through the Palace on an ordinary day. So great an influx of visitors has rendered it necessary to consider the closing of the Palace one day a week for cleaning purposes, but the day of the week on which that will be done has not yet been decided. The day selected will be that which will inconvenience the fewest number of visitors. The new warders are all to be old soldiers, pensioners, in uniform. They will be under the care of a warder-sergeant, who will be placed in charge of the arrangements connected with the admission of the public to this part of the Palace. It has been also arranged by the Board of Works that photographs and guide-books of the Palace will only be sold in future at the porter's entrance gate. This will enable the warders in the historic apartments to give their undivided time and attention to visitors. It may further be noted that for several years past a number of skilled needlewomen have been employed in restoring the interesting and valuable tapestries with which the walls of several of

the historic apartments, notably the Queen Mary suite, are hung. The results of their labours are now seen in the improved state of the tapestries, some of which had been allowed to get into a serious state of disrepair.

During the approaching summer vacation a number of renovations of an interesting character are to take place under the direction of the officials of the Board of Works on the old Parliament Hall, now included within the suite of buildings dedicated to the Court of Session. A completely new floor is to be laid. The old floor, which is but no means the original floor of the hall, is at present very much worn. It will be replaced by a strong parquetry floor of oak and teak an inch in thickness, arranged in large panels, teak and oak alternating, with a teak border with coloured band. The elaborate open oak roof, the original roof of the hall, is to be cleaned. At present the colour of the oak of which it is composed is hidden under many coats of a reddish varnish. This is to be entirely cleaned off so as to disclose the fine old tone of the oak itself. The walls are also to be redecorated. Mr. Oldrieve, architect, H.M. Board of Works, is at present in consultation with Sir James Guthrie, P.R.S.A., as to the colour to be selected with which to paint the walls so as to set off to the best advantage the many fine pictures and statues with which the old Parliament Hall is adorned. The idea is to treat the wall in a flat colour which would give something of the effect of an old stone wall. The fine stained-glass picture window at one end of the hall, some parts of which have been fading, is also to be put right, the whole operations involving the expenditure of a considerable sum of money which has been voted for the purpose. The Society of Advocates is, it is understood, to take advantage of the pictures being taken down from the walls to have some of them cleaned and preserved—a delicate work for the superintendence of which they have been fortunate to secure the President of the Royal Scottish Academy.

NORTHANTS ARCHITECTURAL SOCIETY.

THE annual excursion of the Architectural and Archaeological Society for the archdeaconries of Northampton and Oakham commenced at Leighton Buzzard. The church of All Saints, Leighton, was first inspected. It is a fine building, with a massive tower and octagonal spire which are Early English, other portions of the fabric being in the Decorated and Perpendicular styles. Mr. Robert Richmond, who has made a careful study of the church, gave a short sketch of its history. From this we gather that the first record of any church at Leighton occurs in Domesday Book, where it is one of the three churches mentioned in Bedfordshire. In 1288 Nicholas de Heigham, prebend of Leighton, is stated to have left sufficient money to finish the building, the present tower and spire being the result. The ironwork on the west door was probably made by John of Leighton, as it is similar to the grille round Queen Eleanor's tomb in Westminster Abbey, which was also his work. This ironwork was removed to the end of the south transept in 1842, but replaced in its original position in 1886. At the restoration an ancient altar-piece was found hidden beneath the plaster, with enough of the original colour remaining to enable it to be renovated. The fine oak stalls in the choir, with their misereres, were much admired. The date of these is uncertain, but is stated to be not later than 1390. Probably they were not made for this church. Other features of interest are the carved Jacobean altar-rails and table. The church contains many monuments to the Leigh family.

After viewing an interesting Renaissance doorway, the history of which is unknown, the party looked at the ancient market-cross, which stands in the market-place. This reminds one somewhat of the better known Eleanor's Cross at Northampton, but its date is much later, probably about 1380. It was restored in 1850, when the original figures were taken down and set up at the adjoining market hall. They have since been replaced, and the newer figures now stand on pedestals round the hall.

Permission had been obtained to view the grounds which surround the stately mansion, Mentmore Towers, and command a magnificent view of the Chilterns. The gardens are laid out in the Italian style, and contain some fine examples of bronze statuary. The vicar (the Rev. F. H. Tatham) described the principal features of the church, and compared it with Brixworth, to which it bears a striking resemblance;

it was built probably under the influence of Augustine, in the Basilican style. The roof is of the fifteenth-century, and is elaborately carved; but the most noteworthy thing about the fabric is the Saxon apsidal chancel, with crypt beneath. The chapel of St. Catherine has been lately restored to the memory of a late parishioner, Mr. Charles Coates. The base of an ancient Norman font is to be seen in the porch. There are some elaborate monuments to the Dorman family, with recumbent effigies of Sir Wm. and Lady Dorman, in the choir, embellished by a fine display of heraldry. Although dating from 1590, they are in a well-preserved condition. At Stewkley another halt was made to inspect the church of St. Michael, one of the most beautiful and complete specimens of Norman architecture existing in England. It was built about 1150. Later the church was made over to the priory of Kenilworth, and the fabric was restored in 1862. The vicar (the Rev. R. B. Dixon) explained that the beauties of the church were rather lost on the villagers, as most of them were Dissenters.

Eaton Bray Church has recently been restored in a very conservative and excellent manner. The northern arcade of this building is of Early English workmanship, the foliage of the capitals and the clustered piers and mouldings of the arches being of great beauty. At the east end of the south aisle is a unique and charming window, combined with a reredos in the Perpendicular style. On the south door there is some rich ironwork by the same smith who hammered the hinges on the west door at Leighton Buzzard. The church at Totternhoe is late in style, being of the Tudor time; the roof, however, is of very good design and workmanship. With the exception of one small brass, the church is quite void of monuments. From thence back to the celebrated earthworks of Totternhoe Castle, situate on the brow of the chalk cliff, with its dry moat and keep. The old camp, known as Maiden Bower, which lies on the British road, which crosses the Ickneild Way, and the priory church at Dunstable were also included in the programme of the second day.

GREEK TEMPLES.

IN the *Architectural Record* for June (New York Architectural Record Co.) is an interesting article "The Greek Temple," by Mr. Jean Schopper, which is illustrated by photographs and reproductions of some of the drawings in the Ecole des Beaux-Arts. The following is one of the passages:—

In constructing their stone edifices, the Greeks, who were reasoners and logicians, followed certain rules, and adopted for each edifice a certain fixed proportion. What does this mean? It means that the proportions of the different parts of the edifice are simple proportions which can be reduced to a common measure. Take as an example the Temple of Pæstum, with which we are now dealing. The module is the mean radius of the column. This module measures 3 feet. The column is ten times the module, or say 30 feet. The distance between the axes of the columns is five times the module, say 15 feet. The total height of the entablature is also 15 feet, the width of the abacus is three modules, equal to 9 feet. It is thus seen that all these numbers are multiples of three, which is the module. In this manner the proportions of the different members of an edifice have a constant relation to each other.

It goes without saying that the module varies for each edifice; there is no single and absolute rule. For instance, in the Doric order the length of the column varies from ten to twelve modules; in the Ionic order from sixteen to twenty-one. The entablature of the Doric order measures five modules, and that of the Ionic only four.

Once these proportions were determined, the Greeks did not trust to calculation alone as regards the different parts of their building. They knew that an edifice was not an abstract thing, but a mass of stone surrounded by air and light, and that, after having studied the proportions on the plan, it was necessary to study the architectural forms in the light of day. That seems very simple, but it is not. We shall see to what a high degree of refinement the Greeks carried this concrete and realistic study of an edifice enveloped by a certain atmosphere. Every scholar is familiar with what we are going to summarise here; but architects, who ought to apply these methods, are ignorant of them. They still believe that the sky and light of Attica are the same as those of Paris, London and New York. This is a grave error. Who are the architects of our day that trouble

about these questions? So-called Greek and Roman edifices are built in London and Paris, and what an aspect is presented by those noble colonnades, coated with soot, under our fog-laden skies. In the United States the light is quite different from what it is in Western Europe; it has the clearness, strength and freedom from half-tints, characterising the light in Greece and southern Italy. Consequently the forms found by the Greeks are more in their native atmosphere in North America than in France, England, or Germany. It is true that they do not correspond to present needs, but that is another question; we are speaking now of light and atmosphere.

The Greeks observed that a smooth column melted in the light and that its lines were vague and uncertain. In order to restore its definiteness they conceived the idea of fluting it. The sharp ridges of the fluting, catching the light, contrasted with the dark hollows, thus giving body to the column and emphasising the vertical outline of the edifice; whence a double advantage. This discovery could never have been made on paper.

Then, as the abacus of the capital casts a shadow upon the top of the column, the junction of capital and column becomes indistinct. To restore the necessary effect, the Greek cuts several deep lines at the point of junction, and to emphasise them he paints them in a dark tone. Even the curve of the circular torus carrying the abacus is so designed that the bright light, striking upon the relief, shall fade into a shaded half-tint towards the hollow. Thus, as Viollet le Duc truly says, the Greek preserves, even in appearance, the forms which his reason tells him to adopt as being the best and most enduring.

"Even in appearance." This leads us to the subject of optical illusions, and we shall here see still more clearly that the Greek never let himself be guided by mathematical considerations, but observed and experimented directly upon the things themselves. He relied upon his senses, and especially his eyes, for the pleasure of which organs, in the long run, all things are intended. He thus noticed that cylindrical columns, when "dressed," appeared to be strangled in the middle. He therefore drew the lines of the shaft outwards. In the same way, the columns appear thicker or slighter according to whether they stand out against the sky or against the *cella* wall, painted in dark red. The open air "eats" away the corner column; therefore, the Greek makes this column thicker than the inner ones of the front.

Again, the Greek diminishes the interval separating this column from its neighbours, because the eye requires a force at the corner of the edifice.

The Greek observes that the vertical columns appear to incline towards the void; thereupon he corrects the seeming fault by making them lean a little towards the interior of the building.

Similarly, the fronton is not vertical, but inclined outwards, for the reason that if it was vertical it would appear to retreat.

The horizontal lines of edifices—all our edifices—appear to bend in the middle and turn their concavity upwards. The Greeks, guided as they always were by the experience of the eye, followed their usual method by deforming the horizontal lines either of the architraves or of the pavements upon which the colonnades rested. These curves are very slight. In the 330 feet of lateral frontage of the Parthenon the deflection required is only about four inches.

In short, the subtle Greeks, avoiding a slavish adherence to strict modularity and mathematical proportions, deformed their edifices in order that they should appear symmetrical to the spectator. Thus, as the high parts of an edifice are seen foreshortened by anyone standing on the ground, it is necessary to increase their dimensions so that they shall appear in harmony with the lower parts. And this is what the Greeks did, not only in the case of frontons, but also of statues which were to be viewed from below.

It must be confessed that we moderns have not had the wisdom to profit by the valuable lessons and remarkable experiences of the ancient Greeks. We have copied clumsily, more like children than like artists. We have adhered to the letter that kills rather than the spirit that quickens—and we have not even done that much with any precision. What contemporary architect takes account of the laws of optical distortions, although they are explained at length in many text-books? All modern architects ignore them. Judge, then, how far they are from discovering such things. The admirable Parthenon friezes in the British Museum have been placed on view at the height of a man; likewise the fronton figures; yet Phidias and his

assistants knew they were to be placed at a considerable height, which would oblige the person looking at them to gaze upwards, and treated them accordingly.

When one reflects upon these facts, which at first sight seem unimportant, one is led to the conclusion that our boasted art-culture is perhaps after all only a vulgar make-believe compared with the true art created by the ancient Greeks; and that we too deserve the name applied by them to those who were not of themselves: "Barbaroi."

ARCHITECT'S FEES IN THE TRANSVAAL.

In the Rand High Court before Mr. Justice Wessels, an action was brought by Mr. John Beauchamp Nicholson, a Johannesburg architect, on May 24, against Alexander Algernon Osborne, a speculator, of Bell's Buildings, Main Street, Johannesburg.

The action was for the payment of 790*l.* 10*s.*, being the balance of an account for professional services rendered and work done in the preparation of sketches, plans and specifications for the defendant.

In his declaration plaintiff stated that about January 1899 defendant instructed him to design and prepare sketches for a building to be erected at the corner of Joubert and Jeppe Streets, Johannesburg. Later, in March 1902, defendant further instructed plaintiff to prepare plans and specifications in respect of the said building. The amount of the remuneration to be paid for the work was not agreed upon between the parties. About four months later plaintiff completed the work and delivered copies of the plans to the defendant in September. The defendant subsequently approved of the plans and specifications. Plaintiff claimed that he was entitled to a fair and reasonable remuneration at the rate of 2½ per cent. on the estimated cost of 49,000*l.* of the building, viz. to the amount of 1,225*l.* In October 1902, at defendant's request, plaintiff prepared and delivered to him blue prints and photographs in connection with the building, and reasonable remuneration for this work was 15*l.* 15*s.* Defendant had not proceeded with the erection of a building, but had from time to time paid plaintiff several sums on account of his indebtedness, but an amount of 790*l.* 10*s.* was still owing.

In his plea the defendant said that about March 1902 he instructed plaintiff to design and prepare plans and specifications for the building of an hotel, which defendant intended to endeavour to float into a company, and it was then agreed by the parties that unless the flotation of the company or erection of the building were proceeded with plaintiff could only claim and be entitled to out-of-pocket expenses. About September 1902 he paid plaintiff 300*l.*, which plaintiff accepted as being in full settlement for the work done, it being understood and agreed between the parties that plaintiff would be entitled to no further fees unless the hotel building scheme was floated or the erection of the hotel building proceeded with. He had not been able to float the hotel into a company or proceed with the building, and plaintiff's right to any further fees had not yet accrued.

In reconvention, Mr. Osborne claimed from Mr. Nicholson 150*l.*, the amount of a cheque which, it was alleged, was dishonoured.

In his replication, Mr. Nicholson said that the plaintiff in reconvention gave him a promissory note for 150*l.* on October 18, 1904, on account of his indebtedness for plans and specifications. The note was payable on November 18, but it was agreed between the parties that, as a guarantee that Mr. Nicholson would not press Mr. Osborne for the payment of the promissory note on the due date, he should give Mr. Osborne a post-dated cheque, payable on the same date for the like amount. Mr. Nicholson had not received any value for the cheque now sued on by Mr. Osborne, and it did not represent any indebtedness by Mr. Nicholson to Mr. Osborne, and he did not owe Mr. Osborne the said amount or any part thereof.

Mr. Nicholson, in his evidence, corroborated what was set forth in the petition, and in answer to counsel said that when he asked Mr. Osborne for more money Mr. Osborne said it was not convenient to pay him just then, but he gave him a promissory note for 300*l.*, which the bank reduced to 200*l.* Witness was a member of the Transvaal Society of Architects, who worked under the rules of the British Institute. The usual charge was 2½ per cent. when the building did not go on, and 5 per cent. when it did go on. He did

some work for Mr. Osborne about 1897, and received 90*l.*, in extended payments, at the rate of 2½ per cent. Altogether he was employed in the work of preparing the plans and specifications, &c., for the hotel for a period of about seven months.

Cross-examined: He was doing other work during these seven months. 300*l.* would not cover his out-of-pocket expenses in connection with the work. They would be nearer 500*l.* The promissory notes Mr. Osborne gave him were not accommodation notes. Mr. Osborne owed him the money. He never asked Mr. Osborne for a loan.

His Lordship said he could not understand why plaintiff gave Mr. Osborne a cheque.

Witness said Mr. Osborne asked him to do it, and said there was every chance of financing the building in a very short time, and as it was a large building witness was anxious to go on with the work.

Mr. Fisher, a former manager of the Netherlands Bank, gave evidence as to Mr. Nicholson presenting various notes at the bank during 1903 and 1904. Three bills were for collection only. He remembered the bill for 300*l.*, which Mr. Nicholson said was for work done. He made inquiries as to Mr. Osborne's position, and as a result agreed to take it for 200*l.* for two months. The time was afterwards extended, and 50*l.* was paid off.

Professional evidence was also given that the estimated cost of the building was a fair one.

Mr. Osborne, in his evidence, said Mr. Nicholson told him he had only one job on hand at the time, and that he would prepare the plans for out-of-pocket expenses only, it being understood that the balance would be payable on the erection of the hotel. He gave plaintiff 300*l.* for the work done. He bore out in evidence the statements made in his declaration.

His Lordship, in giving judgment, said there was undoubtedly a contract between the plaintiff and the defendant; therefore, apart from any special contract, the plaintiff would be entitled to reasonable remuneration. He had not to decide whether 2½ per cent. would be reasonable, because that had been admitted. Defendant had alleged that there was a special contract, but the plea had not been proved by the defendant. It was now three years since the plans were given to the defendant, and the latter had endeavoured to make use of the plans, and had also admitted that had he built he would have made use of the plans. He could find no proof of any arrangement such as had been contended by the defendant, and therefore the claim of the plaintiff was practically admitted, that he was entitled to remuneration at 2½ per cent. upon the estimated value of the building. There would therefore be judgment for the plaintiff for the 790*l.* 10*s.* claimed, and costs.

WORKS IN THE ROMAN DISTRICT.

In his last report Mr. Consul Morgan says that the improved economic conditions of Italy have helped Rome considerably in its revival after a critical period. Traces are everywhere visible of the altered state of affairs. Large buildings all over the town and in the immediate neighbourhood, which had been left in an unfinished state for want of capital, have now been rendered habitable. The works connected with the municipal "Piano Regolatore," or general building improvement of the town, are in a very advanced stage, greatly to the improvement of the local sanitary conditions and to the convenience of traffic. The embankments, bridges, public buildings and gardens, sewerage, &c., forming part of the said "Piano Regolatore," have been constructed, and on the whole Rome now presents quite a different appearance. There is a growing public feeling that, as far as possible, the district should be emancipated from its traditional dependence on the influx of foreign visitors and rendered self-supporting, as in the case of the chief capitals of the world. The presence of visitors is subservient to so many contingencies, and the season during which they stay is limited to so short a period that the policy of giving the utmost economic independence to the city cannot but be encouraged. Visitors will continue to be drawn by the peculiar attractions of old Rome, and the money spent by them during their stay, a considerable sum, will, if anything, help to foster the industrial revival of the district.

Several years ago Rome was affected by a building crisis which involved considerable loss of money and put a sudden stop to the building mania. Consequently a great many houses in course of construction were left unfinished.

Of late, however, owing to the demolition for the sake of modern sanitary improvements of a great number of houses, the need has been felt of new buildings to meet the requirements of the increasing population. In order to encourage the construction of houses in Rome the Municipality have recently enacted certain regulations dealing with the matter. Among the facilities granted to would-be landlords, one of the most important is the exemption from taxes for a period of ten years on new buildings fit for habitation. Houses intended to be used as hotels, pensions, as well as those which are totally or partly inhabited by landlords, are excepted, and will not enjoy the privilege of exemption. That benefit will be extended to those buildings which were left unfinished at the time of the crisis, provided steps for their completion be resumed within three years and carried out previous to the expiration of double that period from the date of the regulations in question. The privilege of exemption from payment of the tax is limited to houses let to private individuals, provided that the yearly rent payable for each flat or apartment does not exceed 48l.

A firm of Belgian bankers have recently formed a company with the object of building an electric railway line between Rome and Civita Castellana. The capital of the company is 140,000l. The distance between Rome and Civita Castellana by the existing railway line is about fifty miles, and the proposed new line, which follows a regular and direct track, will shorten that distance by fifteen miles. It is proposed that the electric railway should touch Scrofano, Riano, Castelnovo di Porto, Morlupo, Morolo, Rignano, Campagnano, Magilano, Sant' Oreste, Faleria, Calcata, and reach Civita Castellana, passing through fertile grounds covered with olives, vines and forests. At Civita Castellana there are several manufactories of earthenware and ceramics, as well as quarries of travertine. Near Scrofano there are springs of sulphurous water.

It is expected that there will be a great increase in the exportation of products belonging to the district to be served by the new railway, as a great many of the above-mentioned villages are now almost cut off from the centres of consumption and experience great difficulty in carting their produce.

The method, as in the present instance, for contractors and others to bind themselves to use nothing but national material in so far as it is possible to do so seems to be now prevalent in this country. This is done mainly with the object of enlisting the sympathies of the authorities and the public, as well as to foster national industries. If the import duty in Italy, which in many cases is of a protective character, is taken into account, there is no doubt that future contractors will greatly benefit by being able to get locally what they would otherwise have to obtain from abroad. Foreign manufacturers will have to open local branches.

Steam turbines will be used to produce the necessary motive-power, and the system of the current will be monophasic. The train will consist of an electric engine and comfortable carriages for passengers, as well as vans for goods. Trains for the district will leave Rome every two hours. The company contemplates later on extending the line further inland as far as Viterbo.

In one of his previous reports Mr. Morgan explained the result of private efforts to carry out improvements in that tract of land encircling Rome known as the "Agro Romano." It became apparent in course of time that the legislative measures adopted in the past were inadequate for the object in view, and it became necessary to revise legislation on that particular subject so as to hasten the draining of a district which had been left to itself for centuries, greatly to the detriment of the city and of public health.

On December 13, 1903, an Act was passed by the Italian Parliament. The new law is the fruit of past experience, and it is hoped that through its operation the "Agro Romano" will be effectually reclaimed. By this Act exemption from taxes on lands, buildings and live-stock is granted for a period of ten years to all those who carry out agricultural improvements on abandoned land. Exemption from house and cattle taxes is also granted, provided the landowner dwells or stores his products on the spot, and the live-stock is used for work on the land or for dairy purposes.

Government further grants a reduction on registration and mortgage taxes on any deeds or other documents connected with improvements, on condition that the latter be carried out within five years from the date of execution of the deeds. Landowners effecting agricultural and other

improvements may obtain loans from the Government at the reduced interest of 2½ per cent. per annum. The sums thus lent by the Government will be paid over to the landowners in half-yearly instalments, in proportion to the amount of work completed during the half-year covered by the loan.

In the case of a landlord refusing to comply with the enactments of the law, his property will be expropriated and sold by public auction. Should no tender be received the State will purchase the property at the price fixed by three commissioners appointed by the President of the Court of Cassation, and Government is empowered to dispose of the property on its own account.

The necessary funds for the purchase of unclaimed land as well as for the loans to landowners will be supplied to the Government by the "Caisse" of Deposit and Loans, a special department attached to the Italian Treasury, at a yearly rate of interest not exceeding 4 per cent. The difference between the interest charged by the "Caisse" and that payable by the landowners to Government will be defrayed out of the Budget of the Ministry of Agriculture, Industry and Commerce. Government allows certain facilities to purchasers of expropriated lands, provided they carry out the necessary agricultural and other improvements, such as payment of the purchase price spread over a number of yearly instalments, the first of which must not, however, be less than one-tenth of the purchase price. Government will not be empowered to withdraw from the "Caisse" more than 80,000l. a year for the above object.

Roads will be opened by the Government, but the various municipalities will have to contribute one-half of the required expenditure, and will bear the whole expense of the keeping of the roads in good order.

The Municipality of Rome will supply and pay out of its own budget twelve doctors for medical assistance in the "Agro Romano," and will also open schools for boys and girls in all villages having a population varying between 200 and 800 inhabitants, provided such villages are situated far from the district schools already existing.

At Civita Vecchia the building of the new pier which is to close the southern entrance of the harbour is progressing very slowly, and will take fully one year more before it will join the southern extremity of the old breakwater, and thus close effectively the whole entrance.

The part of the northern breakwater destroyed during a gale in 1902 has not yet been rebuilt, and there is little or no probability of the work being taken in hand until the southern entrance is closed and the new quays completed.

The new railway which is to connect the port with the station is still unfinished, and likely to remain so for some time, notwithstanding the fact that its completion is of the utmost importance, owing to the primitive, costly and tardy method which is still in use for carting all goods to and from the station, and which may be considered as the principal cause of this port's lack of development.

After many years of expectation, and after a considerable delay in choosing one out of many projects for providing the town and harbour with a more wholesome and adequate supply of water, the plans of Signori Manassei e Sinibaldi have now been decided upon and approved by the local authorities, and the work commenced at once. The supply of water is derived from the springs of Oriolo Romano, a distance of about twenty miles, and will be conducted to Civita Vecchia in iron pipes, capable of carrying about 4,000 tons per day. A reservoir with a storing capacity of over 5,000 cubic metres is being built on one of the hills overlooking the town at a distance of about a mile, and from here the water will be conducted into town and distributed to every house. The contract price of this work is 60,000l., and it is hoped to have it completed in two years.

The cement factories, of which there are two, are yearly increasing their output, and a considerable quantity of cement is carried by rail to Rome or even further inland.

The Old Cross of Newton, N.B., which formerly occupied a site in Main Street, and has for many years lain in the Newton churchyard, has been re-erected on a site in River Street between the old and new bridges. The historic pillar, which has been handed over by the freemen of Newton to the Town Council of Ayr, bears the inscription, "Neutoun, 1675; rebilt, 1775," and is erected on a new pedestal. The Town Council will erect a railing round the structure.

NOTES AND COMMENTS.

THE numerous admirers of the works of Mr. E. J. GREGORY, R.A., must rejoice at his success in passing through the ordeal of the auction-room. To have a large number of paintings and drawings put up together at the close of the season was a test which few artists could sustain. The prices obtained cannot be said to correspond with the value of the pictures, and under other circumstances much more would have to be paid. The brilliant *Boulter's Lock* is worth more than 770 guineas, for sooner or later it should be in one of the public galleries. Birmingham made a try for it, but without success. *Marooned* was too cheap at 280 guineas. The water-colour *Après* realised 400 guineas. It must, of course, be remembered that the present time does not seem favourable for pictures, however excellent. But the results of the GALLOWAY sale are sufficient to prove that several years' enjoyment of pictures can be obtained at almost a nominal rate.

ONE of the snares of contractors is in undervaluing possibilities. In the majority of cases plans and specifications do not represent all the difficulties, for the architect or engineer is generally limited in the time which is allowed for investigations. There are no fees for the long labour which might be required in the ascertaining of foundations, and much must be left as risk which the contractor should take into account. A case which came before Mr. Justice WALTON in the High Court on Monday suggests the consequences to contractors where they undervalue or ignore serious difficulties. His Lordship had already heard the case at the Manchester Assizes. In 1888-9 Messrs. SHAW and Messrs. FAREBROTHER entered into contracts with the Wilmslow District Council for drainage works. As the operations were not satisfactory, the Council claimed heavy damages for breach of contract on the part of the defendants. The latter denied liability, and counter-claimed for extra work and materials. The dissatisfaction arose out of quicksand. It does not seem to have been expressly stated in the specifications or shown in the sections that such a material was to be encountered. There are precedents for such a mode of description, but it is time they were abandoned. Mr. Justice WALTON, who evidently had sympathy with the contractors, inferred that there was knowledge of the presence of quicksand, for certain provision was made for concrete and timbering. His Lordship also pointed out that the other contractors sent in much higher tenders because they were aware of the obstacle. It is always very hard for experts to determine what are the causes of the differences in the amounts of tenders which are published every week. Without special evidence it would not be safe in the Wilmslow case to suppose that the fear of quicksand controlled the estimates. As for concrete and timber, they might be intended to serve for other purposes. Mr. Justice WALTON admitted that the case was a very hard one, but contractors could not be relieved from their obligations, and he would himself determine the amount of damages.

THE New Museum of Oxford is the strongest example in this country of Ruskinism in architecture. It was designed by Messrs. DEANE & WOODWARD, and was intended to be expressive of some of the plants and animals of England. Those who condemn the style and the planning must admit the beauty of the ornament. FERGUSSON considered the building was the *reductio ad absurdum* of architecture, and, judged by his canons of the art, it may appear strange, but it must always have interest as a memorial of a time when JOHN RUSKIN was a power among the undergraduates. Like so much else with which he was connected it was never finished. The animals and plants which were to give animation to windows and doors, capitals and corbels, had to be limited owing to the cost of the carving. It is therefore

satisfactory to learn that the Rev. H. T. MORGAN, M.A., of Trinity College, has, with the permission of the delegates, undertaken to remove a part of the bareness by having some of the blocks which serve as capitals completed as they were originally designed. The whole of the work would be too onerous a task for an individual, but Mr. MORGAN's enthusiasm may inspire others to imitate him.

AMONG the buildings visited last week by the Durham and Northumberland Architectural and Archæological Society was the school in the village of Ford. It is remarkable for containing a series of figures in fresco, or what is sometimes called fresco in this country. They were all painted by Lady WATERFORD during her thirty years of widowhood. One was produced each winter. The figures represent Biblical characters, though they are all portraits of individuals who lived upon the estate. Mr. HOLMAN HUNT has described them, it is said, as works of the highest art. Many of the figures can be identified. The *St. John the Baptist* was a ploughman, who is now living in Manchester. The rector considers the figures have been useful, for the children and adults of the village are taught by them to realise that the people mentioned in the Bible were once living and not imaginary beings. The drawings made by the children of the school are above the average, which may arise from having the paintings always before their eyes.

THE French Government and the Municipality of Paris have agreed to erect, near the building in the Champs-Élysées where the Salons are held, a memorial of the French School of Landscape Painters of 1830, and especially COROT, TH. ROUSSEAU, MILLET, JULES DUPRÉ, DAUBIGNY and TROYON. The commission for the monument has yet to be given, and we cannot imagine its character. But all who are acquainted with French landscape will agree that it will not possess suggestiveness or veracity unless there is a recognition by Frenchmen of their indebtedness to CONSTABLE, BODINGTON, CROME, COTMAN. Their works, although only occasionally seen, excited an interest that made them appear allied to the literary efforts of the first Romantics. There is no necessity to undervalue the earlier French landscapists, CLAUDE, POUSSIN, WATTEAU and PATER. But between 1820 and 1830 the customary desire for novelty had taken possession of French amateurs, and academic combinations of trees, water, hills, ruins, all arranged according to rule, did not satisfy French taste. CONSTABLE, and next to him BODINGTON, inspired the innovators whose names are to be associated with the memorial. If it should be said the French artists went beyond the Englishmen, that is only a common occurrence in the history of art.

ILLUSTRATIONS.

GAILEY RESTAURANT FROM ALDWYCH.

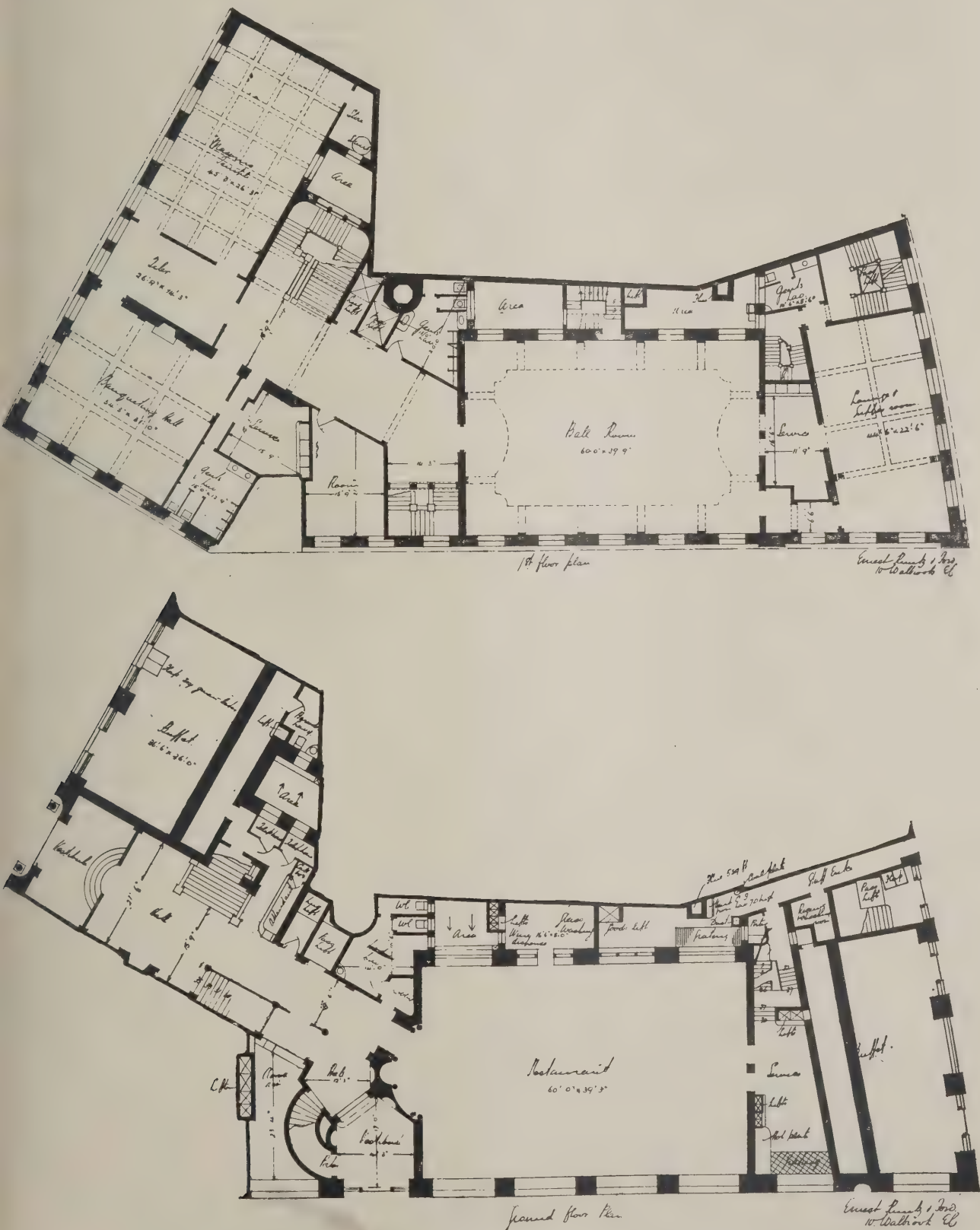
WE publish this week the exterior of the imposing building in the Strand. The Florentine period of the Italian Renaissance was adopted upon the suggestion of Mr. NORMAN SHAW, R.A., whose services and advice with the architects, Messrs. ERNEST RÜNTZ & FORD, cannot be over-estimated. The bold masses simply fenestrated and surmounted by the interesting carved frieze, of which illustrations have appeared in *The Architect*, cannot fail to arrest the attention of passers-by. The whole of the façades are executed in Portland stone, and the cornice, fixed at a height of 80 feet, is the largest in London, below which is the ornamental frieze, the work of Mr. HIBBERT BINNEY; beyond this rises a two-storeyed Mansard roof built entirely of steel and concrete. The remainder of the carved ornamental work was entrusted to Mr. GILBERT SEALE, of Camberwell.

CATHEDRAL SERIES.—ST. ASAPH: THE CHOIR, NORTH SIDE—
INTERIOR OF CHAPTER-HOUSE.
PART OF SAVOY HOTEL.

THE POSITION OF THE MUNICIPAL ENGINEER.

THE annual meeting of the Association of Municipal and County Engineers was held last week in Norwich. Mr. A. E. Collins, the city engineer, delivered an address. He said:—My connection with municipal engineering is co-equal with the life of this Association. I have seen great changes in public work. The growing town in which I served my articles had a population of some 60,000, yet the professional work of the borough engineer's office was done by the borough engineer and three pupils, there being no paid assistants. Probably this is representative of the small

volume of work passing through most municipal offices in those days—quiet days never likely to recur for municipal engineers. Since those days constant additions to the statutes we have to administer, the gradual abolition of the contractor, and continuously growing demands by the public for greater convenience, healthiness and beauty in connection with all public works have enormously increased our duties, and to-day their volume and variety is so great that a growing town of 60,000 inhabitants, to insure the proper prosecution of its public works, must provide its engineer with a considerable and varied expert staff. Our work is of such a wearing, anxious and absorbing character that more than any class of officers we should



GAIETY RESTAURANT.—PLANS.

be relieved by the public we serve from as much anxiety as possible, and it is for the public advantage, at least as much as our own, that such should be the case. Borough and county engineers and engineers holding similar appointments under local authorities generally, whom I will hereafter describe under the collective term "municipal engineers," are more liable to earn dislike in properly carrying out their duties than any other officers of such authorities, and cases often occur where antagonisms made by the performance of duty have caused the driving from office of some of the best members of our profession.

A man whose position is endangered by enmities caused by the proper performance of work and duties is not so free to serve the public properly as were he efficiently protected. The absorption and anxiety attached to our work and the inadequate salaries usually paid prevent us from making such provision for the future as men relatively as successful in ordinary walks of life as we are in our own. I doubt whether any other profession or business exists where the amount of study and work of preparation and constant daily anxiety are so great relatively to incomes earned as in our own. I do not remember a single case of one of our profession accumulating an ample competence from its practice. The greatest of prizes in it are small compared with those of other employments demanding anything approaching the same continuous, anxious, responsible labour. The Local Government Board, the central authority to which so much of our work is subject, have not given the position of municipal engineers the consideration it requires and deserves. It appears, in fact, that we are purposely placed in an unfair position by the Board whenever it is possible to do so. For instance, many consents of the Board to local authorities to raise loans for works designed and carried out by municipal engineers have been conditional upon these engineers receiving no payments from the loans. At the same time payments are authorised to clerks to local authorities, whose work relative to the matters in question is not a tithe of that of the engineers. Further, it is not prohibited to make loans to engineers in private practice.

Municipal engineering is a living, growing profession, having to do consequently with ever-changing practice. For a municipal engineer to keep pace with his profession, and to give the best service to his authority, he must constantly inspect and study the newest developments, and our Association arranges visits of inspection to municipal works of all sorts to aid its members in this; yet the Local Government Board requires its auditors to surcharge payments by local authorities of expenses to our members in attending our meetings. This action of the Board, more than anything else within my knowledge, shows the necessity for it to make the most careful and searching survey of its position relatively to municipal engineers. It is necessary to local authorities for their engineers to have the fullest knowledge of the progress of municipal engineering. At the same time, it is unfair and unjust for their engineers, mostly an underpaid class, to be out of pocket in obtaining such knowledge for the benefit of their authorities. Again, the Local Government Board, when appointing inspecting engineers, whose chief duties are to hold inquiries and report on work done by municipal engineers, should endeavour to fill vacancies from the ranks of municipal engineers; it is rarely, however, that such is done. I believe it would be to the advantage of the public generally if municipal engineers of ability and experience were appointed to such positions, and if they could look forward to occupying these appointments as the reward of good service. The Local Government Board could greatly help local authorities, the public and municipal engineers by obtaining authority from Parliament for, and requiring that none of our appointments be held by other than competent properly paid men, and by protecting such men when appointed from improper dismissal. Further, the Local Government Board should itself promote legislation insuring superannuation to engineers, town clerks and other officials of local authorities now omitted from superannuation schemes. This superannuation is already the case with Poor Law and asylum officers, police and others.

The Association of Municipal and County Engineers have done great preparatory work towards enabling the Local Government Board to insist on none but competent persons being appointed as municipal engineers. For the whole of its existence the collection and dissemination of knowledge necessary to the efficient performance of duty has been almost its sole aim. During this time the professional capacity of municipal engineers has vastly in-

creased. Even I am able to remember the case of a man who was borough surveyor of a town of over 100,000 inhabitants who did not know how a sewer-manhole should be built, and had to send outside his own office for a design. To-day any one of us is expected to design and carry out works of the most intricate and complicated character, and in the great majority of cases we do it and do it well. Again, as assisting the Local Government Board in connection with municipal engineering appointments, the Association has for many years conducted examinations to ascertain the suitability of candidates for such appointments, and before permitting a candidate to sit an examination, insuring that his education, training and experience are such as to be likely to fit him for his profession. The preliminary investigations and the examinations themselves are so carefully and thoroughly performed that the risk of an unqualified man receiving our certificate is reduced to a minimum. Without going further into detail as to the manner in which the Association has done its utmost to enable it to be known who are competent, I think I have said enough to show that we have done our part in paving the way for the Local Government Board to assist public authorities and ourselves in appointing and retaining efficient engineers. To obtain the advantages which we are entitled and justified in expecting, each individual of us must use his influence wherever and in whatever direction he can exercise it. We must educate the members of the authorities we serve, the public, and last but not least, members of the Legislature with whom we come into contact, with respect to the benefits to the public and the fairness and justice to municipal engineers and the officials of local authorities, arising from granting what is asked. One of the most important matters for our discussion at this meeting is that of new streets and building by-laws, a subject which has for a long period been under the very serious attention of your Council, aided by the able and painstaking sub-committee to whom this subject was referred. Whilst I will not anticipate the paper and discussion on this subject, I desire to express the hope that, as the result thereof, we may greatly help toward showing how pleasant, comfortable, sanitary, safe and durable houses may be erected at less cost than is possible under the by-laws now generally in force. I will only add in this matter that excessive fear of fire is, in my opinion, responsible for some of the present troubles. In concluding, I desire to express the hope that this meeting in Norwich will be remembered hereafter as a most valuable and enjoyable one, and that during my year of office I may be able to help the progress of our Association.

OXFORD ARCHITECTURAL AND HISTORICAL SOCIETY.

THE annual general meeting of the Oxford Architectural and Historical Society was held in the lecture-room at the Ashmolean Museum. Mr. J. L. Myres, F.S.A., of Christ Church, was elected president for the ensuing year. Mr. F. Madin and the Rev. W. Maunsell Merry were appointed auditors.

The Secretary, in presenting his report for the year, said the Society was in its sixty-seventh year, and continued to be a rallying-point for those who desired to incorporate their zeal for architecture and history. The number of members steadily increased, thirty-four new members having been elected during the past year; at the same time the known loss, through death and resignation of eight members was to be regretted, and the feared loss of fifty-six more owing to nonpayment of subscriptions. The Society desired to record its gratitude once more to those who had taken a leading part in its conduct, especially to the President, who had given much time and thought to its affairs in the midst of many University and other engagements. Mr. Allfrey had also earned its thanks for his readiness to assume the office of acting vice-president. As in former years, the activity of the Society had been most widely displayed by its excursions and evening meetings. Visits had been paid to the following places outside Oxford:—Kidlington, Cumnor, Hampton, Boyle, Sandford, Littlemore, Merton and Charlton-on-Otmoor, Bloxham, Adderbury and King's Sutton. It was a pity that a larger number of members did not take the advantage offered of enlarging their acquaintance with places of interest in the surrounding country, and it became a subject of serious consideration whether it was worth while to arrange excursions of interest apparently only to some score of its 276 members. Visits to

ices of interest in Oxford were more popular. The Society desired to record its sincere regret at the death of Rev. H. L. Thompson, who had always been ready to place his exceptional knowledge at its disposal. The evening meetings also had an average attendance of about twenty members and friends. Mainly owing to the zeal of the President, lectures had been given by Mr. R. N. Hall, Professor Flinders Petrie, Mr. Louis Dyer, Dr. Odgers, the Rev. Gregory Smith, Mr. G. H. Blakiston and Mr. P. Manning. In conclusion, it was fitting that the Oxford Architectural and Historical Society should express its congratulations to the Archæological Society of the neighbouring county of Bucks and its hope that the exhibition about to be held in commemoration of its jubilee would be successful in stimulating the true antiquarian spirit, which was the concern of both societies to foster to their utmost ability.

The report was adopted.

RUTLAND ARCHÆOLOGICAL SOCIETY.

THE members of this Society recently joined in an excursion to the Fens at Northborough. The manor-house, or, as it is locally termed, the Castle, was inspected. The house not only is interesting architecturally as being one of the few remaining examples of fourteenth-century domestic architecture, but has historic associations as having been the home of Oliver Cromwell's daughter, Elizabeth Claypole, and also the place where the Protector's widow ended her days. Passing on to the church, a structure exhibiting features of Norman, Early English and Decorated periods, a short time was occupied in an examination of its architectural details. The west front, surmounted by a bell-cot, is the earliest portion of the building, being twelfth-century work; the nave, aisles and chancel are Early English, and the large south transept, known as the Delamare and later as the Claypole chapel, is a fine example of fourteenth-century Decorated architecture. This part of the church is the reputed resting-place of her whom Charles II. irreverently called "Old Noll's wife." The visitors then left for Crowland, the drive through the Fens being very enjoyable, and passing the unique "Triangular Bridge," the abbey was reached. The secretary, Mr. Crowther-Beynon (who had also furnished a description of the castle church at Northborough), gave a brief history of the abbey from the landing of Guthlac in 699, tracing the fortunes of the building through its long course of misfortunes due to unstable foundations, marauding hordes of Danish invaders, numerous fires, earthquakes, storms and Puritanical iconoclasts. A tour of inspection of the ruins was then made, special note being taken of the west front, the chief glory of the abbey. The majestic Norman arch of the central lantern was also admired; but to attempt to describe Crowland in detail would be an endless task. After separating for lunch the party reassembled at the bridge at 2.30, and the return journey was begun. After viewing the very interesting little Norman church of Peakirk, with its most striking south door and tympanum, and also the hermitage (the building now standing on the site of the cell of St. Pega, Guthlac's saintly sister), under the guidance of the rector, the return was made to Helpston station.

RECONSTRUCTION OF CALCUTTA.

THE uneasiness caused by threatened and improper, or at any rate most impolitic, acquisitions of land round Government House would appear, says the *Indian Engineer*, from all that is being said, and even published, in Calcutta, to form part of a widespread feeling that the Government, from whom considerate sympathy for the classes to whom, more perhaps than any other, the capital is indebted for its great and growing prosperity, could hardly have behaved more inconsiderately and more unsympathetically. The city is on the eve of reconstruction, during which some considerable changes must be brought about in its internal conformation. It had been hoped that, while the reconstruction proceeded mainly upon sanitary lines, economic considerations would not be entirely banished from view; and that, while both the labouring and menial classes would be cleanly and cheaply housed, within easy reach of their respective spheres of work, accommodation would also be provided to meet that growing expansion of business which bears to the material prosperity of the city something of the

relation that the tissue-making blood circulation bears to the human body. In this state of uncertainty and expectation, the Government, without any indication of probable developments resulting from the approaching city improvement scheme, pounces down upon the heart of the business quarter and gravely announces to places of business which have been in existence for over half a century, that their premises are needed for the "public purpose" of housing Viceregal domestics, bandmen and stable boys with their horses—all of whom might now be where they are or be removed half a mile further from Government House without the least inconvenience to anyone worth thinking of—while no hint is given where the displaced business places are to go, though they cannot go far without serious loss to themselves, and, what is worse, without grave inconvenience to thousands of residents who resort to them. The fact that present busy scenes of traffic will remain closed for eight months of the year, while their cold weather occupants are in Simla, appears never to have entered the thoughts of those who have planned this extraordinary manœuvre, which is not unnaturally regarded by its victims in the light of an arbitrary spoliation. The claims sometimes advanced on behalf of the Viceroy to statesmanship make it incredible that His Excellency can be so entirely wanting in the sense of proportion, which is an essential element of statesmanship, but of which an entire absence seems to be the distinguishing feature of the proposed manœuvres. If the Viceroy has merely given general instructions, which departmental subordinates have mistaken, His Excellency owes it to himself to put a stop to the mischief which has been set agoing. In the other contingency the public surely owe to themselves at least to tell the authorities what kind of treatment they reasonably expect from the Government.

THE HEATING OF BUILDINGS AND DUST DEPOSITION.*

IT was with some hesitation that I yielded to the renewed request of my friend, your former president, Mr. W. R. Maguire, to prepare a paper for your annual meeting, as I am a learner, not a teacher, in your midst. As, however, you did me the honour of electing me the first honorary member of your Institute, I felt it would be an ungracious act on my part if I made no attempt to comply with this request, though I fear there is little I can say that will be of much practical service to you.

Certainly none of the practical applications of science are more important and few so little understood as the two subjects which this Institute was founded to promote, viz. the efficient heating and ventilation of buildings. It is true these subjects have been and are discussed at the Institute of Civil Engineers and at the Institute of Architects and at other societies for the advancement of pure and applied science. But in the complex human life of the present day the tendency is towards greater specialisation, and both engineers and architects, and professional men generally, have so many other duties to claim their attention that they are glad to delegate to a special class of experts the study and the practical carrying out of particular branches of their profession. Hence the union of those who are engaged in the actual business of warming and ventilating buildings is an excellent idea, for the reading and discussion of papers on these subjects, the interchange of opinion, and above all, the collection and publication of the practical experience gained in the numerous undertakings you have carried out—both as regards the relative efficiency and economy of different systems, as proved by the actual results you have obtained—these are questions of the greatest value to the health and comfort of mankind.

Let me now turn to some of the scientific aspects connected with the subjects of heating and ventilating. All heating appliances depend upon the transference of heat from some source to the parts of the building it is intended to warm. I need hardly remind you that this transfer can be effected in three ways: by the slow process of conduction, by the quicker process of convection or by the swift process of radiation. In the case of hot-water pipes all three processes are at work, the heat is conducted through the iron pipes, which warm the room both by radiation and convection. In the case of an open fire radiation is practi-

* A paper read at the summer meeting of the Institution of Heating and Ventilating Engineers at Bristol, on June 20, by Professor W. F. Barrett, F.R.S., &c.

cally the only agent by which the heat is distributed to the persons in and to the walls of the room. As the air is almost as transparent to radiant heat as it is to light, the air of a room cannot be warmed by radiation, and hence our domestic open-fire grates warm the room indirectly by heating the floor, walls and furniture, and these absorbing the radiant heat warm the adjacent air by convection. This latter process consists, as you are aware, in the transfer of heat by moving masses of the warmed air or other fluid, the motive force being gravity, the colder denser air displacing the lighter warm air. These currents are the means by which all fluids are heated, as both gases and liquids are extremely bad conductors of heat.

A few years ago a make-shift mode of warming a small room was introduced, which is no doubt familiar to you; the ordinary glass globe round a gas flame was replaced by an enamelled iron globe closed at the top. At first sight it would appear that such an arrangement would simply obstruct the light of the gas flame and give no heating advantage. But as a matter of fact a small room can be much more quickly warmed in this way than by a naked gas flame. I made several experiments during one winter to test the matter. By suspending thermometers at different heights above the floor the naked flame was found, as might be expected, to heat the upper layers of air near the ceiling, as its heat energy was chiefly expended in producing convection currents; hence the walls of the room and the lower strata of air were hardly warmed at all. With the iron globe on a very different result followed. The temperature of the air near the ceiling rose but slightly, the heat energy was now largely expended in radiation from the hot globe, and so the walls of the room and thus the atmosphere in the lower part of the room were comfortably warmed. Thus the paradoxical effect is explained, greater heating efficiency being produced without any increase in the consumption of gas. Of course the system is a bad one owing to the vitiation of the air by the products of combustion, but the atmosphere of the room can be changed after the gas is extinguished, and the walls will still retain a certain warmth. I only mention this in passing to show that an elementary knowledge of experimental physics enables one to clear up the anomalies that frequently arise in the course of your work.

In connection with the subject of ventilation, an instructive set of experiments has recently been made by my colleague, Professor W. N. Hartley, D.Sc., F.R.S., on the proper construction and effective ventilation of fume chambers employed in a chemical laboratory. A paper embodying the result of these experiments was read by Professor Hartley before the Royal Dublin Society in March last.

Now let me turn for a few minutes to the vexed question of the heating and ventilation of large public buildings. The evidence given before the select committee on ventilation appointed by the House of Commons in 1903 contains much instructive matter, and shows that in buildings mechanically ventilated by driving in warmed air a lack of freshness is produced for which no adequate explanation has been found. Few systems have excited more animated, and in some cases interested, controversy than that which has been called the Plenum method of combined heating and ventilation. Some architects are apt with too little discrimination to specify this system in the various public buildings they design. But as you are all aware, the Plenum system, whilst it has merits of its own, has also very grave defects, and when used at all must be used with great discrimination and only applied to special cases. One of the most perfect examples of the Plenum system is to be found in the Royal Victoria Hospital, Belfast. The architects of that building, Messrs. Henman & Lea, read an admirable and exhaustive paper on the subject before the Royal Institute of British Architects, which was printed in extenso in the Journal of that Institute for December 19, 1903. An animated discussion followed, which was renewed six months later, and the additional criticisms and replies are to be found in the Journal of the Institute of Architects for June 11 and 25, 1904. Anyone who desires to master the pros and cons of the Plenum system could not do better than make a careful study of Mr. Henman's paper and this discussion. Having read the whole carefully, and consulted with friends who have seen this system at work elsewhere, I gather that the advantages of the system may be briefly stated to be:—(1) The evenness of the temperature produced; (2) the ventilation of the building is concurrent with its warming; (3) the air can be drawn from sources free from contamination and can be

filtered from suspended impurities, warmed and brought to the proper hygrometric state before its introduction to the different rooms or wards; (4) the degree of temperature and of ventilation can be easily controlled in any part of the building; and (5) the removal of ugly pipes running through the rooms has a great architectural and æsthetic advantage. These are great merits. As for the economy of the system the evidence appears to be conflicting, but must be remembered that in the Plenum system double work is done—the air is not only warmed but perpetually being changed; ventilation is concurrent with heating, and therefore, in considering the question of cost, it is only fair to remember it combines two distinct operations.

On the other hand, the disadvantages of this system for the heating of ordinary buildings or colleges are very great:—(1) The most obvious is that no windows can be opened nor doors left open; double doors with an air lock between must also be provided if the doors are frequently opened and closed. (2) The mechanical arrangements are elaborate, and the system requires to be used with intelligent care. (3) The whole elaborate system needs to be going even if only one or two rooms in a large building require to be warmed, as often happens in the winter vacation of a college. (4) The temporary failure of the system, through the breakdown of the engines or other cause, throws the whole system into confusion, and if, as in the Royal Victoria Hospital, the windows are not made to open, imminent danger results. (5) Then also in the case of hospital wards and asylums it is possible that the outlet ducts may become coated with disease germs, and, unless periodically cleansed, a back current through a high wind or a temporary failure of the system may bring a cloud of these disease germs back into the wards. As a matter of fact, the warm vitiated air will deposit a layer of dust or disease germs on the cooler sides of the duct through which it passes; this question of dust deposition I will return to presently. Nor do I like the plan of introducing the pure warm air at a high level and extracting the foul air at a low level, though this does not seem essential to the system; it is, moreover, very doubtful whether a complete renewal of the air in a room or ward does take place. Unless the air be kept in agitation I imagine a current of pure warm air would pass from the inlet to the outlet, leaving stagnant portions of air above and on either side of the inlet. There are, undoubtedly, many buildings to which the Plenum system is entirely unsuited and objectionable, and there are some where it seems an eminently good system, such, for instance, as the crowded waiting-room of a hospital or police court, or an operating-room of a hospital, or for rooms or halls or churches where a crowded audience assembles and where open windows are rarely to be found, or cannot be permitted owing to outside noises, &c. In these cases, however, any system which, without creating draughts, supplies fresh warm air is suitable, and the determining factor is the question of economy and simplicity.

I feel sure that brief contributions recording their experience from members of this Institution who have had considerable practical acquaintance of the working of various systems of heating and ventilation would be of the very greatest scientific value. Even a few lines of reply to a printed form of questions sent out by the secretary, if answered by those who have no axe to grind, would be of great value. It is much to be regretted that we have so little exact knowledge of the best system of heating and ventilating large buildings. Professional and commercial interests are apt to obscure the truth when papers are read or discussions occur on any special system. Moreover, to determine what is best involves not only the question of efficiency and economy but also of healthiness and convenience.

As regards steam heating one disadvantage is obvious, that no heating occurs until the water in the boilers is actually generating steam, whereas in a hot-water system the circulation and warming begin directly heat is applied to the boiler. Those who have had experience of different systems of heating large buildings, I find, generally concur in giving the preference to hot-water circulation, independently of the ease with which it can be controlled. The heating of hot-water radiators by injecting high-pressure steam into the system seems to me one of the simplest and best ways of transmitting heat throughout a building.

Ideally, of course, electric heating would be the best, as the electric current can be conveyed with the least possible loss throughout any building, and then by traversing suitable resistance coils the current can be made to generate heat in

ny room and at any moment by merely turning a switch. But at present this system is impracticable, except as a luxury, owing to the cost of electricity. In the neighbourhood of a waterfall, however, the utilisation of the energy of the fall and its transformation into electricity—and thence to heat—would be a practical project, for the heat generated by the current is proportional to the square of the current strength into the resistance of the radiating coil. The difficulty of finding suitable resistances (for the radiating coils) which will stand a high temperature without disintegration would no doubt be surmounted if electric heating became general. As a matter of fact, some excellent plans have been adopted which are well known to electricians, but I need not go into these here, except to mention that some of the remarkable alloys of steel, made by Mr. Hadfield, of Sheffield, have an enormous electric resistance and give promise of utility in the direction of electric heating.

To return, however, to a hot-water system heated by injecting high-pressure steam, one objection has been the noise made by the injected steam. Anyone can hear this by allowing steam to escape from a pipe held below the surface of water; a noisy rattling and bumping occurs until the water is raised to the boiling-point. But a noiseless steam injector has been made and is in use, so that this objection is removed. When, therefore, there is waste steam, at say 40 to 50 lbs. pressure, coming from a boiler used for power purposes, nothing could be more economical nor simpler than to utilise this steam for the transmission of heat by injecting it into a hot-water system whenever needed. Properly jacketed steam-pipes are used in America to convey heat and power to remote distances, and I do not know why the method of heating by steam injected into a water system has not become more general; the circulation of the water is accelerated by the steam jet and the regulation of the heat is perfectly under control by simply turning the steam jet on or off. The economy of this system, when special high-pressure steam-boilers must be supplied for the purpose, is a question worth careful examination. I am inclined to think it would show favourably if the boiler were also used to drive an engine and fans for the ventilation of the building.

In all these systems the air is warmed; the walls of the room are therefore cooler than the air, and it is a matter of common observation that when this is the case the walls become rapidly covered with dust and dirt. On the other hand, when the room is warmed by an open fire the air is not heated by the radiation from the fire, but the walls are, and it is the warm walls which warm the room. When this is the case—the air being cooler than the walls—much less dust and smoke are deposited on the walls, which therefore remain cleaner much longer than in a room which is heated by warm air. This is notably seen in the difference between the wall-papers in a room heated by an open fire and a room heated by a stove; in this latter case the wall-papers become rapidly disfigured and dirty by an unsightly deposition of dust. Many are under the impression that this is due to the dust and dirt caused by the stove or the leakage of smoke through the joints in the stove-pipes; but that this is not the cause is seen from the fact that gas-stoves give rise to precisely similar dirtying of the walls as coke-stoves, and, as I have said, so do systems of heating by hot air. In fact, everyone must have noticed the upward stream of dust and dirt that attaches itself to the wall in the immediate neighbourhood of a radiator, whether that radiator be warmed by hot water, steam or gas. So great and so constant is this disfigurement that it has been urged as an objection to the use of radiators and heating by hot-water pipes; and in some cases the radiators are placed in the middle of a room or far from the walls to get rid of this annoyance. The same thing may be noticed where hot-water pipes run along the wall; near the pipes the wall gets blackened.

Probably few, if any, of those present have thought of the reason, or been able to find a reason, for this annoying disfigurement. Clearly it cannot be due to any dust created by the radiators, for they are perfectly clean surfaces. It is therefore a matter of some importance to try and ascertain the cause, and thus, if possible, remedy this defect in the use of all radiators. For this purpose we must turn to physics, and the investigations of Aitken in Scotland and Lodge in England on the phenomena of the deposition of dust have in recent years given us the solution of this curious and important practical matter.

Many years ago Professor Tyndall noticed that when dusty air was strongly illuminated by a sunbeam or by the

electric light there rose from the summit of any heated body placed within the dusty air a stream of dust-free air. This was rendered apparent by its not scattering the light; and hence a fine black stream was seen rising up from the hot body. Anyone can see this by heating a wire or rod of metal and putting it in a glass vessel filled with smoke; upon brilliantly illuminating the smoke a sharp black line will be seen above the hot line or rod. Tyndall, Frankland and Lord Rayleigh have given different explanations of this experiment, but none were satisfactory. Professor, now Sir Oliver Lodge, and his demonstrator, Mr. J. W. Clark (a former student of mine) took up the matter, and their numerous experiments and suggested explanation were published in July 1883 and early in 1884. Almost simultaneously Mr. Aitken in Scotland began working at the matter, and arrived at much the same explanation as given by Professor Lodge. The beautiful experiments made by Mr. Aitken were published in a paper read before the Royal Society of Edinburgh in January 1884.

The general result of all these experiments showed that the inevitable tendency of fine dust particles is to be driven away from warm surfaces and to deposit themselves on any neighbouring cold surface. The dust-free stream of air rising from a hot body is caused by the warm body being surrounded by a dust-free coating of air, and the ascending current of warm air carries this dust-free layer with it, giving rise to the dark stream line seen above the warm body.

Many striking experiments were made by Mr. Aitken to show the tendency of dust to leave a warm surface and attach itself to a cooler surface. Thus if two mirrors, one hot and the other cold, are fixed face to face near to each other and placed for a few minutes in a vessel filled with a dense cloud of dust, formed by burning a little magnesium wire within the vessel, it will be found when the mirrors are removed that the warm mirror is perfectly clean whilst the cold one is coated over with magnesia dust. Or if two glass rods, one cold and the other hot, are dipped into some hot magnesia powder and then taken out, the warm rod will be found to come out quite clean, but the cold rod is thickly coated with an adhering mass of powder.

But the most interesting illustration of the repulsion of dust from a warmer to a cooler surface is seen in the accompanying picture, which is from a photograph of the wall in my study at the Royal College of Science, Dublin, a room heated by a gas stove. The end walls are timber framing with plastered and painted surface, and you will notice wherever the wood framing occurs the wall is clean, whereas the rest of the wall is darkened by adherent dust. In fact, the wall appears to become transparent—showing the wooden studs through the plaster. This is due to the fact that the wood, being a bad conductor of heat, remains warmer than the adjacent plaster, and hence the dust leaves the part where the wood is beneath and attaches itself to the cooler plaster. The same effect is sometimes seen on plastered ceilings.

It looks as if the old idea of a repulsive force produced by heat was after all correct. In fact, if we heat in a crucible any fine incombustible powder such as magnesia or silica, we shall see the particles of the powder become self-repellent and mobile like a liquid. Heat, we know, does lessen the cohesion of bodies, making a rigid and brittle body like glass to become ductile and viscous; it does drive the molecules of bodies further apart, causing a cubic inch of water to become nearly a cubic foot of steam, or 273 cubic feet of air at the freezing-point to become 373 cubic feet at the boiling-point. But the expansion and the change of state from solid to liquid and liquid to gas, produced by heat, is due to the greater amplitude of vibration, the increased width of the swing of the molecules of a body, and does not necessarily involve a repulsive force radiated from the hot body, though its kinetic energy is increased by heat.

How, then, can we explain the curious effects I have mentioned of dust repelled from a hot surface and attaching itself to a cold surface? Probably everyone present is familiar with Sir W. Crookes's radiometer, that beautiful little heat mill, with vanes black on one side and bright on the other, pivoted in a highly exhausted glass globe. The vanes are rapidly driven round on the approach of a warm body, or by the warmth of the sun or a distant flame. Here the heat can only reach the vanes by radiation passing through the glass and the exhausted globe; the radiation is absorbed by the blackened surface of the vanes; this side is therefore warmed and is instantly repelled. The true explanation of the motion of the vanes was suggested in the first instance by Crookes and afterwards explained more fully by Dr.

Johnstone Stoney and Professor Osborne Reynolds. It is due to the fact that although the radiometer has been exhausted to a higher vacuum than any ordinary air-pump can produce, nevertheless there are millions upon millions of molecules of air still remaining in the little glass globe. All these molecules are in incessant and rapid motion, bombarding the interior of the vessel and the vanes of the radiometer with their impacts, which occur billions of times in every second. The pressure of all gases is due to this bombardment, and proportional to it, hence on the outside surface of the glass vessel the bombardment is vastly greater than on the inside surface, for the full atmospheric pressure is outside while inside there is a high vacuum: but the glass is strong enough to bear the stress of these molecular projectiles. When the temperature is uniform inside the vessel, the vanes are unmoved by the bombardment, for it is exactly equal on both sides of each vane. If, however, the temperature of one side of the vane be raised, the molecules of air adjacent to it are warmed; an increased velocity, and therefore greater energy, is thus given to them, and the rebound of these molecules drives the blackened face backwards. But to keep up this difference of pressure on the two sides of the vane, the warmed molecules must be continually cooled; they expend their increased energy or warmth partly on their neighbours and partly on the cooler glass of the vessel. Hence between two adjacent surfaces, if one be kept cooler than the other a pressure exists, and this has been called Crookes's pressure from its discoverer. You will therefore see that if we removed all the molecules from the globe, if we perfectly exhausted the radiometer, the vanes would not move. This is the case, and in fact this is one of the best tests we have of a very perfect vacuum.

Now it has been suggested that this repulsion of the dust from the hot surface is due to a cause similar to that which rotates the vanes of the radiometer; it is true the width of the layer of dust-free space is much greater than we should expect in air at ordinary atmospheric pressure. But the dust particles are very minute and very light, and there can be no doubt that repulsion occurs, the molecular bombardment being from the hot surface towards a colder surface. This molecular convection does not, however, extend very far, and probably ordinary convection currents come into play and carry the dust particles across to a distant cool surface. There are, however, some phenomena connected with this subject which seem to require fuller investigation and explanation.

Here, however, we have a practical means of filtering air from dust; it is only necessary to have two concentric tubes, the inner one conveying steam and the outer one kept cold; any dusty air passed between the hot and cold tube will deposit its dust on the inner surface of the cold tube, and much finer dust or germs can be so deposited than can be stopped by filtering through ordinary screens.

Mr. Aitken has shown that every drop of rain has a nucleus of some sort—usually a dust particle. In fact, the ease with which vapour condenses to fog is a test of the presence of numerous smoke or dust particles; if there are few dust particles in the atmosphere the vapour forms a mist or fine rain, and the purity of mountain air no doubt explains the mountain mists so frequent in the Highlands. Were there no nuclei at all condensation would not occur. This discovery led Mr. Aitken in 1893 to devise a pocket dust counter. The air in a small vessel is first rendered dustless and exhausted by a simple device, and then a sample of the air to be tested is admitted. This is chilled by partial exhaustion, and the condensed vapour falls down on to a plate in tiny droplets, each drop having a dust nucleus. By counting these drops in any small area the number of dust particles in a given volume of air is found. Thus in the purest mountain air about 250 dust particles per cubic centimetre were found. In clear country air 500, whilst in London and Paris, the number of solid particles varied from 80,000 to 210,000 per cubic centimetre. I think Mr. Aitken's ingenious little instrument should be in the hands of every engineer, so as to test the value of the screens used to filter the air admitted to buildings.

The following are some of the conclusions arrived at by Mr. Aitken:—

1. The earth's atmosphere is greatly polluted with dust produced by human agency.
2. This dust is carried to considerable elevations by the hot air rising over cities and from the sun-heated areas of the earth's surface, and by winds driving the dusty air up the slopes of hills.
3. The transparency of the air depends on the number

of dust particles in it and on its humidity. The less dust and the dryer it is, the more transparent it is. Water apart from dust does not seem to affect its transparency.

4. Haze is generally produced by dust; if the air dry the vapour has little effect, the density of the haze depending chiefly on the number of dust particles present.

5. The dust particles in the air have vapour condensed on them, though the air itself may not be saturated.

6. The amount of vapour condensed on the dust in saturated air depends on the humidity of the air. The higher the humidity the greater the moisture held by the particles when the air is not saturated.

7. The amount of dust in the atmosphere of populous country districts varies with the velocity and the direction of the wind. Fall of wind is accompanied by an increase of dust. Winds blowing from populous districts generally bring dusty air.

An important effect of minute particles of dust in the air is the scattering of light in the atmosphere. If our atmosphere were perfectly pure and free from suspended particles of dust and moisture there would be no twilight. When the sun had sunk below the horizon, its rays would pass through our atmosphere into space without illuminating the sky; and the moment the sun had set total darkness would follow, as quickly as if a candle were blown out in a dark room. Mr. Aitken has shown that when the atmosphere contains a very large number of suspended particles of extremely small size, *i.e.* fine dust, the sky at sunset becomes so luminous that a prolonged twilight occurs and beautiful sunset effects are seen. This was observed in the great volcanic eruption at Krakatoa, when quantities of fine dust were ejected into the atmosphere and drifted over the Continent of Europe and the British Isles.

There is another way of ridding the air of dust which has been the subject of a good deal of experiment by Sir Oliver Lodge. That is the discharge of electricity from a point; even a small electric machine can quickly clear a large bell jar of a cloud of smoke or dust by discharging its electricity from a point in the bell jar. Possibly at some future date the atmosphere of smoky and foggy towns may be rendered clear by continuous and powerful electric discharges. The coating of dust over the leads of electric wires is often noticed, especially in the flexible wires which suspend incandescent electric lamps. This is simply an effect of electric attraction on the dust in the air, a larger quantity of dust accumulating on that lead which has the higher electric potential.

But I must not pursue this interesting subject of dust any further. It has already afforded a wide subject for study having many practical applications, but the subject is far from exhausted; we have still much to learn concerning the phenomena associated with it. In conclusion, allow me to thank you for your attention to this lengthy paper, which has been somewhat outside your usual scope.

ROYAL SOCIETY OF IRISH ANTIQUARIES.

THIS Society is to hold its next quarterly meeting at Belfast, and it will, with the various excursions, occupy the week commencing on July 3. On that day the members visit the Giant's Ring, and in the afternoon they assemble at a garden party given by the Lord Mayor, the Right Hon. Sir Daniel Dixon, Bart. They afterwards have their annual dinner at the Grand Central Hotel. Tuesday morning will be occupied by an excursion to Templepatrick, Donegore and Antrim, and in the evening the Society will hold their meeting in the council chamber of the City Hall, by permission of the civic authorities. The election of candidates for Fellowship (3) and Membership (14) will be held, and no less than nine papers are to be read on that and Friday evening. At the former the president, Mr. J. R. Garstin, D.L., F.S.A., will preside, and at the latter the senior vice-president. On Wednesday the antiquaries visit Dundrum and Downpatrick, lunching at the Slieve Donard Hotel, Newcastle. Thursday, from 9.15 to 8.35, will be occupied by the journey to Portrush, and thence by electric tram to Dunluce and the Giant's Causeway. On Friday Carrickfergus, Larne and Ballygally are to be visited, and an evening meeting will be held. Saturday is to be devoted to the sights of the city.

A Large Marble Monument, in memory of the late Pope Pius IX., is to be erected in the cathedral of Sinigaglia, his native place. The monument is the work of Lorenzo Cozzas, the Italian sculptor.

TESSERÆ.

Sir Reginald Bray, Architect.

THE master of works at St. George's Chapel, Windsor, towards the end of the fifteenth century, and to whom the design of the chapel of Henry VII. at Windsor is sometimes attributed, Sir Reginald Bray, K.G., also superintended the renovation of Malvern Priory Church. He was said to have been born at Malvern. It is believed, however, that he first drew breath in the parish of St. John, Worcester, about the year 1424. In addition to his skill as an architect, he shone also as a statesman and a soldier. He bore an important part in promoting the success of Henry VII., and was made knight banneret by that monarch for his gallant conduct in the battle of Bosworth Field. Afterwards he was appointed constable of Oakenham Castle, Rutland, and chief justice, with Lord Fitzwalter, of the forests south of the Trent, &c. He had also a grant for life of the Isle of Wight, at a low rental. This distinguished patron of the arts died on August 5, 1503, and was interred in St. George's Chapel, Windsor, where his coffin was seen exposed in 1740, under the stone which covers Dr. Waterland. His portrait remains in the windows of Jesus Chapel, Malvern. "He was a verie father of his countrie," says Holinshed, "and for his high wisdom and singular love to justice, well worthie to bear that title. If anie thing had been donne amisse contrarie to law and equitie, he would, after an humble sorte, plainlie blame the kinge, and give him good advertisement that he should not only reform the same, but also be more circumspecte in anie like case."

Time in Figure Painting.

In great historical paintings the single moment which is supposed to measure the time of the enactment of the event is almost always extended. There is scarcely any picture which contains many figures in which every one of them is in the same posture in which he would have been at the moment of the action. Some appear as if they were earlier, while others are later, that is when compared with the principal figures. This liberty the artist endeavours to rectify by bringing some of his characters forward, while others are placed in the background. The remarks of Mengs about the draperies of Raphael will explain the effect which change of position has had on them. "There is a cause," he says, "for all his folds, either in their own weight or in the motion of the limbs. We can often tell from them how they have been before. Herein Raphael has even sought to give significance. We can see from the folds whether a leg or arm previously to its movement was in a backward or forward posture; whether a bent limb had been, or was in the act of being, strengthened, or whether it had been straight and was being contracted." In such a case the painter combines two different motions in one. For, as that part of the drapery which rested upon the hinder foot would, unless the material were very stiff and entirely unsuitable for painting, immediately follow the foot in its motion forwards, there is no moment at which the garment can form any other folds than those which the present attitude of the limb requires; and if it is made to fall in other folds the limb is represented at the present moment and the drapery at the one previous to it. Yet in spite of this who would be punctilious with the artist who has seen good to present us with both these moments at once? Who would not much rather praise him for having had the understanding and courage to fall into a slight error for the sake of allowing greater perfection of expression?

Inigo Jones's Designs.

The design of Ashburnham House has been denied to Inigo Jones and claimed for Webb; that of the water gate of York House has been claimed for Nicholas Stone. For evidence of these and other works ascribed to Jones recourse must be had to the collection of this architect's drawings formerly in the possession of the Duke of Devonshire, and of Worcester College, Oxford. These, with some drawings for Whitehall in the British Museum, and a few drawings on vellum of the same subject in the library of Windsor Castle, comprise all the known collections of Jones's designs. By some singular fatality they contain scarcely anything which can certainly be referred to buildings known or believed to have been actually carried out by Jones. Drawings, indeed, of the banqueting-house, a part of the projected palace of Whitehall, are frequent; but one finds no large-scale drawings of the banqueting-house itself; nothing of Shaftesbury House, nor of Ashburnham House, of Lindsey House, of the adjoining houses on the west side of Lincoln's Inn Fields; nothing of the chapel of

Lincoln's Inn, nor of the Piazza, Covent Garden. The designs (at Worcester College) for the portico of St. Paul's Cathedral and for St. Paul's, Covent Garden, are not those which were carried out. The latter, indeed, mentioned by Peter Cunningham in his "Life," could not be identified. Of York House there are known only, at Worcester College, a richly-gilt drawing, unlike any other known drawing of Jones's, for, or more probably from, a ceiling which can be allotted to York House by the appearance on the design of the Duke of Buckingham's motto. At Devonshire House there is a drawing comprising a plan and elevation of the water gate, the date on which, 1641, forbids us to accept it as anything more than a drawing from the executed work. Of Wilton House there are only, in the two collections, designs of singular beauty for ceilings; of the theatre of Barber Surgeons' Hall and of Somerset House there is only a small ground plan of the former. These blanks design that the acceptance and execution of a design involved the destruction of the original drawings, for though Jones's drawings have been divided, dispersed, and perhaps in some considerable measure destroyed, it would appear that something more than coincidence is necessary to account for the remarkable deficiencies cited above.

Nonsuch House.

The most remarkable building upon London Bridge after the chapel was the famous Nonsuch House, which, from the arms over the archway, appears to have been of the Elizabethan age, and, from other circumstances, to have been erected here a short time prior to the year 1585. This singular and very curious building was constructed in Holland, entirely of wood, and being brought over, was put together with wooden pegs only, not a single nail being used in the whole fabric. It stood to the north of the drawbridge, over the seventh arch from the Southwark end of the bridge, overhanging the river on each side. At each of its corners was a square tower, crowned with a Kremlin spire, and in the centre a rich, elaborately carved gable. It was four storeys in height, the whole was richly ornamented with carved panels and gilded and jasper-coloured columns. In the front was a profusion of transom casement windows, with carved wooden galleries before them. Over the archway, which was the width of the drawbridge, were placed the arms of St. George, the City of London, and those of Elizabeth, viz. France and England, quarterly, supported by the lion and dragon.

GENERAL.

Mr. John Tweedale, F.R.I.B.A., of Leeds and Harrogate, architect, late of the firm of Messrs. Smith & Tweedale, of South Parade, Leeds, who died on May 11 last, aged fifty-one years, left estate of the gross value of 34,014*l.* 4*s.* 7*d.*

Mr. Spenlove-Spenlove's picture *Too Late* has been bought by the French Government for the Luxembourg Gallery. This is the second work of the artist which has been thus honoured, his *Funeraillles dans les Pays-Bas* having been purchased in 1901.

The Arch of Septimius Severus, Rome (A.D. 204), which has been undergoing repairs for the past two years, will very shortly be out of the workmen's hands. Water had made its way through the top of the arch into the interior.

The Gallery of prints and drawings at the British Museum, which has lately been closed for alterations, will be reopened to the public to-morrow, July 1, with an historical exhibition of mezzotint engravings, selected for the most part from the collection bequeathed by the late Lord Cheylesmore.

The Governors of the Glasgow and West of Scotland Technical College have approved the appointment of Mr. G. Moncur, B.Sc., A.M.Inst.C.E., as lecturer in civil engineering, at a salary of 250*l.* Mr. Moncur was a graduate of Edinburgh University, served his pupillage under Mr. R. Blackadder, C.E., Dundee, has held positions under the Caledonian Railway Company, and since 1900 has been chief assistant engineer on the Great North of Scotland Railway, in charge of the design and erection of constructional work. There were seventeen applicants for the position.

After a Lapse of 365 years a service was held on Saturday in the ancient crypt of St. John's Church, Clerkenwell, which was built in the twelfth century by the Knights of St. John of Jerusalem. The place was lighted by electricity.

M. Henri Turot has ascertained that 72,705 families, containing 331,976 persons, in Paris, or 14 per cent. of the population, are insufficiently lodged.

The League of American Artists have opened an exhibition of their paintings at 334 Rue Saint-Honoré, Paris.

"La Société Centrale des Architectes" have awarded the Prix Dijean, of the value of 2,500 francs, to M. Eugène Hénard, and the biennial Prix Délarue of 1,540 francs to M. Lapeyrière.

Mr. H. T. Hare has been successful in the limited competition for the central public library in Islington. The assessor was Mr. John Belcher, who reported that "the design provides in a simple and effective manner a scheme which will be found to work satisfactorily in practice. The departments are well arranged and the whole building thoroughly well lighted. The elevations also represent a building suitable to its purpose." All the designs are described in the report as being of high quality.

Mr. Arthur S. Cope, A.R.A., has received a commission from the Corporation of Glasgow to paint two portraits of Lord Provost St. John Ure Primrose, Bart.—a full-length for the Corporation Galleries and a half-length for presentation to Lady Primrose.

Portraits are to be obtained of the late Aldermen Claude E. Egerton-Green and James Wise, which are to be hung in the town hall as memorials of their services to Colchester.

The Marylebone Borough Council have decided to oppose the Architects' Registration Bill, although the legal and Parliamentary committee advise to the contrary.

The Selected Design in the competition for a secondary school at High Wycombe to accommodate 175 pupils has been submitted by Mr. A. T. Greenwood, Manchester. Second and third places were awarded to Mr. C. H. Norton, London, and Mr. F. W. Mee, Manchester, respectively. There were sixteen designs submitted. No premiums were offered. Mr. Vernon was assessor.

Excavations have been in progress since February, under the direction of Mr. James Curle, near Newstead, Melrose, in a Roman camp which, so far as is known, is the largest in Scotland. From the trenches which have been cut the camp is believed to be at least 14 acres in extent, as compared with Castle Cary (2½ acres), Birrens, Dumfriesshire (about 4 acres), and Camelton (under 6 acres).

The Glasgow Corporation have opened a permanent museum in the mansion house in Tollcross Park at the east end of the city. The main purpose of the institution is to assist the education of the young by the formation of a children's museum. The museum now contains a collection of current Scottish art, near 200 pictures having been lent.

The Junior Institution of Engineers, founded in 1884, celebrate this week in London their coming of age. The Institution, which has now a membership of about one thousand, inaugurated its celebrations on Monday by a reception in the City Council chamber of the members and friends of the Institution by the Lord Mayor and Sheriffs of the City. The president of the Institution is Mr. W. H. Lindley.

The Panama Canal Commission will hold a meeting in New York of their consulting board on September 1. The engineers in charge have reported that it will be impossible to continue on the lines of the plans drawn up by the previous Panama Commission.

A Large Stone Battle-axe has been unearthed between Gainford and Ingleton, six miles west of Darlington, whilst some workmen were cutting a drain, two or three feet from the surface. The implement on examination was found to be an ancient British battle-axe made of millstone grit. The axe weighs 4 lbs. 1¼ oz., is 7¼ inches long and 4 inches wide at the head and 2½ inches thick along its whole length. The shape is roughly triangular, almost exactly that of a heater for a domestic box-iron, with a circular hole for the shaft of the axe 1½ inch in diameter. Its greatest circumference is 18¼ inches, and the circumference at the shaft-hole 11¼ inches, the axe tapering to a sharp cutting point. The soil in which the weapon was found is of a peaty nature, largely impregnated with iron, and the edges of the axe have suffered very little from erosion.

The "Technolexicon" of the Society of German Engineers, according to a short report on the state of work in the compilation of the universal technical dictionary for transla-

tion purposes (in the languages English, German, French), was commenced in 1901. About 2,000 firm individual collaborators at home and abroad are assisting present. Up to now 2,700,000 word-cards have been collected. To these will be added the hundred thousand cards that will result from the working-out of the original contributions not yet taken in hand. The contributions been called in since Easter 1904, and most of them already arrived (up to June 1905, 1,480). The editor-in-chief will be pleased to give any further information wanted. Address, "Technolexicon," Dr. Hubert Jaeger, Berlin (NW. 7), Dorotheenstrasse 49.

A Special General Meeting will be held at the Institute of Architects on July 3 to discuss the following amendments. Clause 14 to read as follows:—"In all works requiring an estimated sum of 25,000*l.* and upwards three assessors to be appointed, unless there are insurmountable objections. As stated above, the President of the Royal Institution of British Architects is always ready to advise on this or other points." The clause as to scale of charges in the original draft to be reinstated in the following form:—"The R.I.B.A. scale of charges for assessing competitions is the minimum rate of 30 guineas plus one-fifth per cent. upon the estimated cost of the proposed building."

In the City of London Court Mr. W. R. Pether, civil consulting engineer, 6 Dowgate Hill, sued Mr. and Mrs. Whitlock, Clapham, for five guineas, being fees for services as a witness. Mrs. Whitlock was injured by electric lamp falling upon her when she was walking in front of a shop at Brixton. An action was brought to recover damages. The plaintiff was then employed as a professional witness, and he gave evidence at the Lambeth County Court. The plaintiff now claimed to be paid for services. He had received a guinea, and that was all the County Court could allow him. Judgment was entered for the plaintiff for the amount claimed, with costs.

An Interesting Discovery was made recently at Worcester in the course of the removal of earth in connection with the excavation near the sinking part of De Luce work, at the eastern end of the cathedral. It was a metal brooch, having in its centre a representation of the devotion on a silver penny of Edward the Elder, the surrounding space being decorated with a dotted pattern. It was clearly worn as a brooch, for the position of the acus, or pin, and its receptacle are evident. Mr. J. B. Colson, the architect of the Chapter, has sent it for description to the British Museum. The find is valuable as affording some information as to the coins and moneyers of Edward the Elder, and a paper will be read on it before the Numismatical Society in November.

A Baby may invalidate the city seal of Chicago and thus render illegal all official documents to which the seal has been attached since it was altered by a city ordinance on April 15. The baby that has caused all the trouble, says the *New York Tribune*, is the "infant sleeping in a shell" provided by the ordinance as the design for the seal. The whole question hinges on the posture of the infant and on the construction of the word "sleeping." The authorities have discovered that the "sleeping" infant in the shell is seated upright with legs crossed and dangling over the edge. Experts assert that no babe can sleep in such position. In addition to the problem of whether the official business of the city has been legally approved by the new seal is the question of whether 2,000,000 dols. worth of bonds to be issued by the Controller in October will be worthless if they bear the new impression.

An Agitation is being raised in New York against the new rapid transit subway, on the ground that the air is highly dangerous to the public health. Owing to the large number of people seized with faintness the city authorities have established relief offices with medical attendants at the most frequented stations.

The Belgian Parliament have already prolonged the session for over a month in order to settle the question of the port improvements at Antwerp. It is said that an adjournment will not take place until the matter is disposed of. The Government in presenting the Bill have joined to the plan for port extension a great military scheme for the reconstruction of the fortifications of Antwerp. In order to realise the port extension the present earthwork fortifications have to be completely demolished, so that the vote for port extension will carry with it the necessary credit for the reconstruction of the line of fortifications. This proposal is, however, being strongly opposed.

UNIVERSITY of ILLINOIS

The Architect, June 30th 1905





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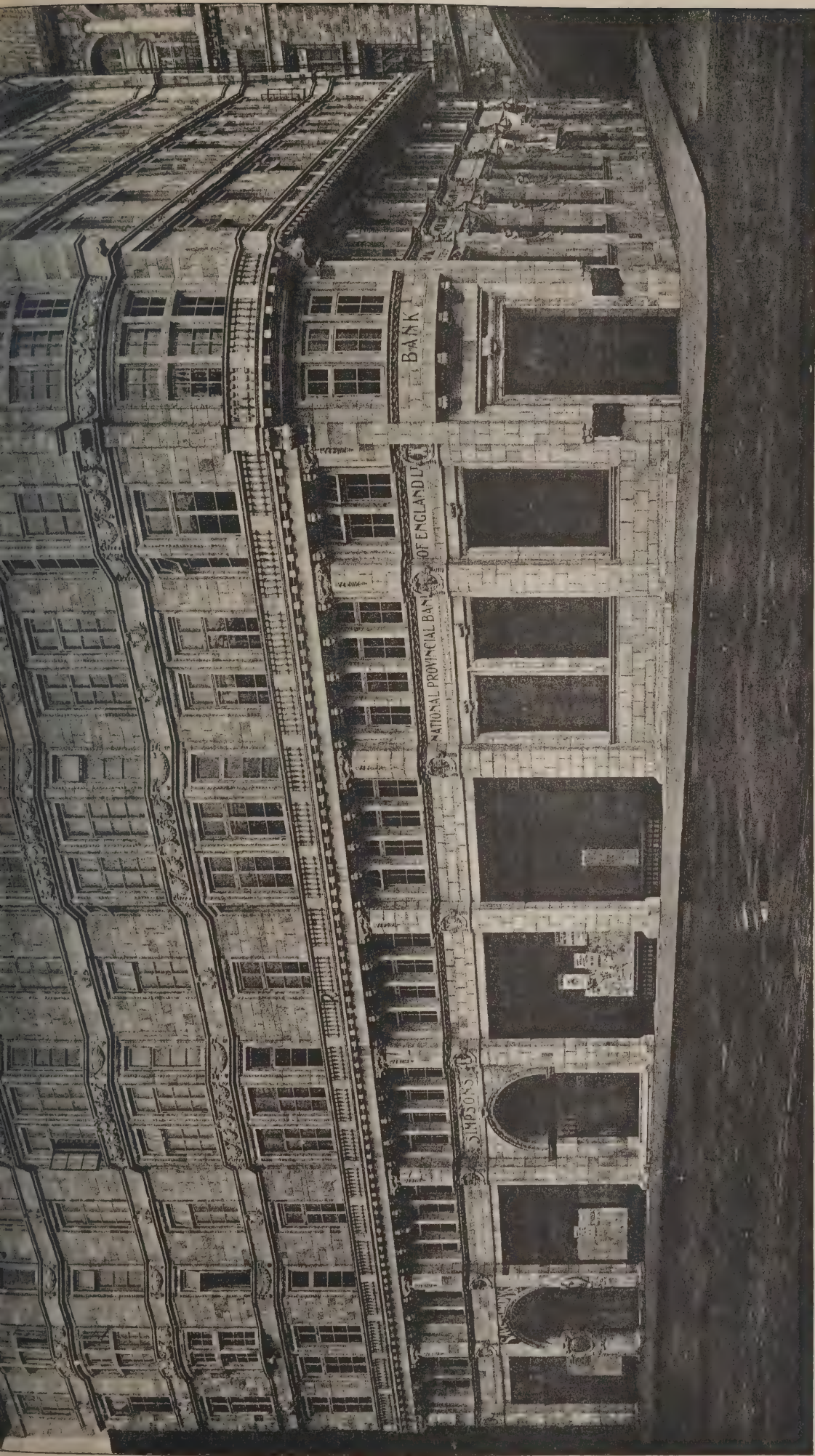
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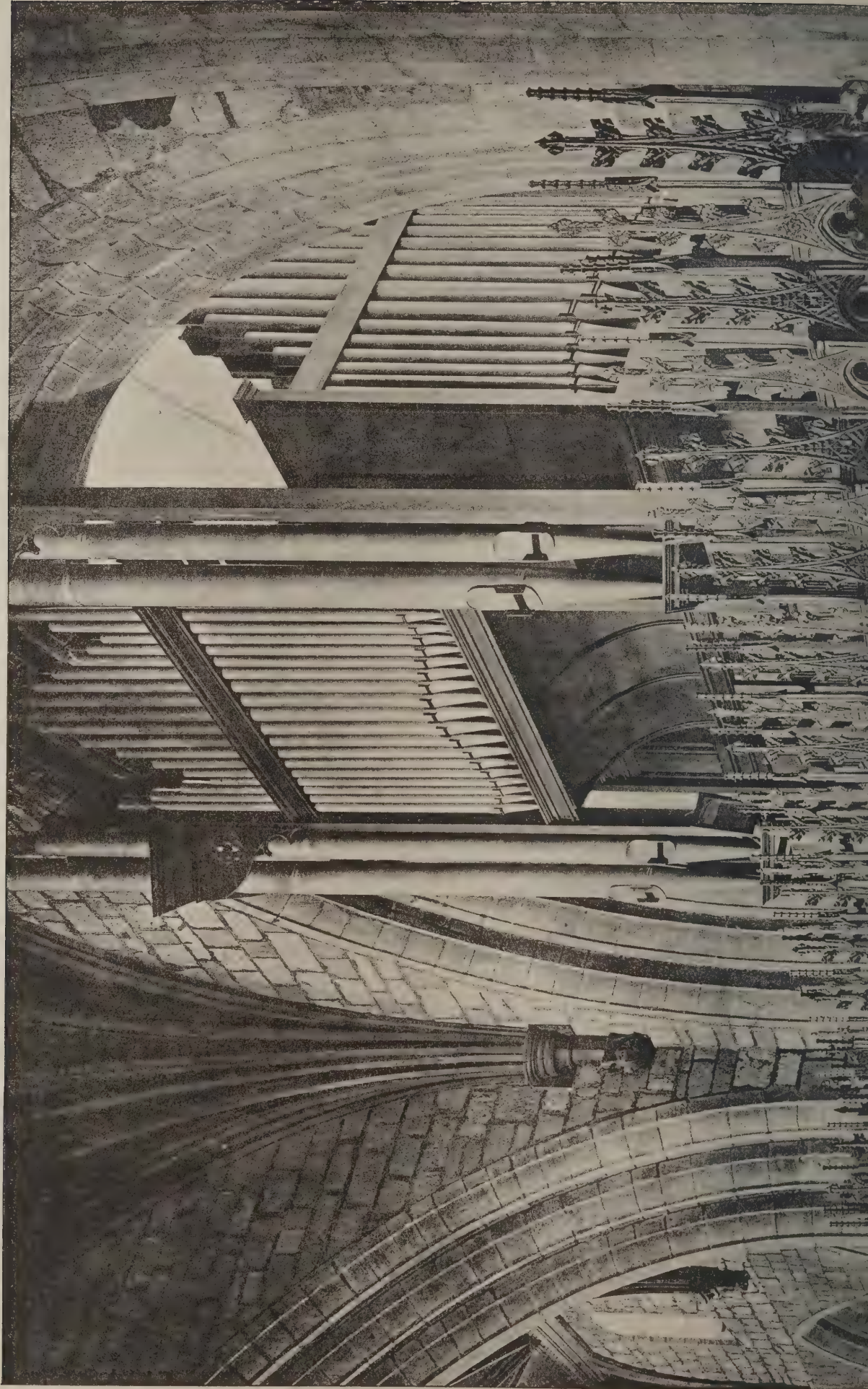
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THE

Architect and Contract Reporter.**EDITORIAL NOTICES.**

In view of the many difficulties which are certain to arise in connection with the law, practice rules and procedure under the Workmen's Compensation Act, we have added to our staff A VERY EMINENT BARRISTER, who has made the subject a special study, and will be glad to answer in the columns of this paper any questions relating to the complicated matters arising from the provisions of this difficult Act. Our LEGAL ADVISER will further answer any legal question that may be of interest to our readers. All letters must be addressed "LEGAL ADVISER," Office of "The Architect," Imperial Buildings, Ludgate Circus, London, E.C.

The Editor will be glad to receive from Architects in London and the Provinces results of Competitions and Tenders and other particulars of Works in progress in which they may be interested.

The authors of signed articles and papers read in public must necessarily be held responsible for their contents.

No communication can be inserted unless authenticated by the name and address of the writer—not in every case for publication, but as a guarantee of good faith.

Correspondents are requested to make their communications as brief as possible. The space we can devote to Correspondence will not usually permit our inserting lengthy communications.

TENDERS, ETC.

** * As great disappointment is frequently expressed at the non-appearance of Contracts Open, Tenders, &c., it is particularly requested that information of this description be forwarded to the Office, Imperial Buildings, Ludgate Circus, London, E.C., not later than 2 P.M. on Thursdays.*

COMPETITIONS OPEN.

ALNWICK.—Jan. 24.—The governors of Alnwick infirmary invite designs for a new building. First premium, £100; second premium, £30. Mr. Frank Caws, F.R.I.B.A., has been appointed assessor. Plans on application to Mr. W. T. Hindmarsh, 26 Bondgate Without, Alnwick, hon. sec. to the building committee.

AYLESBURY.—Feb. 28.—For public elementary school for 750 children. Premiums 50*l.* and 25*l.* Conditions and plan of site obtainable from Mr. C. G. Watkins, Education Secretary, Aylesbury, on payment of 1*l.* is.

BELFAST.—Jan. 17.—The library and technical instruction committee seek sketch designs in competition for three Carnegie branch libraries. They are to be addressed to the Chairman, Public Library, Royal Avenue, up to 12 noon on January 17. Printed conditions, with plan of the sites, will be supplied by the Chief Librarian.

LAMBETH.—March 30.—For municipal buildings at Brixton Hill. Particulars from Mr. H. J. Smith, Town Hall, Kennington, S.E.

OXFORD.—Feb. 1.—The education committee of the county of Oxford invite competitive designs for a provided school for 800 children in three departments, together with a teacher's house, at Caversham. Mr. S. Stallard, county surveyor, Oxford.

PRESTON.—Feb. 28.—Designs and plans for new elementary school. Premiums of £50, £30 and £20. Plan and conditions from Director of Education, Education Offices, Preston.

WOLVERTON.—Feb. 28.—For public elementary school for 400 girls and 400 infants. Premiums 50*l.* and 25*l.* Also for secondary school to accommodate about 120 boys and girls. No premiums offered. Conditions to be obtained on payment of 1*l.* is. in each case from Mr. C. G. Watkins, Education Office, Aylesbury.

CONTRACTS OPEN.

BETTS-Y-COED.—Jan. 12.—For the construction of an extension of waterworks, including an embankment and other incidental works. Mr. R. R. Owen, Church Street.

BILLERICAY.—Jan. 19.—For the conversion of the Billericay town hall, Essex, into a police station. Mr. F. Whitmore, county architect, Duke Street, Chelmsford.

BRADFORD.—Jan. 9.—For the erection of a dining-room at the Belle Vue schools, for the education committee. Education Office (architect's department), Manor Row, Bradford.

BRADFORD.—Jan. 16.—For works required in erection of two hospitals at the union workhouse, Horton Lane, Bradford, for the Guardians. Mr. Fred Holland, engineer and architect to the Board, 11 Parkinson's Chambers, Hustler-gate, Bradford.

BRADFORD.—Jan. 17.—For the internal joiner and cabinet-maker's work required in the enlargement of the central offices in Manor Row, Bradford, for the Guardians. Messrs. Empsall & Clarkson, architects, 7 Exchange, Bradford.

BRISTOL.—Jan. 12.—For the erection of a laundry for the headquarters homes for children at Fisponds. Mr. W. S. Skinner, architect, Edinburgh Chambers, Baldwin Street, Bristol.

CARDIFF.—Jan. 9.—For supply and delivery of a public convenience to be erected at Portmanmoor Road, East Moors. Mr. W. Harpur, borough engineer, Town Hall, Cardiff.

COVENTRY.—Jan. 16.—For building a valve-house and two weigh offices, together with foundations for 30-ton weigh machine, at Foleshill works, for the Coventry gas committee. Mr. Fletcher W. Stevenson, engineer and general manager, Gasworks, Coventry.

CROYDON.—Jan. 18.—For the following works, for the Croydon Rural District Council:—(a) Erection of a cottage, cart, tool and steam-roller sheds at stores depôt, Bute Road, Wallington, Surrey; (b) erection of office, cart, tool, and steam-roller sheds in Kingston Road, Merton. Mr. Robert Masters Chart, Union Bank Chambers, Croydon.

DORCHESTER.—Jan. 12.—For the erection of a new post office at Dorchester. H.M. Office of Works, &c., Storey's Gate, S.W.

EAST HAM.—Jan. 19.—For the enlargement of Manor Park school. Mr. R. L. Curtis, architect, 11 and 12 Finsbury Square, London, E.C.

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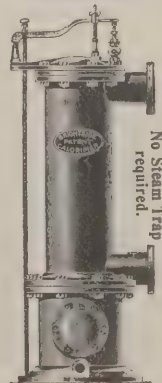
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ERDINGTON.—Jan. 25.—For erection of a council house and library, for the Erdington Urban District Council, near Birmingham. Mr. J. P. Osborne, 95 Colmore Row, Birmingham.

GLASGOW.—Jan. 16.—For the execution of the following works, viz. :—(1) Mason, wright, slater and plasterer; (2) plumber; and (3) painter at Mosesfield House, for the Corporation of Glasgow. Office of Public Works, City Chambers, Glasgow.

HALE.—Jan. 9.—For the erection of new schools at Stamford Park, Hale, for the Cheshire County Council education committee. Mr. Henry Lord, architect, 42 Deansgate, Manchester.

HALIFAX.—Jan. 10.—For the erection of house and photographic studio, &c., in Halifax. Mr. Medley Hall, architect and surveyor, 1 Harrison Road, Halifax.

HALIFAX.—Jan. 13.—For the erection of proposed shops, showrooms, workrooms, offices and appurtenances, fronting into Commercial Street, Halifax. Mr. W. Clement Williams, architect, 29 Southgate, Halifax.

HUDDERSFIELD.—Jan. 12.—For alterations to the Lion Arcade, Huddersfield. Messrs. John Kirk & Sons, architects, Huddersfield.

HULL.—Jan. 9.—For the erection of two observation blocks at the sanatorium, Hedon Road, Hull, for the Corporation. Mr. Joseph H. Hirst, city architect, Town Hall, Hull.

IRELAND.—Jan. 9.—For the erection of a dispensary residence and dispensary for the Dunganstown dispensary district, for the Guardians of Rathdrum union. Mr. George T. Moore, 1 and 2 Foster Place, College Green, Dublin.

IRELAND.—Jan. 9.—For the erection of a coal store at the Clonmel District lunatic asylum. Mr. E. H. Hackett, architect, the Asylum, Clonmel, Ireland.

IRELAND.—Jan. 9.—For repairs to the internal plaster, and colouring walls and ceilings, of the cathedral of the Holy Trinity, Down. Colonel R. H. Wallace, C.B., Downpatrick, or 45 Victoria Street, Belfast.

IRELAND.—Jan. 10.—For extensive improvements and additions to Tullaghan House, Bundoran. Mr. Thomas Elliott, architect, 37 Darling Street, Enniskillen.

IRELAND.—Jan. 11.—For the erection and completion of nine labourers' cottages, for the Rathdown No. 2 Rural District Council. Mr. Patrick Cuniam, clerk, Loughlins-town.

IRELAND.—Jan. 12.—For building and erecting forty-six houses for the working classes, Cork. The City Engineer's Office, Municipal Buildings, Cork.

IRELAND.—Jan. 12.—For the erection of thirty-three labourers' cottages and out-offices, also fencing, for the Kilkenny Rural District Council. Mr. Kieran Comerford, clerk, Kilkenny.

IRELAND.—Jan. 12.—For the erection of one block of four dwellings, out-offices, rain-water tanks, boundary walls, &c., at Ferris Point Lighthouse, Larne Harbour, co. Antrim, for the Commissioners of Irish Lights, Engineer's Office, D'Olier Street, Dublin.

KIDDERMINSTER.—Jan. 20.—For the erection of engine-house, boiler-house and chimney stack, together with the provision, laying and jointing of about 800 yards of 10-inch cast-iron distributing main, for the Corporation. Messrs. Wilcox & Raikes, engineers, Union Chambers, 63 Temple Row, Birmingham.

KIRTON.—Jan. 11.—For the erection of two villas at Kirton, near Boston. Mr. Henry Kidd, Kirton.

LONDON.—Jan. 9.—For the construction of stables, cart-sheds, loose-boxes, &c., at Home Park depot, Lower Sydenham. The Town Hall, Catford (Surveyor's Department).

LONDON.—Jan. 9.—For the construction of an underground sanitary convenience in Merton Road, Wandsworth. The Surveyor's Office, 41 High Street, Wandsworth, S.W.

LONDON.—Jan. 11.—For the erection of a day-room at the workhouse, Chase Side, Enfield. Mr. T. E. Knightley, 106 Cannon Street, E.C.

LONDON.—Jan. 11.—For the following works, for the Metropolitan Asylums Board :—(1) Erecting an engineer's cottage at the North-Western Fever Hospital, Lawn Road, Hampstead, N.W.; (2) erecting an engineer's cottage at the North-Eastern Fever Hospital, St. Ann's Road, Tottenham,

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Mr. W. T. Hatch, engineer-in-chief, the Office of the Board, Embankment, London, E.C.

LONDON.—Jan. 13.—For the erection of houses for the working classes on land adjoining Back Lane, Strand-on-the-Green, Chiswick. Mr. John Barclay, surveyor of the Council, Town Hall, Chiswick.

LONDON.—Jan. 18.—For the construction of a brick chimney shaft, 180 feet high, with 10 foot flue, on a prepared concrete foundation, at the Council's wharf, Townmead Road, Fulham. Mr. Francis Wood, borough engineer and surveyor, Fulham Town Hall.

LONDON.—Jan. 24.—For the erection of a public elementary school on the Senrab Street site, Mile End Old Town. The Architects' (Education) Department (Room 148), Education Offices, Victoria Embankment, W.C.

MILTON.—Jan. 11.—For alterations and extensions at the Milton Boys' Council school, Staffordshire. Mr. A. R. Wood, architect, Town Hall, Tunstall.

NESTON.—Jan. 11.—For alterations to Dr. Riddock's school. Mr. H. Beswick, county architect, Newgate Street, Chester.

PLYMOUTH.—Jan. 21.—For the removal of a partition and other work at the Regent Street secondary day school. Education Offices, 18 Princess Square, Plymouth.

RICHMOND.—Jan. 9.—For the reconstruction of the lantern lights at the public baths, Parkshot. Mr. J. H. Brierley, borough surveyor, Town Hall, Richmond, Surrey.

ROTHERHAM.—Jan. 20.—For the erection of a new post office at Rotherham. H.M. Office of Works, &c., Storey's Gate, S.W.

SCOTLAND.—Jan. 17.—For the various works required in connection with the erection of four homes, for the Edinburgh District Lunacy Board. Mr. Hippolyte J. Blanc, architect, 25 Rutland Square, Edinburgh.

SHALDON.—Jan. 10.—For the erection of a dwelling-house at Ringmore, Shaldon. Mr. Samuel Segar, architect, 24 and 26 Union Street, Newton Abbot.

SHORNCLIFFE CAMP.—Jan. 10.—For the erection of a new post office at Shorncliffe Camp. Major Sorbie, R.E., Reconstruction Office, Shorncliffe Camp.

STRATFORD-UPON-AVON.—Jan. 11.—For alterations and repairs to property in Henley Street, Stratford-upon-Avon, for the trustees of Shakespeare's birthplace. Mr. E. G. Holton, architect, 58 Henley Street, Stratford-upon-Avon.

SUNDERLAND.—Jan. 9.—For the erection and completion of new board-room, &c., for the Sunderland and South Shields Water Co. Messrs. Wm. & T. R. Milburn, architects, 20 Fawcett Street, Sunderland.

WALES.—Jan. 10.—For the erection of sixteen houses or more on Bedlinog Farm. Mr. Richard Evans, secretary, 19 Mount Pleasant Street, Bedlinog.

WALES.—Jan. 11.—For the erection of a new infants' school, with boundary walls, outbuildings, &c., at Treharris. Mr. J. Llewellyn Smith, architect, Central Chambers, 67 High Street, Merthyr Tydfil.

WALES.—Jan. 16.—For erection of a new Baptist chapel and schoolrooms at Glyncoirwg, Port Talbot. Mr. D. L. Evans, architect, Blaengwynfi.

WALES.—Jan. 16.—For the rebuilding of the Angel inn, Neath. Mr. J. Cook Rees, architect, Neath.

WALES.—Jan. 25.—For the erection of thirty-two houses at Deri. Mr. P. Vivian Jones, architect and surveyor, Hengoed.

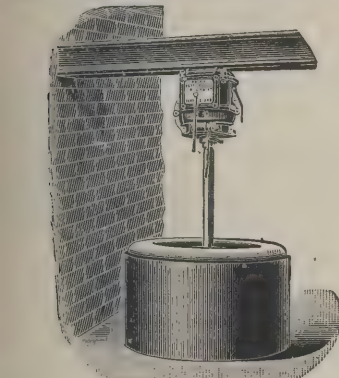
WIMBLEDON.—Jan. 11.—For the erection of a school for defective children, and centre for cookery and household management in Queen's Road, Wimbledon. Mr. R. H. Smethurst Butterworth, clerk to the local education authority, Council Offices, Wimbledon, S.W.

WINSFORD.—Jan. 11.—For structural alterations to the Meadow Bank Council school, Winsford, Cheshire. Mr. John H. Cooke, correspondent of the Managers, Council Offices, Russell Street, Winsford.

WOODBIDGE.—Jan. 9.—For the erection of a new pavilion for scarlet fever, and additions to the administration block and the block of outbuildings at the isolation hospital, Woodbridge, near Guildford. Mr. Edward L. Lunn, architect, 36 High Street, Guildford.

The electricity committee of the Lancaster Town Council are considering the advisability of establishing a motor-bus service.

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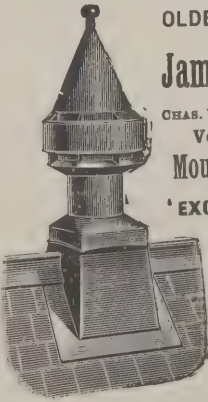
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For making-up and sewerage part of Charminster Road. Mr. F. W. LACEY, engineer.

GROUNDS & NEWTON, Bournemouth (accepted) . . . £335 0 0

BRISTOL.

For the pulling-down old buildings, for the formation of roads and sewers on the Horfield Court Farm estate. Mr. W. P. SAUNDERS, surveyor.

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W. & J. Bennett 1,395 0 0

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For the erection of four iron fire-escape staircases at the workhouse. Mr. JAMES VILLAR, architect.

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R. E. & C. MARSHALL (accepted) 140 0 0

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Sheffield Bros. £1,295 0

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Bennett Furnishing Co., Ltd.	839	0	0
Hammer & Co., Ltd.	824	4	0
Fisher's School Furnishing Co.	751	13	6
Education Supply Association	729	13	9
Bennet	706	5	5
Finch (incomplete)	623	12	0

American oak.

North of England Furnishing Co.	830	0	0
London School Furnishing Co.	798	19	6
Bennett Furnishing Co., Ltd.	755	0	0
Ditto	731	0	0
Parker's Joinery, Ltd.	735	4	6
Thompson & Co.	730	14	0
Illingworth, Ingham & Co.	722	9	0
J. D. BENNET (accepted)	642	1	6
Education Supply Association, Ltd.	642	0	0

Orham.

Fisher's School Furnishing Co.	716	1	0
G. M. Hammer & Co., Limited	705	19	0
Parker's Joinery, Ltd.	699	0	0
Bennett Furnishing Co., Ltd.	692	0	0
Ditto	672	0	0
Education Supply Association, Ltd.	602	5	0

Pitch pine.

General Builders, Ltd.	1,296	0	0
Parkins	1,146	14	0
Mallett & Wood	969	0	0
North of England Furnishing Co.	749	0	0
Fisher's School Furnishing Co.	716	1	0
A. J. Brown, Ltd.	712	0	0

DUBLIN.

For the erection of central fire brigade station, Great Brunswick Street and Tara Street. Mr. C. J. M'CARTHY, city architect.

Byrne & Son	£20,345	0	0
Pile	19,700	0	0
J. & F. Pemberton	19,430	0	0
Monks	19,000	0	0
Conolly	18,643	0	0
Collen Bros., Ltd.	18,500	0	0
Pemberton & Son	18,158	0	0
H. & J. Martin	17,599	11	0
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J. & W. Stewart	16,684	0	0
J. Donovan & Son*	16,450	0	0

* Recommended for acceptance.

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G. H. PANTON (accepted)	£15,268	0	0
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DUDLEY.

For forming, kerbing, channelling and sewerage new street at Paradise. Mr. JOHN GAMMAGE, borough surveyor.

H. HUGHES & SON, Lower Gornal, near Dudley (accepted).

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For excavating and relaying cricket ground, East Ardsley, Yorks.

McLean	£235	5	0
Skinner	161	0	9
T. & M. Arundel	131	1	3
Skinner	127	6	6
Camp	112	7	0
Sheard	105	18	4
B. W. CROSSLEY & SONS, Batley (accepted)	106	7	1

HANDSWORTH.

For the laying of about 600 yards of sewers, together with manholes, &c., within the district of Handsworth. Mr. H. RICHARDSON, engineer and surveyor.

S. Wood, Handsworth (accepted)	£469	18	0
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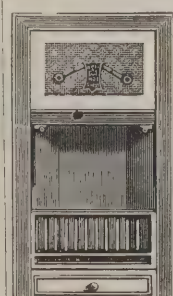
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J. GREENWOOD, Hunslet (*accepted*) . . . £685 12 0**ILFORD.**

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For roadway to the new workhouse and infirmary buildings, for the Hammersmith Board of Guardians.

Fowles	£3,580	0	0
Grover	3,401	0	0
Wimpey	3,134	0	0
Wheeldon	2,981	11	4
Hill	2,770	0	0
Martin, Wells & Co.	2,666	0	0
Robotham	2,616	0	0
Greenham	2,449	0	0
Catley	2,146	0	0

For repairs and decorations to five shops at Lower Clapton, N.E. Mr. HERBERT RICHES, architect, 3 Crooked Lane, King William Street, London, E.C.

J. T. ROBEY (*accepted*) . . . £828 0 0

For repairs and decorations to two shops at Lower Clapton, N.E. Mr. HERBERT RICHES, architect, 3 Crooked Lane, King William Street, London, E.C.

A. W. DERBY (*accepted*) . . . £151 0 0**RETTFORD.**

For alterations, repairs and improvements at the premises No. 71 Carolgate, for the Town Council.

T. Hopkinson & Son	£415	0	0
Richmond & Sons	390	0	0
G. Hopkinson & Son	368	10	0
F. Fenton	356	10	0
Swannack & Son	350	0	0
G. Fenton	338	0	0
GEORGE HURST (<i>accepted</i>)	320	0	0

SCOTLAND.

For building a constable's house, Taynult, Argyll. M.

G. WOULFE BRENNAN, architect, Oban.

Wright	£408	0
Macdougall	374	12
D. & A. Munn	382	15
J. ROWAN, Appin (<i>accepted</i>)	343	5

For the mason, carpenter and joiner, slater, plumber, painter, glazier's work of infectious disease hospital. Mr. T. H. SCOTT, architect.

Accepted tenders.

W. Stuart & Son, mason	£1,799	0
G. Scott & Son, carpenter and joiner	728	15
J. Davidson, plumber	448	18
A. Kelman, plasterer	277	15
J. Greig, slater	200	0
W. G. Calder, painter and glazier	108	6

SOUTHWICK.

For the construction of surface-water sewers at Fishersgate

Sussex. Mr. GEO. W. WARR, surveyor.

Pickard	£542	0
East	538	3
Parsons & Sons	458	0
King	416	9 1
Porter & Co.	409	0
Woolgar Bros.	368	5
Peerless, Dennis & Co.	358	10
McKELLAR, Hove (<i>accepted</i>)	308	0

WALES.

For rebuilding the Ship hotel, Pontypool, for Messrs. W.

Hancock & Co., Ltd. Messrs. JOHNSON & HUTCHINGS architects, Risca.

Edwards & Son	£999	0
Knowler & Herbert	985	0
Reed	950	0
Partridge	947	10
Charles	933	0
Jordan	906	0
LEADBETER BROS., Newport, Mon (<i>accepted</i>)	899	0
Jenkins (<i>withdrawn</i>)	825	0

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WREXHAM.

For alterations to market and market hall shop, for the Town Council. Mr. J. ENGLAND, borough surveyor.

Davies Bros.	..	..	..	..	..	£169	8	3
Morris	..	..	..	..	..	161	15	0
Moore	..	..	..	..	..	147	2	6
Lewis Bros.	..	..	..	..	..	118	0	0

THE CAMPANILE AT VENICE.

WHILE the church of San Marco is causing anxiety because of the cracks which have appeared in it, the work of re-building the fallen Campanile is slowly proceeding. Nearly two years and a half have elapsed since the building fell, and it is calculated that four more years will be needed for its reconstruction, the cost of which is estimated at 2,000,000 lire (80,000*l.*), the whole of which has now been assigned for the work. Great care is being taken that the new tower shall be as solid and substantial as possible. Round the old foundations there have been placed 3,000 stakes of larch more than 10 feet in length, fastened together and covered with a coating of cement so as to form a second foundation. Venetian and Istrian stone as well as cement are being employed for this purpose. Roman pozzolana, the strongest and most binding kind of mortar (according to Signor Boni, who points to the great durability of the Roman monuments in proof of this statement), will be used in the construction of the new tower; but the famous *loggetta*, which stood at its foot and was built by Sansovino as a meeting-place for the nobles of the Republic in 1540 will be reconstructed out of the old pieces, religiously preserved on the island of the Giudecca. It is calculated that the total weight of the Campanile will be 12,000,000 kilogrammes (12,000 tons).

THE preliminary steps are already far advanced in Paris towards the execution of the Rothschild project for erecting cheap working-class dwellings on a large scale. Three properties are being acquired at a cost of 46,000*l.*

TENDERS FOR THE YEAR 1904.

THE following are a few of the more important works that were estimated for during 1904, the tenders for which appeared in our columns in the course of the year :—

ACTON.

For the erection of the Southfield Road school, for the education committee of the Acton Urban District Council. Messrs. E. C. P. & H. MONSON, architects to the committee, Acton Vale, W., and 22 Buckingham Street, Adelphi, W.C. Quantities by Mr. F. T. W. MILLER, Dartmouth Street, Queen Anne's Gate, S.W.

Willett	..	..	..	..	..	£24,475	0	0
Foster Bros.	..	..	..	..	..	24,444	0	0
Stimson & Co.	..	..	..	..	..	24,400	0	0
Braid, Pater & Co.	..	..	..	..	..	24,200	0	0
Godson & Sons	..	..	..	..	..	23,925	0	0
Gough & Co.	..	..	..	..	..	23,894	0	0
Myall & Upson	..	..	..	..	..	23,850	0	0
Miskin & Sons	..	..	..	..	..	23,800	0	0
Bendon	..	..	..	..	..	23,750	0	0
Davey, Ltd.	..	..	..	..	..	23,678	0	0
Treasure & Son	..	..	..	..	..	23,631	0	0
Tonge	..	..	..	..	..	23,400	0	0
Renshaw	..	..	..	..	..	23,393	0	0
Ford & Walton	..	..	..	..	..	23,365	0	0
Wisdom Bros.	..	..	..	..	..	23,350	0	0
Denne & Son	..	..	..	..	..	23,240	0	0
Martin, Wells & Co.	..	..	..	..	..	23,200	0	0
Ferguson & Co.	..	..	..	..	..	23,080	0	0
Ward & Son	..	..	..	..	..	23,000	0	0
Patman & Fotheringham	..	..	..	..	..	22,973	0	0
Spencer, Santo & Co.	..	..	..	..	..	22,950	0	0
Wall	..	..	..	..	..	22,860	0	0
Knight & Son	..	..	..	..	..	22,773	0	0
Patrick	..	..	..	..	..	22,525	0	0
Willcock & Co.	..	..	..	..	..	22,500	0	0
Nightingale	..	..	..	..	..	22,495	0	0
Gibson	22,445	0	0
Wall, Ltd.	22,350	0	0
Hudson & Co., Westminster, S.W. (accepted)	21,725	0	0

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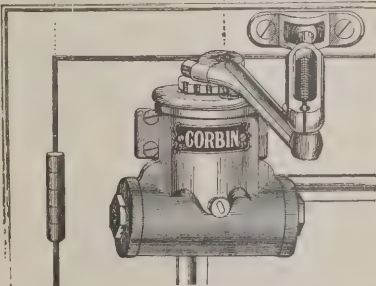
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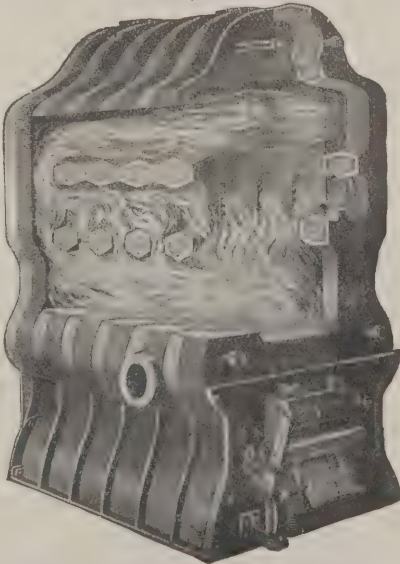
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BIGGLESWADE.

For the construction of waterworks for the Water Board.
Mr. GEORGE F. DEACON, engineer, 16 Great George
Street, Westminster, S.W.

Water Board.

Greig & Matthews	£29,754	15	4
Lawson	24,599	8	0
Riley	23,682	17	11
Joseph Jackson	23,677	18	4
John Jackson	22,964	11	7
Moffat	22,375	19	3
Ashley	22,061	10	0
Chamberlain	21,844	0	0
Dean, Ltd.	21,832	0	0
Bennie & Thompson	21,564	0	11
J. HODSON & SON, Nottingham (accepted)	21,496	9	5

Rural District Council.

Greig & Matthews	49,644	10	0
Lawson	41,698	15	8
Trimm	37,572	0	0
Ashley	36,768	7	5
Joseph Jackson	35,978	17	9
John Jackson	35,363	4	10
Easton, Courteney & Darbshire	34,365	0	0
Riley	33,295	0	0
Moffat	32,749	1	5
J. HODSON & SON (accepted)	31,044	18	10

BURY.

For the erection of the hospital at the workhouse, Jericho,
Bury, Lancs. Mr. ALFRED HOPKINSON, architect,
15 Agur Street, Bury. Quantities by the architect.

Contract No. 1.

Bindly	£21,539	0	0
Inman	21,200	0	0
Tinline	20,750	0	0
J. BYROM (accepted)	20,699	0	0

Contract No. 2.

Bindly	10,756	0	0
Inman	10,715	0	0
Tinline	10,420	0	0
J. BYROM (accepted)	10,440	0	0

CAMBERWELL.

For the erection of board-room, offices and relief station.

Patman & Fotheringham	£22,200	0	0
Holloway Bros.	21,648	0	0
Parker	21,647	0	0
Foster & Dicksee	21,234	0	0
Balaam Bros.	21,150	0	0
Holliday & Greenwood	20,677	0	0
Gough & Co.	20,554	0	0
Higgs & Hill, Ltd.	20,474	0	0
Holloway	20,137	0	0
F. & H. F. HIGGS (accepted)	20,060	0	0

CARLISLE.

For the construction of works for the collection of water
from springs and streams in the watershed of the river
Gelt. Messrs. JAMES MANSERGH & SONS, engineers,
5 Victoria Street, Westminster.

Morrison & Mason, Ltd.	£176,089	16	8
Scott & Middleton	163,688	8	5
Starkey	158,903	3	10
Best	142,631	6	6
Aird & Sons	134,632	15	8
W. KENNEDY, LTD., Partick, N.B. (accepted)	120,377	19	3

COVENTRY.

For the construction of about three miles of new tramways
and the reconstruction of about $5\frac{1}{2}$ miles of tramways.

Mr. I. E. WINSLOW, engineer, 30 Bishopsgate Street
Within, E.C.

J. & W. S. Briscoe	£86,794	1	4
Graham & Sons	46,628	3	1
Ewart	44,280	12	5
Dick, Kerr & Co.	41,847	13	1
Griffiths & Co.	40,937	19	10
Holloway & Co.	38,686	17	10
Freeman	38,271	3	9
White & Co.	37,656	11	3
Pegg & Bailey	37,408	16	7
Law	36,747	7	11
Mollett	36,276	1	0
Underwood	36,068	7	5
R. W. BLACKWELL & Co., 59 City Road, E.C. (accepted)	34,296	19	1

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ESSEX.

For construction of about 1,600 yards lineal of sea-walling promenade, and sloping and draining cliffs, &c., Frinton-on-Sea. Mr. E. M. BARE, engineer.

	Concrete.	Kentish Rag.	Basalt.
Webb & Co.	£43,584	£48,864	£48,924
Shelbourne & Co.	40,537	40,943	44,490
Lawson	38,649	40,304	39,770
Case Syndicate	37,279	41,889	42,850
Rigby & Co.	36,245	38,581	38,945
Manders	33,811	34,968	35,167
Firth & Co.	33,303	34,926	37,994
Dickson	33,062	32,907	33,471
Pedrette	32,473	35,464	36,061
Pethick Bros.	31,564	34,513	34,280
Harrison & Son	30,451	31,826	33,584
Starkey	30,354	39,463	46,918
Gradwell & Co.	29,941	31,076	31,582
Denne	29,789	31,918	31,575
Wilson, Border & Co.	28,954	28,569	29,006
J. & T. Binns	28,566	31,664	32,062
Wimpey & Co.	27,992	30,860	30,959
Fasey & Son	27,572	29,672	29,862
Moran & Son	27,261	28,826	28,941
H. & M. Patrick	26,967	28,988	29,157
Killingback & Co.	26,559	27,771	27,467
Wallis & Co.	26,408	28,063	29,107
Pedrette & Co.	26,280	26,802	27,498
Bell	25,884	28,130	29,673
Double	25,424	27,087	27,264
WAGHORN, Hull (accepted)	23,467	25,082	25,695

GOSPORT.

For constructing tramways for electric traction at Gosport and Fareham, for the Provincial Tramways Company, Ltd. Mr. JOHN GLENN, engineer, 11 Queen Victoria Street, London, E.C., and Gosport.

Pethick Bros.	£74,527	0	0
C. L. Duke	71,525	0	0
J. Mowlem & Co., Ltd.	69,225	0	0
W. Griffiths, Ltd.	67,169	0	0
Blackwell & Co., Ltd.	66,942	0	0
DICK, KERR & Co., LTD., London (accepted)	66,825	0	0

HARROGATE.

For sewerage works. Mr. E. W. DIXON, engineer, 5 Prospect Crescent.

Annakin	£25,781	9	3
Oxley	25,649	1	8
Nowell & Sons	24,832	6	10
Ward & Tetley	22,572	3	2
Mathews	21,650	0	0
Park & Sharp	21,428	5	8
Holme & King	19,871	17	2
Firth & Co.	19,760	18	2
Graham & Sons	19,711	10	6
Wilson & Sons	19,678	10	6
Bushley & Co.	19,462	9	0
Braithwaite & Co.	19,060	4	0
Dawson	17,950	17	4
H. ARNOLD & SON, Doncaster (accepted)	17,104	0	0

HAYWARDS HEATH.

For the construction of drainage works. Mr. BALDWIN LATHAM, engineer.

Norman & Burt	£42,175	0	0
Trim & Co.	35,767	0	0
Griffith & Co.	29,253	0	0
Pethick	28,500	0	0
Maunders	26,777	0	0
Lewry & Co.	26,463	0	0
Reilly	25,314	0	0
Hawkins & Best	24,703	0	0
Underwood	24,227	0	0
Public Works Construction Co.	23,537	0	0
Bell	23,480	0	0
Firth & Co.	23,342	0	0
Binns	22,746	0	0
Eyles	22,665	0	0
Cottell	22,391	0	0
Dean	21,908	0	0
Pearless	21,878	0	0
Wallis & Co.	21,005	4	10
Minehead & Co.	21,000	0	0
Jackson	20,575	3	7
Harrison & Co.	19,949	17	9
JOHNSON & LANGLEY, Leicester (accepted)	18,871	19	11

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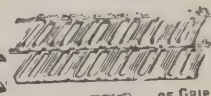
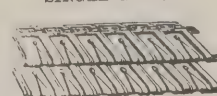
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IRELAND.

For the construction of a pumping station, a dwelling-house and various auxiliary works on land at the west end of the Pigeon House Road, in the city of Dublin.

J. & W. Stewart, Ltd.	£34,600	0	0
J. & P. Good, Ltd.	32,500	0	0
H. & J. MARTIN, Ltd., Dublin (accepted)	29,466	0	0

KINGSTON-ON-THAMES.

For the erection of elementary schools in Oil Mill Lane, Kingston-on-Thames, for the education committee. Mr. F. W. ROPER, architect.

Dean & Co.	£24,258	0	0
Brooking & Co.	21,220	0	0
Braid & Co., Ltd.	20,380	0	0
Potterton	20,275	0	0
Foster Bros.	20,250	0	0
Wheatley & Sons	19,855	0	0
F. & E. Davey, Ltd.	19,841	0	0
Renshaw	19,567	0	0
Hawkey	19,496	0	0
Norris	19,489	0	0
Gaze & Sons	19,379	0	0
Nash	19,312	0	0
Almond & Sons, Ltd.	19,306	0	0
Appleby & Sons	19,234	0	0
Higgs & Outhwaite	19,215	0	0
Nightingale	18,990	0	0
Smith & Sons	18,978	0	0
Oldridge & Sons	18,960	0	0
McCarthy	18,932	0	0
Smith & Son, Ltd.	18,783	0	0
Lorden & Son	18,678	0	0
Batley, Son & Holness	18,656	0	0
Johnson & Co., Ltd.	18,588	0	0
Garrett & Sons	18,560	0	0
Myall & Upson	18,510	0	0
Martin, Wells & Co.	17,975	0	0
Faulks	17,660	0	0
BURGESS & SONS (accepted)	17,480	0	0

LEICESTER.

For the erection of the new Leicester and Rutland County asylum, Narborough, near Leicester. Messrs. EVERARD & PICK, architects, Millstone Lane, Leicester.

J. Howe & Co.	£239,483	0	0
R. Wilkins & Sons	232,780	0	0
J. Shillitoe & Son	230,591	0	0
Pethick Bros.	229,944	0	0
Foster & Dicksee	229,666	0	0
J. E. Johnson & Son	226,990	0	0
R. Neill & Sons	222,200	0	0
H. Willcock & Co.	219,750	0	0
J. Chessum & Sons	218,350	0	0
McCormick & Sons	217,345	0	0
Haskard, Rudkin & Beck	216,455	0	0
Armitage & Hodgson	213,087	0	0
J. Bowen & Sons	210,998	0	0
H. Herbert & Sons	209,975	0	0
S. F. Davidson	209,940	0	0
W. Maule & Co.	209,625	0	0
H. Arnold & Son	207,613	0	0
W. Pattinson & Sons	203,816	0	0
J. Wright	201,471	0	0
W. Moss & SONS, LTD., Loughborough (accepted)	179,909	0	0

LEIGH.

For the erection of Leigh infirmary. Mr. J. C. PRESTWICH architect.

Bywater & Sons	£21,500	0	0
White & Sons	20,547	0	0
Hatch & Sons	19,985	0	0
T. & W. Meadows	19,545	0	0
Fairclough	19,500	0	0
H. & F. Lomax	19,500	0	0
S. & J. Hodgkiss	19,441	0	0
E. & D. Maginnis	19,231	0	0
Warburton	19,169	0	0
Gerrard & Sons, Ltd.	18,792	0	0
Cowburn	18,780	0	0
Davenport	18,744	0	0
Atherton & Co., Ltd.	18,468	0	0
JAMES COCKER, Walkden (accepted)	17,649	0	0

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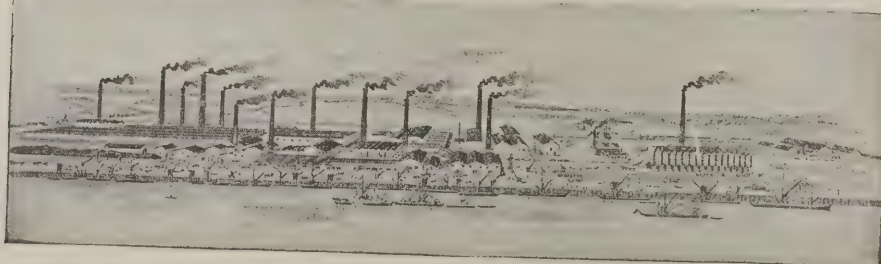
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LONDON.

For the erection of superstructure of the Northern District post office.

Stancliffe stone.

Mowlem & Co., Ltd.	£33,826	0	0
F. & H. F. Higgs	32,750	0	0
Lorden & Son	31,850	0	0
Ansell	30,340	0	0
Leslie & Co., Ltd.	30,204	0	0
Smith & Sons, Ltd.	30,100	0	0
Patman & Fotheringham	29,863	0	0
Perry Bros.	29,750	0	0
Nightingale	28,759	0	0
Galbraith Bros.	28,600	0	0
Williams	28,153	0	0

Portland stone.

Mowlem & Co., Ltd.	33,226	0	0
F. & H. F. Higgs	31,950	0	0
Lorden & Son.	31,000	0	0
Smith & Sons, Ltd.	30,100	0	0
Perry Bros.	30,000	0	0
Ansell	29,940	0	0
Leslie & Co., Ltd.	29,938	0	0
Patman & Fotheringham	29,923	0	0
Nightingale	28,859	0	0
Galbraith Bros.	28,450	0	0
Williams	27,993	0	0

For residential flats and shops, Vauxhall Bridge Road.
Messrs. PALGRAVE & Co., architects, 28 Victoria Street.
Quantities by Mr. JAMES FARRELL.

Wood & Co.	£23,325	0	0
Gray	22,330	0	0
Almond & Sons	20,600	0	0
Martin, Wells & Co.	20,000	0	0
Sims & Woods	19,972	0	0
Renwick	19,300	0	0
Perry & Co.	19,129	0	0
Treasure & Sons	19,000	0	0
Foster Bros.	18,980	0	0
Cropley Bros.	18,974	0	0
Casse	18,953	0	0
Patman & Fotheringham	18,892	0	0

LONDON—continued.

For constructing new southern outfall sewer at Plumstead, for the London County Council.

Smith & Co.	£119,136	14	10
Watt	115,815	3	6
Pearson & Son.	114,010	1	3
Price & Reeves	113,946	12	9
McAlpine & Sons	107,440	8	0
Bentley & Lock	102,474	13	4
Coles	93,661	4	8
Bentley	93,157	17	5
J. & T. Binns	92,455	19	1
Mowlem & Co.	86,007	16	6
Squire & Co.	85,711	12	3
Kennedy, Ltd.	84,607	15	9
Muirhead, Greig & Matthews	83,306	15	7
Cochrane & Sons	82,344	7	8
WESTMINSTER CONSTRUCTION Co., LTD.			
(accepted)	81,285	19	0
Engineer's estimate	91,727	7	2

For constructing new sewers in North Kensington, for the London County Council.

Pearson & Sons, Ltd.	£51,061	4	3
McAlpine & Sons	41,771	19	0
Neal, Ltd.	41,000	0	0
Rogers & Co.	39,650	0	0
Pethick Bros.	39,642	0	0
Watt	39,452	16	5
Scott & Middleton	39,108	7	10
Bentley & Lock	37,848	4	7
Dickson	37,373	4	4
Ford	36,852	0	0
Squire & Co.	36,498	13	2
Muirhead, Greig & Matthews	36,423	4	6
Mowlem & Co., Ltd.	35,032	0	0
Kennedy, Ltd.	34,033	18	7
Johnson & Langley	34,001	2	9
Nowell & Sons.	33,787	4	2
Moore	32,892	6	4
Smith & Co.	32,842	12	0
Woodhouse	32,260	14	6
Patterson	30,713	8	7

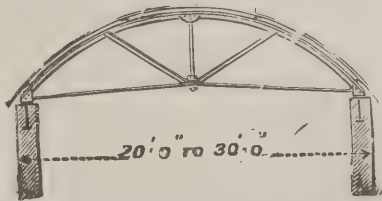
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LONDON *continued.*

For the erection of new school, Deansfield Road site, Eltham (Greenwich).

Johnson & Co., Ltd.	£24,862	0	0
Greenwood, Ltd.	23,441	0	0
Smith & Sons, Ltd.	23,296	0	0
Martin, Wells & Co., Ltd.	23,250	0	0
Wallis & Sons	22,862	0	0
Patman & Fotheringham, Ltd.	22,750	0	0
Lawrance & Sons	22,692	0	0
F. & H. F. Higgs	22,580	0	0
Treasure & Son	22,561	0	0
Lathey Bros.	22,475	0	0
Holliday & Greenwood, Ltd.	22,397	0	0
Garrett & Son	22,389	0	0
J. & C. BOWYER (<i>accepted</i>)	21,953	0	0

For new school, Dunt's Hill site, Wandsworth.

Garrett & Son	£24,910	0	0
Leslie & Co., Ltd.	24,575	0	0
Lawrance & Sons	24,509	0	0
Carmichael.	24,171	0	0
Simpson & Son	24,090	0	0
F. & H. F. Higgs	23,995	0	0
J. & C. Bowyer	23,987	0	0
Holloway Bros., Ltd.	23,957	0	0
King & Son	23,947	0	0
Lathey Bros.	23,849	0	0
Martin, Wells & Co., Ltd.	23,819	0	0
J. & M. Patrick	23,654	0	0
HOLLIDAY & GREENWOOD, LTD. (<i>accepted</i>)	23,337	0	0

For constructing new sewer in Wandsworth and Battersea.

Pearson & Son, Ltd.	£71,133	16	5
McAlpine & Sons	60,656	13	6
Watts.	57,886	17	9
Pethick Bros.	56,008	0	0
Dickson	55,564	5	11
Bentley & Lock	53,336	4	9
Mowlem & Co.	50,874	0	0
Moore.	50,600	6	9
Muirhead, Greig & Matthews	50,572	9	5
Squire & Co.	50,011	19	11
Johnson & Langley	49,409	14	8

LONDON—continued.

For the erection of new municipal buildings, Edmonton.

Monk	£58,153	0	0
Bateman	55,882	0	0
Broad.	52,974	0	0
Davey	51,557	0	0
Lovatt	50,774	0	0
Rowley Bros.	50,654	0	0
Nightingale	50,307	0	0
Whitehead, Ltd.	50,200	0	0
Wall, Ltd.	49,995	0	0
Goff & Co.	49,952	0	0
Miskin	49,780	0	0
Minter.	49,544	0	0
Jerram	49,533	0	0
Todd & Warner	49,227	0	0
Holliday & Greenwood	49,203	0	0
Downs	48,821	0	0
Wallace	48,611	0	0
McCormick & Son	48,600	0	0
Chessum & Sons	48,565	0	0
Leslie & Co.	48,472	0	0
Godson & Son	47,834	0	0
Hughes & Sterling	47,737	0	0
Porter.	47,665	0	0
Knight & Son	47,620	0	0

For reconstruction and other works at the South-Eastern hospital.

Wallis & Sons	£128,293	0	0
Coles	126,944	0	0
Dearing & Son	123,590	0	0
Bateman	121,977	0	0
Foster & Dicksee	121,900	0	0
Leslie & Co., Ltd.	120,449	0	0
Nightingale	118,250	0	0
Johnson & Co., Ltd.	117,406	0	0
Wall, Ltd.	117,044	0	0
Lawrence & Son	116,573	0	0
Minter	116,500	0	0
Martin	116,200	0	0
Kirk & Randall	112,970	0	0
Godson & Sons	109,699	0	0

"MAXIMUM LIGHT GLASS."

DARK INTERIORS

THE ONLY DAYLIGHT-INCREASING WINDOW.



The particular combination of lenses and prisms gives this glass a highly ornamental appearance. This product gives a complete diffusion of Daylight, and is far superior to any Prismatic Glass on the market.

Price=less than plate glass.



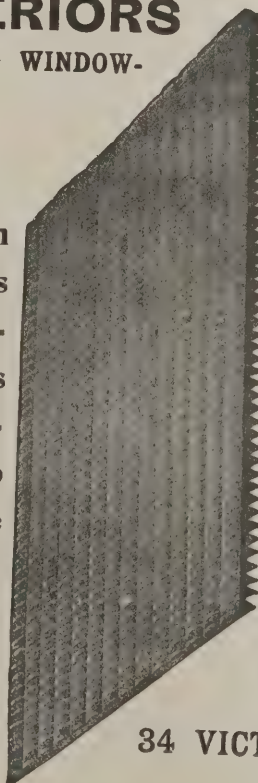
MADE LIGHT.

GLASS COMBINING LENSES & PRISMS.

PROVINCIAL AGENCIES AND DEPOTS.

Manchester.—Baxendale & Co., Miller Street Works.
 Bradford, Yorks.—E. Lester & Co., Northgate.
 Leeds.—Kayll & Co., Alfred Street, Boar Lane.
 Liverpool.—J. G. Nicholls, 52 Renshaw Street.
 Lancaster.—Abbott & Co., Chapel Street.
 Gloucester.—Sessions & Sons, Ltd., Gloucester.
 Glasgow.—Currie & Co., 13 Bothwell Street.
 Edinburgh.—Currie & Co., 4 North St. David Street.
 Sheffield.—Shaw, Thurbottle & Co., Rodgers Chambers, Norfolk St.
 Dublin, Ireland.—James A. Campbell & Co., Oaffe Lane, Stephen's Green.
 Leicester.—H. C. Snow, 8A Pookington's Walk.
 Newcastle-on-Tyne.—Reed, Millican & Co., Croft Street Works.
 Birmingham.—William Pearce, Ltd., Bridge Street, Broad Street.
 Bristol.—John Hall & Sons, Ltd., Broadmead.
 Brighton.—A. W. Loomes, 7 Blatchington Road, Hove.
 Cardiff.—Robt. Lewis & Co., 13 Ouston House Street.
 Nottingham.—T. E. Burnett & Co., 40 Castle Gate.
 Northampton.—E. Nichols, Abingdon Square.

PATENTEES AND MANUFACTURERS—

MAXIMUM LIGHT WINDOW GLASS,
LIMITED,34 VICTORIA STREET, WESTMINSTER,
LONDON, S.W.

ILLUSTRATIONS.

FRIEZE FOR NEW GAIETY RESTAURANT AND MESSRS. SHORT'S PREMISES, LONDON.

NEW ROYAL COLLEGE OF SCIENCE, SOUTH KENSINGTON.

VIEW IN PALERMO.

CATHEDRAL SERIES.—ST. ASAPH: GENERAL EXTERIOR, FROM SOUTH-WEST CORNER, LOOKING NORTH-EAST.

LONDON—continued.

For the erection of new offices in Euston Road, London, for the Hearts of Oak Benefit Society. Messrs. ESSEX, NICOL & GOODMAN, architects, Colmore House, 21 Waterloo Street, Birmingham. Quantities by Mr. ALFRED A. TWEEN, 147 Palmerston House, Old Broad Street.

J. C. Wall & Co.	£57,547	0	0
A. Kellett & Sons, Ltd.	50,641	0	0
G. E. Wallis & Sons	50,494	0	0
Parker	50,300	0	0
Kirk & Randall	50,122	0	0
Spencer, Santo & Co., Ltd.	49,676	0	0
C. Miskin & Sons	49,632	0	0
J. Smith & Sons, Ltd.	49,486	0	0
G. Godson & Sons	49,312	0	0
Downs	48,900	0	0
J. Chessum & Sons	48,543	0	0
Holloway	48,506	0	0
Treasure & Son	48,374	0	0
Stimpson & Co.	48,372	0	0
Martin, Wells & Co., Ltd.	47,819	0	0
H. Lovatt, Ltd.	47,486	0	0
C. Dearing & Son	47,185	0	0
T. H. Kingerlee & Son	47,164	0	0
Leslie & Co., Ltd.	47,155	0	0
W. Lawrence & Sons	46,486	0	0
C. GRAY HILL (accepted)	45,009	17	7

LONDON—continued.

For new school, Gordonbrock Road, Brockley.

J. Greenwood, Ltd.	£25,892	0	0
Perry & Co.	25,781	0	0
Leslie & Co., Ltd.	25,715	0	0
J. Simpson & Son	25,475	0	0
J. & M. Patrick	25,464	0	0
C. Miskin & Sons	25,055	0	0
Green.	24,866	0	0
E. Lawrance & Sons	24,829	0	0
J. Garrett & Son	24,782	0	0
J. Longley & Co.	24,698	0	0
J. Chessum & Sons	24,607	0	0
Martin, Wells & Co., Ltd.	24,540	0	0
Patman & Fotheringham, Ltd.	24,211	0	0
F. & H. F. Higgs	24,149	0	0
Stimpson & Co.	24,100	0	0
Kearley	24,076	0	0
McCormick & Sons	24,061	0	0
Carmichael	24,047	0	0
Treasure & Son	24,023	0	0
Hudson Bros.	24,004	0	0
W. Johnson & Co., Ltd.	23,995	0	0
W. J. Mitchell & Son	23,993	0	0
J. & C. Bowyer	23,683	0	0
Lathey Bros.	23,680	0	0
C. Dearing & Son	23,513	0	0
J. Smith & Sons, Ltd.	23,280	0	0
W. Downs (accepted)	22,863	0	0

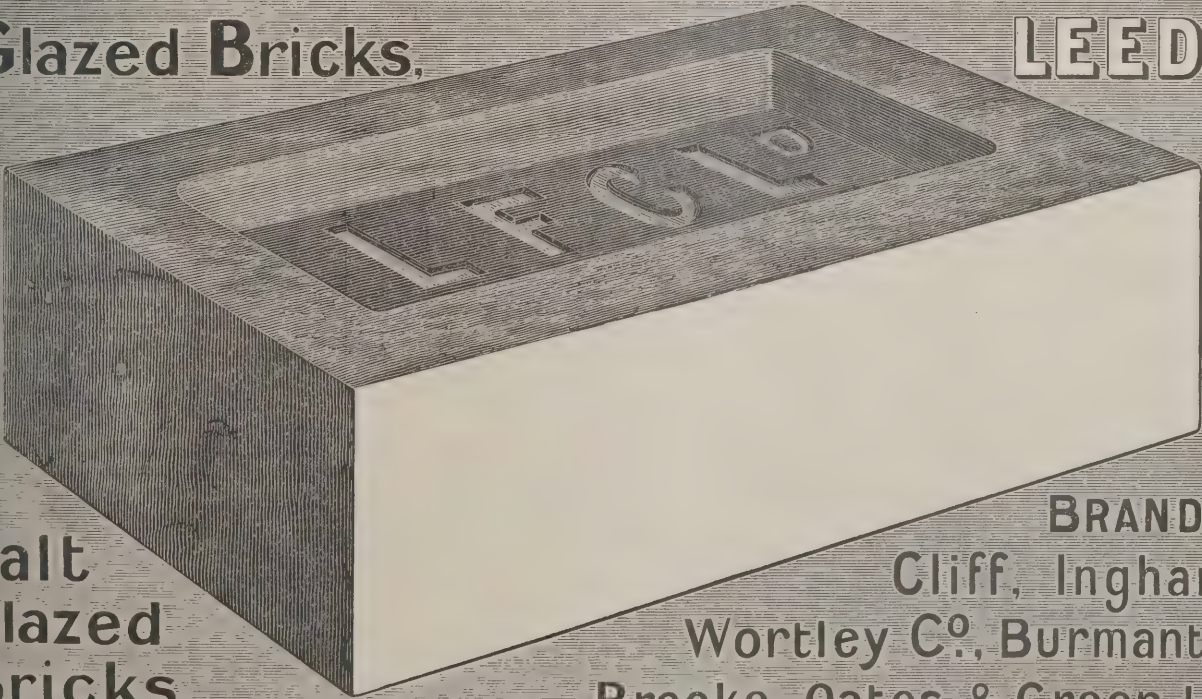
For new school, Timbercroft Road site, Plumstead.

J. Garrett & Son	£22,100	0	0
J. Greenwood, Ltd.	21,850	0	0
Martin, Wells & Co., Ltd.	21,450	0	0
Patman & Fotheringham, Ltd.	21,025	0	0
E. Lawrance & Sons	20,842	0	0
F. & H. F. Higgs	20,751	0	0
Thomas & Edge	20,635	0	0
J. Smith & Sons, Ltd.	20,515	0	0
J. & C. Bowyer	20,266	0	0
Treasure & Son	20,229	0	0
Downs	19,999	0	0
G. E. WALLIS & SONS, LTD. (accepted)	19,556	0	0

THE LEEDS FIRECLAY CO. LD.

Glazed Bricks.

LEEDS.



Salt
Glazed
Bricks.

BRANDS:—
Cliff, Ingham,
Wortley C^o, Burmantofts
Brooke, Oates & Green L^{td}.

LONDON—continued.

For superstructure of Union Street parcel office, for H.M. Office of Works, &c.

Enness	£55,977	0	0
Appleby & Sons	54,200	0	0
Trintor	50,185	0	0
Shillitoe & Son	48,650	0	0
Perry & Co.	48,000	0	0
Pattinson & Sons	47,579	0	0
Moss & Co.	47,500	0	0
Hockley & Co.	47,035	13	0
Parsons	47,000	0	0
Higgs & Hill, Ltd.	46,884	0	0
Foster & Dicksee	46,789	0	0
Leslie & Co., Ltd.	46,585	0	0
Spencer, Santo & Co., Ltd.	45,997	0	0
Lawrance & Sons	45,947	0	0
Hibberd Bros., Ltd.	45,920	0	0
Wilkinson Bros.	45,723	0	0
Dorey & Co., Ltd.	45,300	0	0
Downs	44,697	0	0
Edwards & Medway	44,363	0	0
Mowlem & Co., Ltd.	43,967	0	0
Johnson & Co.	43,672	0	0
Lorden & Son	43,521	0	0
Johnson & Co.	43,335	0	0
F. & H. F. Higgs	43,280	0	0
Patman & Fotheringham, Ltd.	42,989	0	0

For the erection of new school, New End site, Hampstead (Marylebone).

McCormick & Sons	£22,877	0	0
Williams & Son	22,745	0	0
L. H. & R. Roberts	21,892	0	0
Patman & Fotheringham, Ltd.	21,447	0	0
Gough & Co.	21,387	0	0
Simpson & Son	21,000	0	0
Green	20,766	0	0
Stimpson & Son	20,750	0	0
Miskin & Sons	20,576	0	0
Dearing & Sons	20,334	0	0
Treasure & Son	20,329	0	0
E. LAWRENCE & SONS (accepted)	19,708	0	0

LONDON—continued.

For the erection of four blocks of dwellings on the Calendonian estate, together with a fifth block.

Parsons	£43,217	0	0
W. Smith & Son	42,880	0	0
Prestige & Co.	42,115	0	0
Spencer, Santo & Co.	41,779	0	0
F. & H. F. Higgs	41,490	0	0
H. L. Holloway	40,959	0	0
Holloway Bros. (London), Ltd.	40,000	0	0
Kirk & Randall	39,765	0	0
F. & T. Thorne	39,500	0	0
Martin, Wells & Co., Ltd.	39,382	0	0
Lawrence & Son	38,584	0	0
C. WALL, LTD., Chelsea, S.W. (accepted)	36,465	0	0

NETHERNE.

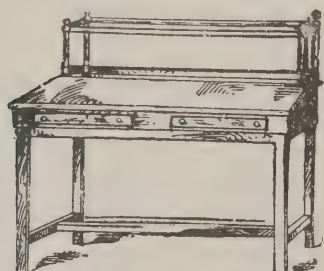
For superstructure of the Netherne asylum, exclusive of heating and ventilation, hot-water supply, &c., for the visiting committee of the Surrey County Council. Messrs. GEORGE T. HINE & Co., architects. Quantities by Mr. L. A. FRANCIS.

Knight, Kirk & Co.	£266,769	0	0
Mowlem & Co.	261,539	0	0
Trollope & Sons and Colls & Sons	258,000	0	0
Holland & Hannen	241,292	0	0
Foster & Dicksee	239,932	0	0
Holloway	238,565	0	0
Howe & Co.	238,196	0	0
Holliday & Greenwood	233,444	0	0
Lovatt	229,302	0	0
J. BOWEN & SONS, Birmingham (accepted)	219,797	0	0

ROTHERHITHE.

For the construction of a tunnel subway under the Thames between Rotherhithe and Ratcliffe.

Starkey	£1,929,051	13	7
Mowlem & Co.	1,463,477	0	0
Pethick Bros.	1,187,648	10	3
Squire & Co.	1,168,375	0	0
Pearson & Son	1,120,978	9	2
PRICE & REEVES, Great George Street, Westminster (accepted)	1,088,484	16	1



For Every Description of
OFFICE & BOARD ROOM FURNITURE

APPLY

ALLARD & CO.**33 JEWRY STREET, FENCHURCH STREET.**

Telephone 5766 Avenue.



PRICE LIST FREE.

American Maple Flooring

TONGUED, GROOVED, AND BORED FOR SECRET NAILING.

THE BEST, CHEAPEST, MOST DURABLE AND SANITARY FLOORING YET INTRODUCED

D. WITT & COMPANY, 168 TO 176 DRUMMOND STREET, N.W.

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**WINSOR & NEWTON, LIMITED,**

BY APPOINTMENT TO THEIR MAJESTIES THE KING AND QUEEN,

**Manufacturers of WATER COLOURS,
SUPPLY DRAWING OFFICE REQUISITES
OF EVERY DESCRIPTION.**

WRITE TO

**38 RATHBONE PLACE, LONDON, W.,
for CATALOGUE.****For Index of Advertisers, see page xx.**

SPITALFIELDS.

For alterations and additions at the Jews' Free school, Spitalfields, E. Mr. EDWARD ROBERT ROBSON, architect, Palace Chambers, Westminster.

Mowlem & Co., Ltd.	£71,990	0	0
Garrett & Son	57,990	0	0
Coulsell Bros.	56,479	0	0
Holland & Hannen	54,697	0	0
Foster & Dicksee	54,445	0	0
F. & H. F. Higgs	53,925	0	0
Holloway Bros.	53,876	0	0
Minter	52,488	0	0
G. H. & A. Bywaters	52,395	0	0
Lovatt	52,200	0	0
Lawrance & Sons	51,585	0	0

STRATFORD-ON-AVON.

For sewage-disposal works. Messrs. WILCOX & RAIKES, engineers, 63 Temple Row, Birmingham.

Neal	£24,594	0	0
Midland Public Works Co.	24,463	0	0
Riley	22,598	18	1
Roberts	22,500	0	0
Trimm	22,476	0	0
Byrom	22,156	0	0
Bentley & Loch	21,912	7	8
Hart & Hyslop	21,440	0	0
Cunliffe	20,933	0	0
Ewart	20,923	5	0
Dawson	20,416	0	0
Braithwaite & Co.	20,402	16	5
Firth & Co.	20,249	13	4
Fincher & Co.	19,965	0	0
Jameson & Son	19,918	0	0
Graham & Sons	19,750	0	0
Jenkins & Son	19,716	0	0
Cooke & Co.	19,500	0	0
Dixon	19,236	5	9
Lock, Andrews & Price	18,893	0	0
T. VALE & SONS, LTD., Stourport (accepted)	18,725	0	0

ST. ALBANS.

For alterations to farm buildings and construction of additional farm building at Napsbury asylum, St. Albans.

Foster Bros.	£21,921	0	0
Oak Building Co.	20,714	0	0
Boff Bros.	19,500	0	0
J. & M. Patrick	19,000	0	0
Miskin & Sons	18,863	0	0
Hockley & Co.	18,629	0	0
Webster & Cannon	18,498	0	0
Redhouse, sen.	18,290	0	0
Perry Bros.	17,873	0	0
Pattinson & Sons	17,843	0	0
Martin, Wells & Co., Ltd.	17,651	0	0
Lorden & Son	17,611	0	0
Hawtin	17,593	0	0
Holloway Bros.	17,543	0	0
Page & Son	17,521	0	0
Peerless, Dennis & Co.	17,500	0	0
Neal	17,495	0	0
C. WALL, LTD. (accepted)	17,250	0	0

THAMES DITTON.

For works in connection with new sewage scheme.

Lawson	£102,001	1	5
Lovatt & Co.	68,523	15	6
Muirhead, Greig & Matthews	57,212	9	7
Kavanagh & Co.	54,568	2	7
Mowlem & Co.	51,219	0	0
Pethick Bros.	49,897	0	0
Neal, Ltd.	48,562	0	0
Nowell & Sons	48,026	3	10
Cooke & Co., Ltd.	45,372	17	2
Adams	44,402	13	3
Johnson & Langley	42,950	5	0
J. & F. Binns	42,796	11	0
E. Iles	42,509	0	0
G. BELL, Tottenham (accepted)	40,941	0	0
Trimm	40,822	0	0
Rutter	38,500	11	1
Jackson	37,894	15	9

OTIS ELEVATORS

GRAND PRIZE AND GOLD MEDAL, PARIS EXHIBITION, 1900.

PASSENGER
and
FREIGHT
ELEVATORS.

**“ OTIS ” Push - Button
Electric Lifts. So simple
a child may work them.
As fitted at Buckingham
Palace, &c.**

ELECTRIC
and
HYDRAULIC
ELEVATORS

Write for Illustrated Pamphlet, entitled—

“THE OTIS ELEVATOR INDUSTRY.”

4 QUEEN VICTORIA STREET, LONDON, E.C.

TOTTENHAM.

For the erection of municipal buildings, &c. Mr. W. H. PRESCOTT, surveyor.

Total, using Doulling stone.

Monk	£58,153	0	0
Bateman	55,882	13	2
T. Broad, Ltd.	52,974	0	0
F. & E. Davey, Ltd.	51,557	0	0
H. Lovatt, Ltd.	50,774	3	2
Rowley Bros.	50,654	10	11
Nightingale	50,307	0	0
L. Whitehead & Co.	50,200	0	0
C. Wall, Ltd.	49,995	0	0
F. Gough & Co.	49,952	0	0
C. Miskin & Sons	49,780	0	0
Minter	49,544	0	0
Jerram	49,533	0	0
Todd & Newman	49,227	0	0
Holliday & Greenwood	49,203	0	0
Downes	48,821	0	0
Wallis	48,611	10	11
McCormick & Sons	48,600	0	0
J. Chessum & Sons	48,565	0	0
Leslie & Co.	48,472	0	0
G. Godson & Sons	47,834	0	0
Hughes & Stirling	47,737	0	0
H. Knight & Son	47,620	10	6
W. LAWRENCE & SON, Waltham Cross (accepted)	46,974	0	0

WORCESTER.

For the construction of pumping station, detritus well, concrete floors to filters, cast-iron, stoneware and brick conduits, under-drains and other works at the sewage disposal works. Mr. T. CAINK, city engineer, Guildhall, Worcester.

J. D. Nowell & Sons	£34,837	8	8
Byron	26,703	0	0
Dickson	25,575	9	5
J. & A. Brazier	23,703	6	11
Stokes Bros.	22,065	17	9
Cunliffe	21,017	0	0
T. VALE & SONS, LTD., Stourport (accepted)	20,131	16	5

TILEHURST.

For the erection of an infectious diseases hospital in Prospect Park, Berks. Messrs. CHARLES SMITH & SON, architects, 164 Friar Street, Reading.

Harris	£21,097	0	0
Holliday & Greenwood, Ltd.	21,077	0	0
Hawkins	20,910	0	0
Hughes	20,863	13	10
Spear & King	20,735	3	0
Roberts	20,612	12	2
Godwin	20,582	16	10
Pilgrim	20,579	0	0
Norris & Sons	20,425	0	0
Cracknell	20,319	2	0
Flint	20,239	0	0
Lewis & Bro.	19,915	0	0
Vickers, Ltd.	19,878	0	0
Fitt	19,767	0	0
Hunt & Son	19,505	0	0
COLLIER & CATLEY, LTD. (accepted)	18,824	3	0

THE preliminary arrangements are now practically completed for starting operations in connection with the Loch Leven water-power factories, and it is stated that the work will be actually in the hands of the contractors early in spring. A large number of workpeople will be employed. An important feature of the undertaking will be a huge concrete wall, three-quarters of a mile in length, 80 feet in maximum height and 50 feet in thickness at the base. The purpose of this structure will be to dam up the waters of Loch-an-Iubhair and the other tarns on the Blackwater range. From this wall a concrete canal, 4 miles long, will be formed. The conduit, which will have a very slight gradient—not more than one in a thousand—will terminate in a reservoir dug out of the rock in the rugged hills of Kinlochbeg, and from this immense pond the water will be discharged in a direct fall of 800 feet or 900 feet to the aluminium works beneath. The cost of parliamentary and other professional work connected with the scheme already amounts to about 40,000*l.*

URALITE for THEATRES, MUSIC HALLS, MAGIC LANTERNS, CINEMATOGRAPHS, &c.

R. S. CAHILL, Esq., F.C.S., writes:—

Higher Grade School and School of Science, Heckmondwike : December 15, 1903.
Dear Sirs,—I discovered URALITE some time since, when I was in search of some substance of which to make the body of a Lantern to use with an Arc Light. I got several square yards, and have made a most satisfactory lantern arrangement with it, and at comparatively little cost; this does not heat, and answers admirably.

I have also used URALITE for mounting iron wire resistances with good results.—Yours truly,

(Signed) R. S. CAHILL.

THE BRITISH URALITE COMPANY, LIMITED,
50 CANNON STREET, LONDON, E.C.

NOTE CHANGE OF ADDRESS.

THE GAIETY THEATRE,
GAIETY RESTAURANT,
AND SHORT'S NEW PREMISES
IN THE STRAND IMPROVEMENT SCHEME.

The Carving of the Central Figure on the Dome and other Work, both Exterior and Interior, and the Frieze round the Restaurant and Short's, were entrusted by the Architects to

MR. HIBBERT BINNEY,

Whose address is now 4 ST. JOHN'S WOOD STUDIOS, Queen's Terrace, London, N.W.

BUILDING AND BUILDERS.

THE building committee of the Western College, Bristol, have recommended that the erection of the new buildings on the site already acquired by the trustees be begun forthwith.

MR. CARNEGIE having advanced 2,000*l.*, a free library is to be erected at Balbriggan, near Dublin. The committee decided to entrust the work to Mr. Heeney, of Balbriggan. The plans have been prepared by Mr. J. L. O'Connor, Dublin.

THE health committee of the Eccles Corporation have approved the plans prepared by the borough engineer (Mr. Acton) for the laying-out of land in Lewis Street, Patricroft, where it is proposed to erect workmen's cottages to provide accommodation for the people who have been disturbed by the demolition of houses on the insanitary area. Plans and estimates are being prepared.

SIR WILLIAM ARROL & Co., LTD., Glasgow, have received from Messrs. M'Kie & Baxter, engineers and shipbuilders, Copland Works, Govan, an order for an extension of the works, which involves the doubling of the erecting and machine shops, the building of a new smithy, new pattern shop, store and finishing shop, and entirely new commercial and drawing offices.

THE Associated Building Trades of New York, a Society which is newly constituted and has a membership of 80,000 workmen, declares that it shall be "the special duty of this body to use the united strength of all trades represented herein to compel all non-union men to conform to and obey the laws of the trade to which they should properly belong, and if necessary all affiliated trades shall, on a two-thirds vote of the body, cease work; any trade refusing to comply shall be fined 500 dols."

THE records of the Ayr Dean of Guild Court show that during the current year there has been a very large amount of building in the town. The total approximate value of the new buildings passed by the Court is 106,680*l.* This is rather under the total of last year; but while this year applications did not include practically a single building or public work, last year there were several, including a large new school, a bank, reconstruction of theatre and destructor works. This year's building consists almost exclusively of

dwelling-houses, the large proportion of which are villas of various sizes.

In the Edinburgh Sheriff Court a mason brought a claim against P. & J. Gilhooley, contractors, for 500*l.* at common law, or alternatively for 312*l.* under the Employers' Liability Act, as compensation for injuries received on April 11, 1904. While working as a mason in defendants' employment, the plaintiff had his left eye injured by a splinter from a glazed drain pipe, and the action was raised in consequence. The Sheriff has found that the plaintiff failed to fix liability for his injury upon the defendants either at common law or under the provisions of the Employers' Liability Act. He therefore assuozied the defendants, and finds them entitled to expenses.

ST. HELEN'S HOSPITAL at Peasley Cross was reopened on Dec. 30 after enlargement at a cost of 20,000*l.* The extensions are built of brick and stone in keeping with the old portion of the building. The additions include a new main corridor about 130 feet long and new ward accommodation for twenty beds downstairs, and a similar number upstairs. A new nurses' home has been erected, with dining-room, drawing-room, matron's and sisters' room, kitchen and bedroom accommodation for twenty-two nurses. At the end of the corridor an operating theatre has been provided, lined with marble, with up-to-date utensils, and outside a new steam laundry has been erected. The old portion of the building has been entirely remodelled to provide an accident ward and children's ward, and the existing wards have been extended by four beds.

MESSRS. MATHESON & GRANT, Walbrook, London, in their annual trade review say:—After a time of doubt and depression the New Year opens with many indications of reviving trade. There has been a marked absence of labour disputes. In South Africa the available spending money, which was so largely reduced by the closing of the mines, is steadily increasing, and if the present conflict in the East can be confined within its present limits the iron and engineering trades must benefit. No new enterprises are possible without them. With regard to structural steel-work, it is said the railway companies are all restricting their expenditure on renewals and extensions, but the work on bridges and stations that cannot be postponed has

HARDWOOD FLOORING

AMERICAN MAPLE and OAK
Manufactured in the Finest Grades by THOMAS FORMAN CO.,
DETROIT, MICHIGAN, U.S.A.

CHURCHILL & SIM, 29 Clements Lane, LONDON,
& 2 Exchange Street East, LIVERPOOL,
SOLE AGENTS FOR ENGLAND AND IRELAND.

FURNISH
WITH GOOD TASTE
AND
ECONOMY
BY CONSULTING
OETZMANN & CO.
ILLUSTRATED GUIDE
TO HOUSE FURNISHING.
GRATIS AND POST-FREE.



ALL CARPETS MADE UP FREE

OETZMANN & CO.
HAMPSTEAD ROAD, W.
CONTINUATION NORTH OF TOTTENHAM COURT ROAD.....
60 & 61 GRAFTON ST DUBLIN · 222 RUE ROYALE BRUSSELS.

ALL GOODS MARKED IN PLAIN FIGURES AT LOWEST POSSIBLE COMPETITIVE PRICES FOR CASH ON BEFORE DELIVERY.

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Set of 2 ... 15/-
Glass linings 1/- each extra.



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Sterling Silver-mounted Crackle Glass Flower Bowl,
10 1/2 d. each.
Set of 6, 5/-



Solid Silver Sauce or Gravy Boat, 1/2-pint capacity, 5 1/2 in. long,
10/6.
1/2-pint capacity, 6 1/2 in. long, 18/6.



Solid Silver Tea Caddy,
Oval Shape, Elegant Design, 3 in. high,
17/6.

afforded a fair amount of employment during the past year. The use of steel in buildings is growing, but the designers endeavour in the use of beams and sections to leave a minimum of work after the steel is rolled.

A NEW Council school was opened in Harehills Lane, Leeds, on December 22, of which the total cost will be about 21,210*l*. The buildings are in two blocks, the larger block facing to Harehills Lane having been arranged for senior and junior mixed children. The larger block is two storeys in height, and provides accommodation for 480 junior children on the ground floor and 480 senior scholars on the first floor. The infants' school is a separate building, and is only one storey high, accommodation being provided for 560 children. Three assembly halls are provided—one for each department—and classrooms are arranged round the halls. There are twenty-six classrooms in all. Two fireproof staircases are provided for the upper floor of the mixed department. One classroom is specially fitted up for cookery instruction. The buildings throughout are electrically lighted, amply ventilated and well heated. There are also spacious concreted playgrounds. The buildings have been designed under the direction of the architect, Mr. W. S. Braithwaite, architect to the education committee.

PONTRILAS COURT, Herefordshire, has been remodelled for Colonel Lucas Scudamore. The old drainage system has been entirely removed and replaced by a system carried out upon the best modern principles. The question of sewage disposal has received very careful consideration by the architects. The septic treatment being finally decided upon as being the best in this case, the necessary septic tank and filter beds have been laid down at a considerable distance from the residence. The whole of the sanitary fittings have been replaced and brought up to date. The water supply has been augmented, a new reservoir having been built and the water conveyed therefrom to the residence by means of galvanised water-tubes. A complete installation of acetylene gas has been laid down, the generator used being supplied by Messrs. Thorn & Hoddle. The heating of the residence has been carried out by means of radiators, the heating medium adopted being low-pressure hot water. The sanitary work, water supply, heating and

general work have been carried out by Messrs. Beavan & Hodges, of Hereford, and the decorations and acetylene gas installation by Mr. J. C. M. Vaughan, of Hereford, the whole being carried out according to the drawings and specifications and under the supervision of Messrs. Groom & Bettington, architects and surveyors, of Palace Chambers King Street, Hereford.

VARIETIES.

THE London Chamber of Commerce, in its annual trade review, says:—"With regard to the future signs are not wanting of hope and encouragement. The general impression seems to be that we have 'touched bottom' and that the new year will show a steady improvement. At home there are indications of a recovery from the trade depression of last year, which will probably be assisted by an increasing South African gold yield."

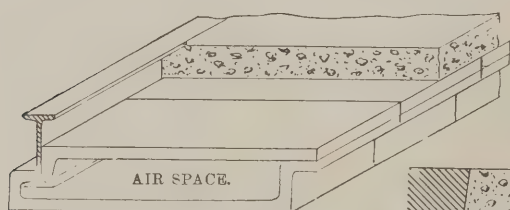
A PARLIAMENTARY return issued on Tuesday shows that during the year ended March 31 last the school boards of England and Wales received sanction for loans amounting to 1,619,719*l*.

THE Berwick Sanitary Authority are to engage an expert to value the present Berwick waterworks, in view of the proposal for an enlarged joint water scheme for Berwick, Tweedmouth and Spittal.

A USEFUL little work is issued by the Master Builders' Association, entitled the "Diary of the London Master Builders' Association," and is published by Messrs. Unwin Bros., of Pilgrim Street, London, at a charge of 2*s*. 6*d*. per copy.

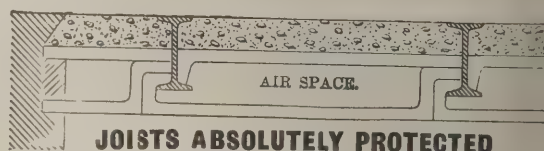
MR. STAFFORD HOWARD, commissioner of Woods and Forests, is considering the advisability of admitting a limited number of working woodmen from twenty-one to twenty-five years old into the new School of Forestry, Forest of Dean.

THE military authorities are erecting a sewage farm in the marshes below Gravesend, and have undertaken the necessary works at the Gravesend Fort. This action will be followed by the introduction of a system of main drainage in the town itself.



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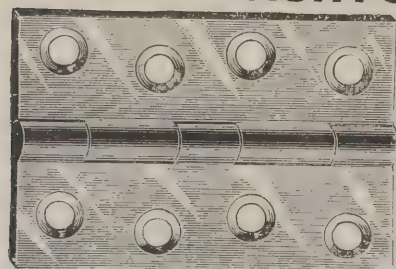
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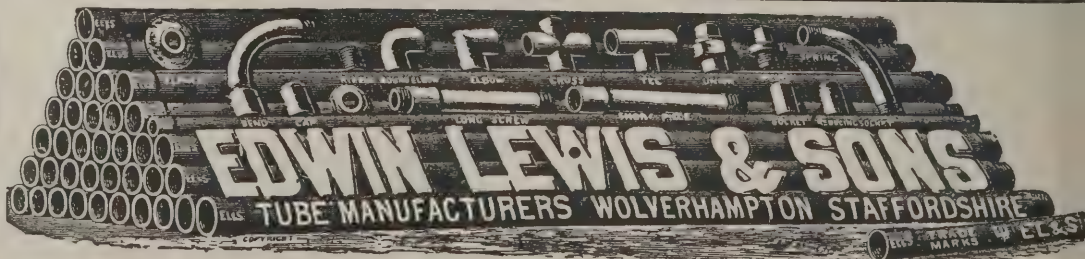
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**TUBES
AND
FITTINGS**



THE housing committee of the Liverpool Corporation recommend that 44,000*l.* should be placed at their disposal for the purchase of land and erection of dwellings under the Housing of the Working Classes Act. They also recommend that 7,850*l.* be paid over on artisans' dwellings ordinary account.

THE London Road Car Company, Limited, have issued at par 19,334 shares of 6*l.* each, for the purpose of providing and equipping new motor road cars and adapting the company's depôts to the altered conditions under which the traffic is proposed to be carried on. The list closes on the 10th inst.

THE Local Government Board have informed the Scarborough Corporation that it will be necessary to call a public meeting or take a poll of the town before they will be empowered to borrow additional money—about 20,000*l.*—for the completion of the new Marine Drive and south approach road. The total cost of the undertaking will be something like 100,000*l.*

A GARDEN village trust has been established by Mr. Joseph Rowntree, with the object of providing about forty dwellings for the working classes at Earswick, West Huntington, near York. The proposal is to erect houses which shall be artistic, sanitary and thoroughly well built, at rentals of about 4*s.* 6*d.* per week. If the experiment is to be a useful contribution to the housing problem, it is felt there should be a business return on the capital.

THE Irish Lights Commissioners invite tenders for the erection of a number of dwelling-houses for the men engaged in looking after the lighthouses at Slyne Head, co. Galway, and Ferris Point, Larne Harbour, co. Antrim. It is intended in each case that the buildings to be used as shore-dwellings shall consist of one block of four residences, and that they shall be provided with all necessary fittings, out-offices, boundary walls and rain-water tanks.

THE Irish Roads Improvement Association have distributed nearly 2,000 copies of a booklet on "Economical Steam-Rolling of Irish County Roads," by Mr. E. A. Hackett, county surveyor, Tipperary, to all the county councillors in Ireland, and to the urban and district councillors of Ulster. It has now been decided to send copies to all the surveyors

and assistant-surveyors in Ireland. Mr. P. C. Cowan, Local Government Board inspector, will be invited to write a pamphlet on Irish roads for distribution.

THE finance committee of the Hull Corporation at a meeting on Friday criticised the expenses of deputations. One member particularly referred to the charge of two guineas each for an afternoon at Leeds, and to eight or nine members going on one deputation. A return is to be presented, showing the amount received by each member as deputation expenses during the last five years, and also the amount by corporations of towns of similar size.

THE Chapel-en-le-Frith District Council have received the sanction of the Local Government Board to expend 28,000*l.* in the purchase of the three waterworks at Dove Holes and Chapel-en-le-Frith and the construction of works for Chinley and Bugsworth. The district will then be properly supplied, all the undertakings of local companies having been bought up by the local authority.

THE North-Eastern Railway Company some time ago declined to allow the Scarborough Corporation to place boards advertising the town in the principal stations on the company's line. The Corporation in return refused to permit the company's advertisements on town property. The Corporation have now, in response to a letter from the company, instructed the town clerk to inquire whether the directors had yet thought more favourably of the Corporation's previous request.

MESSRS. WM. BEARDMORE & Co., in pursuance of their resolve to provide housing accommodation for their workmen in the vicinity of their new shipbuilding yard at Dalmuir, have applied for "lining" for a first instalment of thirty-seven three-storey tenements, with shops on the ground floor. Thirty-four of this number will consist of one-room and kitchen houses, and the others of superior two-room and kitchen houses, with all modern preliminary furnishings and improvements. The value of the lining, which was granted, is 100,000*l.* These houses will accommodate 400 families, and the firm purpose erecting in the near future, on ground near to the N.B. station, a second instalment of their housing scheme, to give accommodation for at least other 700 families.



TRENT BRIDGE DEPOT—Nottingham Corporation Tramways—15 Kinnear Steel Rolling Shutters.

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CABOT'S INSULATING AND DEAFENING QUILT, CABOT'S CREOSOTE STAINS.

ARTHUR L. GIBSON & CO., 19, 20 & 21 Tower Street, Upper St. Martin's Lane, LONDON, W.C.

In the Liverpool Court of Passage on Tuesday a claim for damages by a window cleaner was heard. The plaintiff, in leaving a bedroom window which he had cleaned to gain access to his ladder, placed his hand upon a stone ornament on the portico of the door for the purpose of steadying himself. The ornament gave way and the plaintiff fell to the ground beneath, causing injuries which kept him out of employment for eight weeks. He claimed 39*l.* 17*s.* 8*d.* from the occupier as expenses, and also sought damages for pain and suffering. He estimated the net profits of his work at 2*l.* a week. For the defence it was contended that the plaintiff had made an undue use of the stone ornament, and the defendant was not liable. In what way, counsel asked, had defendant shown negligence? The jury found for the defendant, judgment being given accordingly.

The Malvern District Council have considered a report in regard to augmentation of the water supply from Mr. Whitaker, of Croydon, expert geologist. It was declared to be inexpedient, under present circumstances, to deepen the borehole from which the main supply is at present drawn, and suggested a new borehole in another part of the district. This would, however, be only a temporary expedient, and as the population increased it would be necessary to look further afield for a constant large supply. The New Red Sandstone at the southern range of the Malvern range of hills was the best source, and should yield a supply sufficient for Malvern and for other places near. It was decided to at once proceed with the opening of another borehole on land near to Malvern Common.

SIR OLIVER LODGE recently lectured at the Birmingham town hall on "Water, Wind and Weather." Dealing more particularly with fogs, the lecturer showed how electricity discharged into a steam cloud produced rain, and on the question of curing town fogs, remarked that there ought to be improved methods of combustion. Crude coal should not be allowed to be burnt in cities; it should be distilled into its constituents. The asphalt should be saved, and the coke separated and used instead of coal. The gas should be purified and supplied in large pipes to cities for daily consumption, not so much for lighting—though it might be used for lighting by mantle—but for heating and cooking purposes. He saw no reason, except governmental

or municipal reasons, why this should not be done, and when it was done cities would become clean and healthy places to live in.

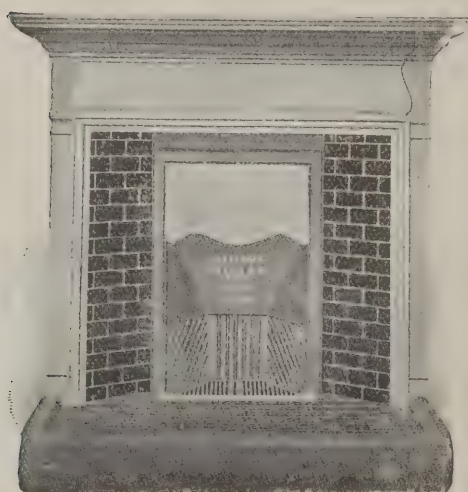
A DETAILED statement of the cost of the rating arbitration between the North-Eastern Railway Company and the York Union assessment committee has just been issued to the Guardians of the Union. The costs of nine expert witnesses were as follows:—Messrs. Ryan, 2,000*l.* 8*s.* 2*d.*; Barker, 1,746*l.* 5*s.* 10*d.*; Wellsted, 1,268*l.* 14*s.* 10*d.*; Turner, 1,064*l.* 14*s.*; Severne, 873*l.* 10*s.* 6*d.*; Moore, 851*l.* 12*s.*; Wells, 687*l.* 5*s.* 2*d.*; Sanders, 540*l.* 1*s.* 1*d.*; Hirst, 365*l.* 6*s.* 11*d.*; total, 9,397*l.* 18*s.* 6*d.* The fees of the nine counsel engaged in the case were:—Messrs. Castle, K.C., 774*l.* 5*s.*; Ryde, K.C., 755*l.* 1*s.*; Marshall, K.C., 643*l.* 1*s.* 6*d.*; Compston, 162*l.* 10*s.* 6*d.*; Taylor, 141*l.*; Kershaw, 99*l.* 17*s.* 6*d.*; Mellor, 76*l.* 17*s.* 6*d.*; Kemp, 52*l.* 17*s.* 6*d.*; Bradbury, 23*l.* 10*s.*; total, 2,728*l.* 10*s.* 6*d.* The remaining items are as follows:—North-Eastern Railway costs, 7,684*l.* 18*s.* 6*d.*; Allvey (accountant), 3,894*l.* 16*s.* 2*d.*; Castle & Son (valuers), 2,861*l.* 19*s.* 11*d.*; printing, 566*l.* 1*s.* 2*d.*; shorthand notes, 434*l.* 2*s.* 5*d.*; personal expenses, 195*l.* 19*s.* 7*d.*; London agents to solicitors, 180*l.* 7*s.* 10*d.*; arbitrators, 74*l.* 10*s.*; taxing master, 48*l.* 3*s.* 4*d.*; Westminster Palace Hotel (use of rooms), 30*l.* 18*s.*; commission on cheques, 11*l.* 8*s.* 6*d.*; grand total, 30,929*l.* 15*s.* 11*d.*

COLONEL A. J. HEPPER, R.S.E., has held an inquiry at Derby into an application made by the Corporation for the issue of a provisional order to partially repeal or alter the Derby Corporation Act, 1901, so as to extend the time allowed for the completion of the sewerage and sewage disposal works authorised by the Act. The inspector remarked that when application was first made for powers, the Corporation asked for ten years, but as Parliament had only granted four, the Local Government Board would have to be very careful how the allotted period was extended. Mr. Walter Mansergh, in giving evidence as representative of the engineers, said that contract No. 1 was for the laying of 14,850 lineal yards of sewers. The order to commence was given the contractors in June 1902, and the time allowed was two and a half years. The accepted tender amounted to 131,464*l.*, and up to November 24 last the value of the work done was 92,924*l.* Con-

ALEXANDER RITCHIE & CO.

(ALEXANDER RITCHIE, late Managing Director, Messrs. McDowall, Steven & Co. Ltd., London),

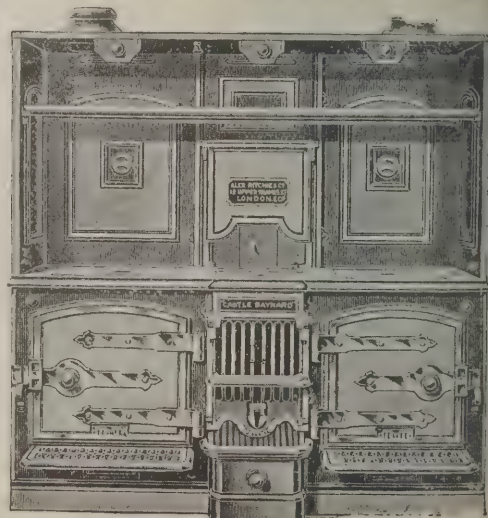
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tract No. 2 for treatment works was let for 85,473*l.*, and was to be finished in June 1905. The value of the portion that had been done up to November 24 last was 63,913*l.* Considerable delay had arisen in executing contract No. 3 for the supply of filtering material. The material originally selected for the purpose was honey-combed slag, but on the advice of Dr. Barwise, the medical officer of health for Derbyshire, and after conducting a series of experiments which showed that honeycombed slag had a tendency to disintegrate, another agent was decided upon. A difficulty was then experienced in obtaining any contractors who were willing to deliver this last material within a specified time. The contract amounted to 17,467*l.*, and 7,367*l.* had been delivered in position. Contract No. 4, to be completed in July, 1905, was for 16,435*l.*; and Contract No. 5 for pumping machinery amounted to 14,914*l.* With the exception of contract No. 3 all the contracts were let in time for completion within the statutory date, provided that no unforeseen difficulties arose. The number of men employed upon the works had been about 725, but in the middle of "the working season" the number had risen to 860.

ELECTRIC NOTES.

THE Commonwealth Electric Company of the United States are seeking a franchise for the installation of an electric lighting system in Philadelphia. A sum of 10,000,000 dols. has been guaranteed for that purpose.

THE Shrewsbury Town Council have sanctioned a preliminary expenditure of 508*l.* on extension works in connection with the electric lighting undertaking. The estimated cost of the further extensions will be approximately 5,295*l.*

PORT GLASGOW Town Council are considering the advisability of proceeding with a scheme whereby the town will be lighted by electricity. It is proposed to utilise the waste steam at the destructor for generating electricity, and also possibly to supply small works for power purposes.

THE Arbroath Town Council have entered into an agreement with the Empire Electric Lighting Company, Ltd., for the introduction of electric light. The company will com-

mence operations when they obtain possession of the site for the works.

THE South Wales Electrical Power Distribution Company recently entered into a provisional agreement with the Carmarthenshire Electric Power Company to take over all the powers conferred by Parliament in 1903 on the Carmarthenshire Company. The agreement is made subject to the consent of Parliament, and to three-fourths of the shareholders in both companies passing a special confirmatory resolution.

MR. A. T. SMITH, of Bury, has been recommended by the electricity committee of the Leigh Corporation for appointment to the post of electrical engineer, in the place of Mr. D. M. Kinghorn, who has been appointed electrical engineer of Southwark at a salary of 350*l.* per annum. Mr. Smith is to receive 250*l.* per annum, rising to 350*l.* by yearly increments of 25*l.* There were 147 applicants for the post.

MESSRS. DICK, KERR & Co. have shipped 250 tons of electrical machinery in connection with their contract for the complete equipment of the Tokio, Denki, Tetsudo and Kabushiki Company's Tramways. The installation of this tramway system, which when finished will cover over sixty miles of line and operate some 250 cars, is being carried out by Messrs. Dick, Kerr & Co.

TRADE NOTES.

THE additions to the borough sanatorium, Brighton, are being warmed and ventilated by means of Shorland's double-fronted patent Manchester stoves.

THE new Lyceum music hall has received general admiration on account of the excellence and style of the decoration, seating and upholstery. The credit for the whole of those classes of work belongs to Messrs. S. J. Waring & Sons.

MESSRS. WM. BIRCH, LTD., 370 Euston Road, N.W., were awarded at St. Louis Exhibition both the Grand Prize and Gold Medal for their extensive exhibit of furniture and cabinet-work. At a recent visit to their show-rooms we

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St. Paul's Church, Homerton, London, N.

St. Andrew's Church, Whitehall Park, Hornsey Lane, London, N.

Mount View Congregational Church, Stroud Green, London, N.

Marsworth Church, near Tring, Herts.

Pitstone Church, near Tring, Herts.

St. Peter's Church, Parkstone, Dorset.

St. Mary's Church, Longfleet, Poole, Dorset.

St. James's Church, Poole, Dorset.

St. Mary's Church, Atherstone, Warwickshire.

Salford Priors Church, Warwickshire.

The Jesse Haworth Memorial Church, Walshaw, near Bury, Lancashire.

The Cathedral Church, Pretoria, South Africa.

St. Matthias Church, Barbadoes, West Indies.

St. Thomas's Church, Newport, Isle of Wight.

St. John's Church, Forton, Gosport.

St. Paul's Church, Peterborough.

Linslade Parish Church, Leighton Buzzard.

St. Mary's Church, Linslade, Bucks.

Works have been carried out under the direction of the late Sir ARTHUR W. BLOMFIELD, A.R.A., J. L. PEARSON, Esq., R.A., F.S.A., Messrs. BOOTH & CHADWICK, Manchester, and other eminent Architects.



were impressed with the excellence of design and workmanship alike shown in all their various departments.

MESSRS. ROTTMANN & Co., of 25 and 26 Garlick Hill, Queen Victoria Street, E.C., manufacturers of Japanese leatherpapers and English wallpapers, have just opened West End showrooms at 29 Mortimer Street, W. The City address, however, will continue to be the head office and warehouse.

MESSRS. ROBT. W. BLACKWELL & Co., LTD., who supply "Ruberoid," a valuable roofing material, and whose address is 59 City Road, London, are issuing a neat little memorandum book. The special feature in connection with it is the fact that only one page is occupied by the firm's announcement, giving useful information; the rest of the pages are for use, and not interleaved throughout with advertisement material of the firm's specialities, as is too often the case with manufacturing firms.

MESSRS. ARCHIBALD SMITH & STEVENS have issued a third edition of their "Notes on Electric Lifts." Although only a brochure of about forty pages, there are so many facts introduced, anyone who may be unacquainted with lifts will, after reading it, be in a position to understand the principles involved in the construction and working of aids which are every-day becoming more indispensable in cities and towns. Several illustrations of new machines by the firm are given.

We have received Calendars from the following well-known firms amongst many others:—The Limmer Asphalt Co.; the Silicate Paint Co. (Duresco), Jas. Duthie & Co., sole agents for Scotland and Ireland; Peckett & Sons (locomotive manufacturers, Bristol); the Willesden Paper and Canvas Works, Ltd.; Cooper & Budd; Kaye & Co. (Rugby); W. Potts & Sons (Leeds); McTear & Co. (Belfast); the Yost Typewriter Co.; the Falcon Brass Works Co., Merryweather & Co., Robert Boyle & Co., &c., &c.

We have received a price list of Sankey's perfect-draught chimney-pot. The special features claimed are that they are everlasting, simple, effective, and supplied at a particularly reasonable charge. The louvres in these pots are deeper, and openings are so made that the wind is caught from any quarter, causing a considerable up-draught in the chimney, and from the internal construction the possibility of down-draught is obviated. The manufac-

turers are Messrs. J. H. Sankey & Son, Ltd., of Essex Wharf, Canning Town, London.

A LARGE new clock has just been erected in the parish church, Hampton-on-Thames, which has four large dials and strikes the hours upon the tenor bell. It is fitted with all the latest improvements and is guaranteed by the makers to keep time with great accuracy. It will be a most useful clock, as it is so well seen from the river Thames. The work has been carried out by Messrs. John Smith & Sons, Midland Clock Works, Derby, to the designs of Lord Grimthorpe.

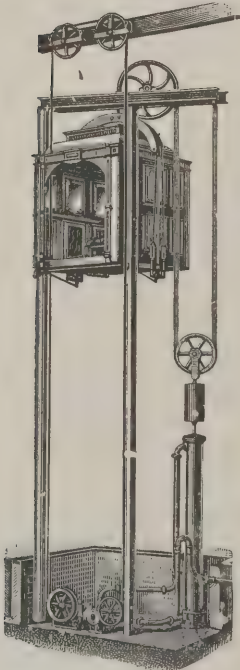
MR. VINCENT ROBERTS, heating engineer, of Cherry Row, Leeds, has recently secured the contract for heating and ventilating a large suite of new offices for the Aire and Calder Navigation, Ltd., Leeds, on the low-pressure water system; also new Corporation baths, Ripon, by low-pressure steam radiators. He is also just completing a large installation (heating and hot-water supply) for the Arthington Semi-convalescent Home, Cookridge, near Leeds. During the last two or three months he has carried out many hot-water heating installations for various places of worship, private residences, works and offices.

VICTORIA STONE.

THE remarkable adaptability of the Patent Victoria Stone to meet all requirements of form, construction or colour is exemplified by some of the works which were lately executed by the company, or are now in hand. With so many undertakings it is difficult to make a selection. But the following will serve to show how suitable the material is for external work, owing to its power of resistance against all atmospheric influences and the ease with which it can be procured in colours which will be adapted to each building.

At the new electric power station for the Brighton Corporation at Southwick the staircases are constructed of Victoria stone. It is also employed for the large cornices, sills, heads, rusticated ashlar, &c. The power station adjoins the gasworks. The stone will, therefore, be subjected to the gas fumes, in addition to its exposure to the destructive effect of the sea air, for the building stands in a very un-

ARCHD. SMITH & STEVENS.



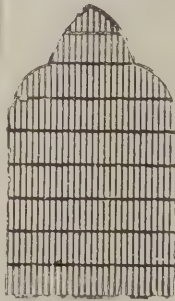
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sheltered position. A mansion at Ogmore Vale, South Wales, is in a colliery district. But Victoria stone was selected owing to the confidence that it would withstand all the resulting injurious influence. The Carnegie Library, Hartlepool, is another structure which occupies an exposed site. Externally it will be constructed of Victoria stone, and there is no apprehension that the sculptured panels and other carved work, which are in the same material, will have any of their sharpness or beauty diminished in the least degree. The air of Southampton is not easily withstood. But in the new tourist offices of Messrs. Cook at the corner of John Street and Oxford Street carved figures, elaborate ornamentation and enriched details have been confidently employed owing to experience of Victoria stone, which in this case is generally of the red Mansfield tint. It is also selected for the stonework of the Blind Institution, Nottingham.

In and around London a great many buildings are to be seen which from its employment externally will enable any passer-by to testify to the success with which Victoria stone resists the deleterious influences of the atmosphere. It is employed for the whole of the external architectural work in the new stables for Messrs. Macnamara, the carriers, in Hill Street, Finsbury. The tint is a brownish Portland. In a new warehouse for Mr. Sampson, Diana Place, Euston Road, a staircase in this stone is also worth inspection. The work is in a normal grey colour. The material has been extensively employed in several important blocks of mansions in Clarence Gate, Regent's Park. The Crown and Anchor public-house, in Neal Street, Long Acre, has been recently completed, the stonework being of a yellow Mansfield tint. It is being used for the Queen's Arms, Chelsea. Buildings of this class require to be attractive, and the stone lends itself to the most ambitious desires of the owners. At The Russells, Watford, the conservatory has been erected with pilasters, cornices and ornament in Victoria stone. For the new Carnegie Library at Hanwell, now in progress, a stone of a yellow Mansfield tint has been adopted, while for the Omega Road school at East Ham grey-coloured stone was preferred. For the Hampstead General Hospital a Portland stone tint was preferred for the external stonework, the capitals and enrichment to the porch

being carved. The staircases and other parts of the Municipal Buildings, Tottenham, exemplify its use in architectural work, where the buildings in connection with the destructor of the same district are evidence of its suitability for engineering works. It is also employed in railway works throughout the country.

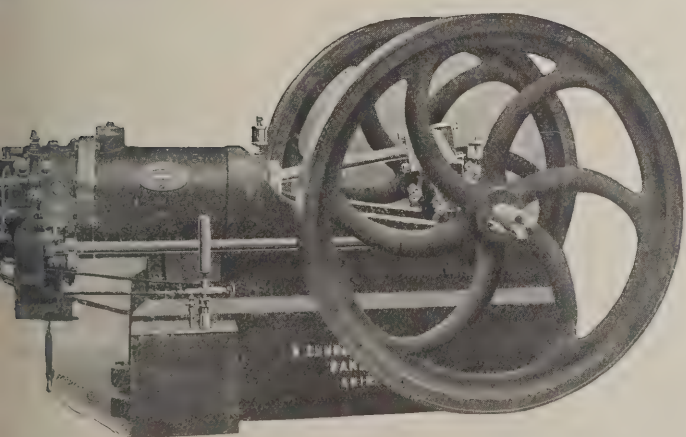
It is satisfactory to find that a material in the production of which science as well as art are combined is meeting with such general favour. But when it is known to serve with equal efficiency for the paving of footways, or wherever traffic is heaviest, and yet can be utilised for delicate carving, and from its manner of production can be made subservient to all styles of architecture, the success of the Patent Victoria Stone is not surprising.

CARISBROOKE PARISH CHURCH.

By request Mr. Thackeray Turner recently inspected and reported upon the condition of Carisbrooke parish church, which has proved so attractive to visitors to Carisbrooke Castle. In his report Mr. Turner states that the church is a structure of great beauty, and the tower a very fine specimen of Perpendicular work. The building is in sound condition except the west wall of the porch. The tower is sound and strong, but the bells are hung in such a way that the strain and vibration caused by their ringing are beginning to produce cracks in the stonework, and he strongly advises an alteration in the hanging of the bells. He recommends various works of repair, the reglazing of all the windows except those of stained glass, and suggests the necessity for reseating and the removal of the organ and choir stalls from the west end to the east end of the church, so as to open out the tower arch and the west window. Mr. Turner's reference to the chancel question is specially interesting in view of the proposal made, but not carried out, for the restoration of the ancient chancel (which was pulled down by Walsingham to save cost of repair) as the Isle of Wight memorial to the late Prince Henry of Battenberg as Governor of the Island. He says that opening the chancel arch and building a chancel has

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many objections. A new chancel would be a great disfigurement, graves would have to be disturbed, and, when built, the chancel would be very little use, for the chancel arch could not be more than 9 feet 8 inches in the clear, and to alter the arch would be out of the question. An effort is being made to carry out the necessary restoration work.

VALUES OF SITES IN MANCHESTER.

WHEN the question of taxing land values comes to be considered as practical politics it will not be difficult, says the *Manchester Guardian*, to show some astonishing examples of the way in which sites in Manchester have multiplied their value by a very substantial numeral in the course of a couple of generations. There was offered for sale recently a block of property in Market Street called Palace Buildings. The site carries an annual chief rent of 1,200*l.* and measures 800 square yards. A correspondent who has been delving into Manchester property records of 1774, tells us that a gunmaker in Market Street, named Aston, occupied premises on the site of Messrs. Derbyshire & Holmes's shops and had a garden behind the house stretching as far as Cannon Street. That site to-day produces an annual revenue beside which the full value of the property 130 years ago becomes insignificant. Aston thought the vendors wanted too much money when they asked him 800*l.* for the entire plot. The same correspondent supplies us with some other prices of land in Manchester seventy years ago, and these we are able to supplement with some highly interesting advances of values in more recent times, for which we are indebted to one of our best-known firms of land agents. When the Manchester improvement committee obtained an Act of Parliament in 1830 for various improvements they bought much land under compulsory powers—not, of course, the cheapest way of purchase.

But when we come to consider present-day prices the yardage paid seventy years ago seems very small indeed. For land in Market Street 7*l.* 10*s.* per yard was paid; for land in Cross Street, Pool Fold, King Street and Fountain Street 5*l.* per yard; at Smithy Door 8*l.*, at the corner of Todd Street and Long Millgate 5*l.* 13*s.* Land in Deansgate,

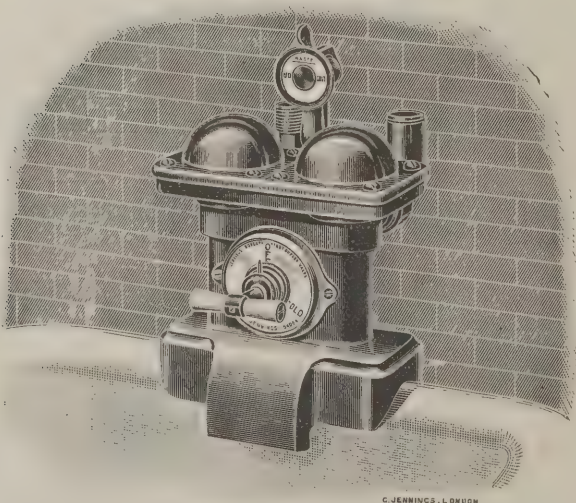
near St. Mary's Gate, fetched 4*l.* a yard, and land occupied by property extending down Smithy Bank from the corner of Cateaton Street to the river 4*l.* 7*s.* 6*d.* per yard. The highest price paid at that time was 9*l.* per yard for a plot of land in Parker Street. In the Parsonage the price was only 2*l.*, in Liverpool Road, 1*l.* 10*s.*, in Brazennose Street 13*s.* 4*d.*, in Albion Street and Little Peter Street 10*s.* the list one remarkable example of increased values relative to the Prince's tavern, at the corner of Cross Street and John Dalton Street. The tavern has been razed and a block of business premises built in its place. It was sold by auction in 1885 for 14,300*l.*, which works out at the rate of 54*l.* a yard, and it was resold privately not many months ago at a price which, we are informed, was considerably over 100*l.* a yard.

In the last twenty-four years there has been a steady and substantial advance of values in Market Street. In 1880 there was a sale of 81 to 89 Market Street, at 63*l.* 10*s.* a yard; in 1883 a sale of 102 and 104 Market Street, at 73*l.* 10*s.* a yard; in 1894 a sale of 35 and 37 Market Street, at 95*l.* a yard, and in July of the present year a sale of 72 and 72A Market Street, at 100*l.* a yard. In Oxford Street sales in 1891 and 1900 show that the price per yard has gone up from 2*l.* to 5*l.* 7*s.* 6*d.* Cross Street values appear to have been doubled in twenty-three years. A plot of land and buildings at the corner of Cross Street and King Street with a chief rent of 4*l.* was put up for auction in 1881 and withdrawn at 20,250*l.*, which worked out at 60*l.* 10*s.* a yard. The same property was sold in March, 1900, for 40,000*l.*, which is at the rate of 120*l.* a yard. The 1881 bid was at the rate which generally obtained at that time, for we have details of a sale in the same year of shops and offices at the opposite corner of Cross Street and King Street, and there the price per yard worked out at 63*l.*, and again in 1881 there was bidding for the shops 59 and 61 Cross Street, and 1 to 5 Princess Street, a site of 420 square yards, which worked out at 59*l.* 10*s.*, ignoring the chief.

Figures concerning property sales in other central thoroughfares of the city show that those we have given are in no way exceptional advances. The value of land in Manchester has gone up at a surprisingly rapid rate in the last quarter of a century, and every sale of property shows that the advance is still going on.

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Architect and Contract Reporter.**EDITORIAL NOTICES.**

In view of the many difficulties which are certain to arise in connection with the law, practice rules and procedure under the Workmen's Compensation Act, we have added to our staff A VERY EMINENT BARRISTER, who has made the subject a special study, and will be glad to answer in the columns of this paper any questions relating to the complicated matters arising from the provisions of this difficult Act. Our LEGAL ADVISER will further answer any legal question that may be of interest to our readers. All letters must be addressed "LEGAL ADVISER," Office of "The Architect," Imperial Buildings, Ludgate Circus, London, E.C.

The Editor will be glad to receive from Architects in London and the Provinces results of Competitions and Tenders and other particulars of Works in progress in which they may be interested.

The authors of signed articles and papers read in public must necessarily be held responsible for their contents.

IMPORTANT NOTICE

TO THE

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COMPETITIONS OPEN.

ALNWICK.—Jan. 24.—The governors of Alnwick infirmary invite designs for a new building. First premium, £100; second premium, £30. Mr. Frank Caws, F.R.I.B.A., has been appointed assessor. Plans on application to Mr. W. T. Hindmarsh, 26 Bondgate Without, Alnwick, hon. sec. to the building committee.

AYLESBURY.—Feb. 28.—For public elementary school for 750 children. Premiums 50% and 25%. Conditions and plan

of site obtainable from Mr. C. G. Watkins, Education Secretary, Aylesbury, on payment of 1*l.* 1*s.*

BELFAST.—Jan. 17.—The library and technical instruction committee seek sketch designs in competition for three Carnegie branch libraries. They are to be addressed to the Chairman, Public Library, Royal Avenue, up to 12 noon on January 17. Printed conditions, with plan of the sites, will be supplied by the Chief Librarian.

LAMBETH.—March 30.—For municipal buildings at Brixton Hill. Particulars from Mr. H. J. Smith, Town Hall, Kennington, S.E.

OXFORD.—Feb. 1.—The education committee of the county of Oxford invite competitive designs for a provided school for 800 children in three departments, together with a teacher's house, at Caversham. Mr. S. Stallard, county surveyor, Oxford.

PRESTON.—Feb. 28.—Designs and plans for new elementary school. Premiums of £50, £30 and £20. Plan and conditions from Director of Education, Education Offices, Preston.

WOLVERTON.—Feb. 28.—For public elementary school for 400 girls and 400 infants. Premiums 50% and 25%. Also for secondary school to accommodate about 120 boys and girls. No premiums offered. Conditions to be obtained on payment of 1*l.* 1*s.* in each case from Mr. C. G. Watkins, Education Office, Aylesbury.

CONTRACTS OPEN.

ARNSIDE.—Jan. 24.—For the erection of the north aisle, &c., to St. James's Church, Arnside, near Kendal. Mr. R. Morton Rigg, architect, Arnside.

BILLERICAY.—Jan. 19.—For the conversion of the Billericay town hall, Essex, into a police station. Mr. F. Whitmore, county architect, Duke Street, Chelmsford.

BILLERICAY.—Jan. 23.—For the erection of cottage homes for children at Billericay, Essex. Mr. T. Hillier Pyke, architect, 61 Prestbury Road, East Ham.

BRADFORD.—Jan. 16.—For works required in erection of two hospitals at the union workhouse, Horton Lane, Bradford, for the Guardians. Mr. Fred Holland, engineer and architect to the Board, 11 Parkinson's Chambers, Hustlergate, Bradford.

BRADFORD.—Jan. 17.—For the internal joiner and cabinet-maker's work required in the enlargement of the central offices in Manor Row, Bradford, for the Guardians. Messrs. Empsall & Clarkson, architects, 7 Exchange, Bradford.

CARDIFF.—Jan. 16.—For erection of a Sunday school at St. Catherine's, Canton, Cardiff. Mr. George E. Halliday, architect, Cardiff.

COVENTRY.—Jan. 16.—For building a valve-house and two weigh offices, together with foundations for 30-ton weigh machine, at Foleshill works, for the Coventry gas committee. Mr. Fletcher W. Stevenson, engineer and general manager, Gasworks, Coventry.

CROYDON.—Jan. 18.—For the following works, for the Croydon Rural District Council:—(a) Erection of a cottage, cart, tool and steam-roller sheds at stores depôt, Bute Road, Wallington, Surrey; (b) erection of office, cart, tool, and steam-roller sheds in Kingston Road, Merton. Mr. Robert Masters Chart, Union Bank Chambers, Croydon.

DARLINGTON.—Jan. 17.—For the erection of a workshop in Houndgate, Darlington. Messrs. Clark & Moscrop, architects, Feethams, Darlington.

DEVONPORT.—Jan. 16.—For the erection of a dwelling-house on the Ordnance Street site, for the Town Council. Borough Surveyor, 29 Ker Street, Devonport.

EAST HAM.—Jan. 19.—For the enlargement of Manor Park school, for the East Ham education committee. Mr. R. L. Curtis, architect, 11 and 12 Finsbury Square, London, E.C.

GLASGOW.—Jan. 16.—For the execution of the following works, viz.:—(1) Mason, wright, slater and plasterer; (2) plumber; and (3) painter at Mosesfield House, for the Corporation of Glasgow. Office of Public Works, City Chambers, Glasgow.

IRELAND.—Jan. 18.—For general repairs of labourers' cottages, for the Navan Rural District Council. Mr. Charles Lacy, clerk, Board-room, Navan.

KIDDERMINSTER.—Jan. 20.—For the erection of engine-house, boiler-house and chimney stack, together with the provision, laying and jointing of about 800 yards of 10-inch

cast-iron distributing main, for the Corporation. Messrs. Wilcox & Raikes, engineers, Union Chambers, 63 Temple Row, Birmingham.

LEEDS.—Jan. 21.—For the erection of a Wesleyan school chapel at Harehills. Mr. J. W. Thackray, architect, 4 Greek Street, Leeds.

LEEDS.—Jan. 24.—For supplying and fixing doors and screens to second-class dressing-boxes at Union Street and Kirkstall Road baths. City Engineer's Office, Leeds.

LLANELLY.—Jan. 17.—For the extension of the goods offices at Llanelly station, for the Great Western Railway Company. Engineer, Neath Station.

LONDON.—For the supply of goods and subsidiary works required in connection with the erection of new and additions and alterations to existing schools in the London district, including asphalt, bricks, fibrous plaster slabs, cast and wrought ironwork, rainwater goods, slatework, stone landings, artificial stone, tar paving, zincwork, brasswork, drain pipes, enamelled iron pipes, ironmongery, granolithic paving, plumbers' brasswork, sanitary goods, slating and tiling, steps, templates, &c. Manager of Works, London County Council, Belvedere Road, Lambeth, S.E.

LONDON.—Jan. 17.—For the construction at Chelsea infirmary of a new boiler-house, with iron girders and concrete roof, the diversion of drains, seating in firebrick of a Lancashire steam-boiler, the removal of old boiler and other work. Mr. Joshua Dowling, clerk, 250 King's Road, Chelsea, S.W.

LONDON.—Jan. 18.—For the construction of a brick chimney shaft, 180 feet high, with 10 foot flue, on a prepared concrete foundation, at the Council's wharf, Townmead Road, Fulham. Mr. Francis Wood, borough engineer and surveyor, Fulham Town Hall.

LONDON.—Jan. 24.—For the erection of a public elementary school on the Senrab Street site, Mile End Old Town. The Architects' (Education) Department (Room 148), Education Offices, Victoria Embankment, W.C.

LONDON.—Jan. 24.—For the completion of the restoration of 17 Fleet Street, E.C., for the London County Council. General Section, Architect's Department, 15 Pall Mall East, S.W.

LUTTERWORTH.—Jan. 21.—For the erection and completion of a small police court, cottage, &c., at Lutterworth. Mr. S. Perkins Pick, county architect and engineer, 6 Millstone Lane, Leicester.

MANCHESTER.—Jan. 18.—For the erection of dressing-rooms at the receiving wards at the Manchester workhouse, Crumpsall. Mr. A. J. Murgatroyd, architect, 23 Strutt Street, Manchester.

MANCHESTER.—Jan. 19.—For excavating and concreting required in foundations for the extension of the elevated railway at Gaythorn station, for the gas committee. Mr. J. G. Newbigging, engineer, Rochdale Road Station.

NEWCASTLE-ON-TYNE.—Jan. 24.—For the erection and completion of new school at Shiremoor, Earsdon. Mr. J. A. Bean, county surveyor, The Moot Hall, Newcastle-on-Tyne.

OULTON.—Jan. 16.—For certain works at the isolation hospital, Oulton, Lowestoft, in connection with the hot and cold-water supply, and for cementing the inside walls of the wards. Messrs. Olley & Haward, architects, 5 Queen Street, Great Yarmouth.

PLYMOUTH.—Jan. 21.—For the removal of a partition and other work at the Regent Street secondary day school. Education Offices, 18 Princess Square, Plymouth.

ROTHERHAM.—Jan. 20.—For the erection of a new post office at Rotherham. H.M. Office of Works, &c., Storey's Gate, S.W.

SCOTLAND.—Jan. 17.—For the various works required in connection with the erection of four homes, for the Edinburgh District Lunacy Board. Mr. Hippolyte J. Blanc, architect, 25 Rutland Square, Edinburgh.

SCOTLAND.—Jan. 23.—For alterations and additions to Commissioner Street public school, Crieff. Mr. M. Finlayson, clerk to the Crieff School Board, Crieff.

SKIPTON.—For the erection of a detached residence, Skipton. Mr. J. W. Broughton, architect, 19 High Street, Skipton.

SKIPTON.—Jan. 18.—For the works required in erection of five cottages in Duke Street, Skipton. Mr. James Hartley, architect, Skipton.

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SWINTON.—Jan. 18.—For the erection of a technical instruction-room, Swinton, near Manchester, for the Manchester Board of Guardians. Mr. A. J. Murgatroyd, architect, 23 Strutt Street, Manchester.

TIDESWELL.—Jan. 25.—For the erection of a new lock-up at Tideswell, Derbyshire. Mr. J. Somes Storey, county surveyor, County Offices, St. Mary's Gate, Derby.

TOTNES.—For the erection of new buildings, alterations and repairs at Hampstead Farm, near Totnes, and Parkhill, Littlehempstone. Messrs. Bourne & Son, land agents, Totnes.

WALES.—Jan. 16.—For pulling-down and rebuilding the West of England tavern, Pill, Newport, Mon. Messrs. Lansdowne & Greig, architects, Metropolitan Bank Chambers, Newport, Mon.

WALES.—Jan. 16.—For erection of a new Baptist chapel and schoolrooms at Glynccorrwg, Port Talbot. Mr. D. L. Evans, architect, Blaengwynfi.

WALES.—Jan. 16.—For the rebuilding of the Angel inn, Neath. Mr. J. Cook Rees, architect, Neath.

WALES.—Jan. 16.—For the erection of a new boys' school at Romilly Road, Barry, Glamorgan. Mr. G. A. Birkenhead, architect, Caledonian Chambers, Cardiff.

WALES.—Jan. 19.—For building a church at Miskin, in the parish of Llantrisant. Mr. E. M. Bruce Vaughan, architect, Cardiff.

WALES.—Jan. 21.—For additions, &c., to Pendoylan National schools. Mr. E. Jenkin Williams, architect, 17 Quay Street, Cardiff.

WALES.—Jan. 25.—For the erection of thirty-two houses at Deri. Mr. P. Vivian Jones, architect and surveyor, Hengoed.

WALES.—Jan. 31.—For building a villa residence and farm buildings at Rhyd, Blaenannerch, near Cardigan. Mr. James Jones, architect, Dolwen, Rhydlewis, Henllan, R.S.O.

WALES.—Jan. 16.—For making an entrance and providing and fixing a division railing and other work at the Nanthir Council school at Blaengarw. Mr. T. Mansell Franklen, clerk of the Glamorgan County Council, Westgate Street, Cardiff.

TENDERS.

BLACKHEATH.

For the erection of Baptist church, Shooter's Hill Road, Blackheath. Mr. S. S. DOTTRIDGE and Messrs. THOMPSON & WALFORD, joint architects.

F. & H. F. Higgs	£6,900	0	0
Higgs & Hill	6,444	0	0
Holliday & Greenwood	6,377	0	0
Kennard Bros.	6,328	0	0
J. & C. Bowyer	6,280	0	0
J. & W. Falkner & Son	6,210	0	0
W. Akers & Co.	6,163	0	0
Holt & Son	6,150	0	0
Wallis & Son	6,144	0	0
J. & H. Roberts	6,139	0	0
Batley, Son & Holness	5,987	0	0
Patman & Fotheringham *	5,983	0	0

* Recommended for acceptance.

CROYDON.

For the erection of a detached house in Lismore Road, Croydon. Mr. FRANK WINDSOR, architect, 1 High Street, Croydon.

Sedgewick Bros.	£839	0	0
Everitt	743	0	0
Pearson & Co.	735	0	0
W. GOWMAN, Croydon (accepted)	733	0	0

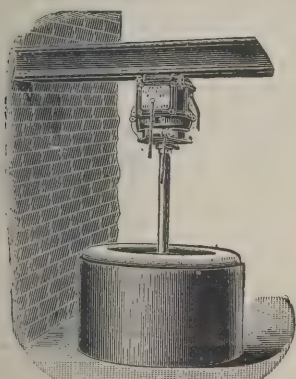
For the erection of girls' meeting hall, Bynea Road, South Croydon. Mr. FRANK WINDSOR, architect, 1 High Street, Croydon.

Wawman	£223	6	0
Pursley	195	0	0
Rex	173	0	0
W. GOWMAN, Croydon (accepted)	146	0	0

For proposed alterations at Knighton, Pampisford Road, Croydon. Mr. FRANK WINDSOR, architect, 1 High Street, Croydon.

Barker	£198	0	0
Bailey, Croydon (provisionally accepted)	185	0	0

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For the erection of eight houses and office at Anchor Place, Croydon. Mr. FRANK WINDSOR, architect, 1 High Street, Croydon.

E. J. SAUNDERS, Croydon (accepted) . . . £2,925 0 0

CHIPPENHAM.

For sewage and sewage disposal works. Mr. A. E. ADAMS, engineer, Chippenham.

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Webb 16,666 0 0

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Osman 12,998 0 0

Bird & Pippard 12,957 0 0

Downing & Rudman 12,877 0 0

Johnson & Langley 12,860 8 11

Wood 12,764 1 3

Pethick Bros. 12,700 0 0

Grounds & Newton 12,700 0 0

Roberts 12,600 16 8

Hodson & Son, Ltd. 12,566 5 7

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Strickland 12,453 0 0

Powell 12,311 15 7

Harrison & Co. 12,081 0 0

Johnson Bros. 12,049 0 0

Moran & Son 12,000 0 0

Riley 11,999 17 0

Firth & Co. 11,879 3 11

Ashley 11,708 3 10

Free & Co. 11,564 11 6

E. IRELAND, Morecambe (accepted) 11,550 2 9

Colborne 10,799 17 7

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For the erection of a new section house for police. Mr. J. DIXON BUTLER, architect, New Scotland Yard. Quantities by Messrs. THURGOOD, SON & CHIDGEY.

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Adams 4,114 0 0

R. BALLARD, LTD. (accepted) 3,950 0 0

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Upton £617 0 0

Reed 616 0 0

Knill 607 0 0

Pickett 600 0 0

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Smith 547 0 0

Pearce 541 0 0

R. FRY (accepted) 524 0 0

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Horton	15,994	0	0
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Bishop	15,687	0	0
Webb	15,655	0	0
Hopkins	15,500	0	0
Sapcote & Sons	15,488	0	0
Barnsley & Son	15,388	0	0
Gibbs	15,151	0	0
Turton	15,099	0	0
W. & J. Webb	15,044	0	0
W. Lee & Sons	14,999	0	0
J. Webb	14,989	0	0
Gowing & Ingram	14,793	0	0
Whitehouse & Sons	14,571	0	0

HENDON.

For portable fire-escape shed for the Urban District Council. Mr. S. SLATER GRIMLEY, engineer.

R. Iles, Ltd.	£193	0	0
Hudgell	137	0	0
Lisles	131	10	0
Humphreys, Ltd.	127	0	0
McManus	116	0	0
Glover & Sons	113	0	0
Harbrow	111	0	0
A. E. Brown ("Frazzi" system)	106	5	0
Turpin Bros.	104	0	0
Smith & Co.	99	0	0
Pecover*	87	0	0

* Recommended for acceptance.

HULL.

For taking-down shops in Whitefriargate, Hull, and the erection of banking premises, for the Halifax Commercial Banking Company, Ltd. Messrs. WALSH & GRAHAM NICHOLAS, architects, Museum Chambers, Halifax.

G. HOULTON & SONS, LTD., Hull (accepted).

For work in basement and shops, forming part of the public hall, for the Corporation. Mr. JOSEPH H. HIRST, city architect.

Sangwin	£15,952	10	1
Bowman & Sons	15,650	0	0
Arnold & Sons	15,460	0	0
Good & Sons	15,450	0	0
Beilby	15,299	0	0
Goates	15,290	0	0
Hebblewhite & Wilson	15,268	15	9
G. H. PANTON, Anlaby Road (accepted)	15,268	15	9

For steel and ironwork in connection with the cart sheds, Wincolmlee, for the Corporation. Mr. JOSEPH H. HIRST, city architect.

Boulton & Co.	£298	1	6
Ward & Oliver	276	4	5
Young & Peck	275	19	6
Coonan	269	8	0
Parsons & Sons	256	1	4
Skipworth, Jones & Lomas, Ltd.	246	1	2
BLAKELEY & Co., Liverpool (accepted)	232	0	0

IRELAND.

For building a technical school, for the Coleraine Urban District Council. Messrs. W. & M. GIVEN, architects, Coleraine.

W. GOULD & Co., Diamond, Coleraine, co. Derry (accepted) £1,484 9' 3

LONDON.

For repairs and decorations to five shops at Lower Clapton. Mr. HEREERT RICHES, architect.

J. T. ROBEY (accepted) £828 0 0

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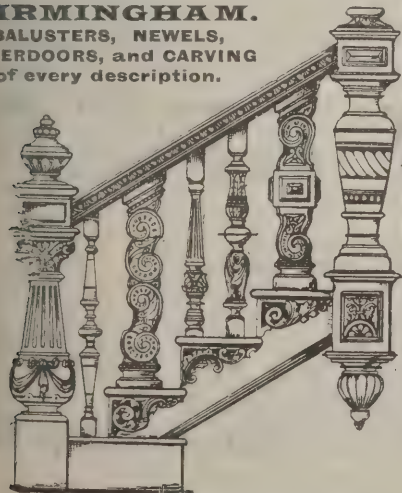
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Tonge & Co., Ltd.	1,391	6	2
W. Johnson & Co., Ltd.	1,298	0	0
Reason.	1,290	0	0
Johnson & Co.	1,289	0	0
Aldridge & Son	1,189	19	0
Morley & Myer	1,188	6	0
Lawrence & Son	1,044	0	0
Renshaw	1,023	0	0
Kent	1,012	5	0
Shelbourne & Co.	1,005	0	0
Thomas & Edge	997	0	0
White & Co.	978	0	0
Cruse & Co.	954	0	0
Harbrow	940	0	0
B. E. NIGHTINGALE, Albert Embankment, S.E. (accepted)	875	0	0

For alterations and interior fittings to 240 High Road, Lee, S.E., for the London and South-Western Bank, Ltd. Mr. C. L. MORGAN, architect.

Lascelles & Co.	£1,297	0	0
Courtney & Fairbairn	1,145	0	0
General Builders, Ltd.	1,087	0	0
J. GROVER & SON (accepted)	1,067	0	0

NORBITON.

For residence, stabling, &c., for Mr. Arthur Billings. Mr. W. G. TUTT, architect.

Roberts & Co.	£3,970	0	0
Penny & Co.	3,955	0	0
Jones	3,890	0	0
Adams	3,799	0	0
Martin	3,780	0	0
Green & Co.	3,777	0	0
Baker	3,690	0	0
Braid & Co (accepted)	3,672	0	0

MARKET HARBOROUGH.

For the construction of sewerage, comprising 1,395 yards of 15-inch and 12-inch sewers, with manholes and lamp-holes, &c. Mr. HERBERT G. COALES, engineer.

Hull	£1,224	4	7
Langley, Hard & Johnson	1,109	3	4
Siddons & Freeman	1,066	13	4
Barry	1,060	13	3
Kirk & Dobson	1,047	7	6
B. R. & E. H. Philbrick	1,047	1	0
Holme & Sons	1,002	7	0
Palmer	948	18	7
Christie	925	18	11
E. & T. Smith	924	17	5
Eastwood	904	12	11
E. Haycock & Sons	879	2	4
A. JEWELL, Little Bowden (accepted)	849	5	0
Panter & Son	806	7	2
Engineer's estimate	865	0	0

NEWHAVEN.

For the erection of an isolation hospital with administration block, Lewes Road, Horsham. Mr. F. J. RAYNER, architect, Newhaven.

C. COOKE, Newhaven (accepted)	£5,085	0	0
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REIGATE.

For street works in Blanford and Crakell Roads. Mr. F. T. CLAYTON, borough surveyor.

Streeter & Co.	£1,049	0	0
Soan	1,032	10	0
Pickard	972	2	9
Iles	965	18	0
Thacker	937	1	1
Faulkner	919	15	0
May	900	0	0
Cunningham-Forbes & Co.	899	11	7
Fry Bros.	892	1	8
H. Streeter & Co.	810	0	0
S. KAVANAGH & Co., Surbiton Hill (accepted)	755	0	0

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For the erection of billiard-room in Brighton Road, Purley.		
Mr. FRANK WINDSOR, architect, 1 High Street, Croydon.		
Walker	£580	0 0
Pearson & Co.	435	0 0
For the erection of stable in Brighton Road, Purley. Mr.		
FRANK WINDSOR, architect, 1 High Street, Croydon.		
Walker	£490	0 0
Pearson & Co.	420	0 0

SWINDON.

For extensions to the electricity works buildings, for the Corporation. Mr. H. J. HAMP, borough surveyor.		
Tydemans Bros.	£2,436	0 0
H. & C. Spackman	2,150	0 0
Colborne	2,049	2 5
J. C. NORMAN, Victoria Road (accepted)	1,933	16 8
For sewerage, levelling, paving, metalling, flagging, channelling, lighting and completely finishing Broad Street, for the Corporation. Mr. H. J. HAMP, borough surveyor.		
Free & Co.	£1,403	4 6
Free & Sons	1,380	13 5
Colborne	1,369	6 0
Williams	1,356	8 3
Free Bros.	1,221	1 2
WINCHCOMBE, Swindon (accepted)	1,214	17 2

WALES.

For the erection of a billiard and bagatelle-room in connection with the workmen's hall.		
Williams & Thomas	£256	0 0
Pugh	179	10 0
Davies	173	3 0
Lloyd	165	0 0
Cottrell	164	4 9
Hamilton & Millard	160	0 0
H. P. JONES, Llanbradach (accepted)	158	10 0
For the erection of a pumping-station and reservoir in connection with the water-supply of Llysfaen.		
SHEFFIELD & EVANS, Rhyl (accepted)	£6,669	12 6

TRADE NOTES.

THERE seem to be no limits to advertising. The Ripolin Company, of 110 Fenchurch Street, London, the proprietors of Ripolin paint, are issuing a small case of sticking-plaster as an advertisement of Ripolin. We trust that their enterprise may be rewarded, and that the recipients will "stick" to Ripolin.

THE calendar produced by Messrs. Diespeker, Ltd., differs from others by having a view of St. Peter's, Rome, and Bernini's Courtyard in front. They also give examples of some of the mosaic pavements in Classic style, which are probably the most successful of their class recently produced in England.

MESSRS. McDOWALL, STEVEN & CO., LTD., of London, Glasgow and Falkirk, have we understand just secured the contract for the cooking apparatus required at the New Renfrewshire combination poorhouse, which is being erected at Crookston, near Paisley, N.B. The plant consists of coal-fire range, steam serving table, central cluster of four eighty-gallon steam boiling pans, two batteries of vegetable steamers, tea-infusing apparatus, &c. The firm is very busy in this class of work, having also in hand at present, among other contracts, the cooking appliances for other two work-houses and a sanatorium at Blackpool.

THE International Archæological Congress will be opened at Athens by the Crown Prince of Greece on April 7. The congress will last a week, and the Crown Prince is expected to preside at some of the sittings. The opening meeting will be held in the Parthenon, and M. Carapanos, the Minister of Public Instruction, will address the members of the congress. The Director of Greek Antiquities and the directors of foreign schools will give an account of the progress of archæological research in Greece. The congress will be divided into seven sections, I., classical archæology; II., prehistoric and oriental archæology; III., excavations, museums and preservation of monuments; IV., epigraphy and numismatics; V., Byzantine archæology; VI., instruction in archæology; VII., geography and topography. The official language of the congress will be French. At the conclusion of the congress a tour will be organised among the islands of the Ægean, &c.

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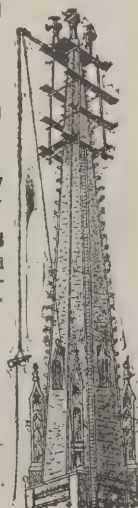
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ELECTRIC NOTES.

THE Eccles Town Council are to make application to the Local Government Board for power to borrow 500*l.* for the purchase of electrical motors to let out on hire.

THE Local Government Board have sanctioned the borrowing by the Barrow Town Council of 35,000*l.* for electric-lighting purposes.

THE Bradford City Council on Tuesday sanctioned a scheme estimated to cost over 40,000*l.* for the distribution of electricity.

THE Chesterfield Town Council have appointed Mr. R. L. Acland the electrical engineer to the joint offices and manager of the Tramways Department, at a salary of 350*l.* per annum, rising to 400*l.* at the expiration of a year if satisfactory.

MR. R. B. LEACH, of Birmingham, has been appointed electrical engineer to the Farnworth District Council in place of Mr. J. D. Pember, who now holds a similar position at Dartford, Kent. There were a hundred applications for the post.

THE Metropolitan District Railway has deposited a short Bill for next session the effect of which will be to empower it to raise 400,000*l.* for general purposes, for adapting the railway for electrical working, to provide for any loss on the sale of rolling-stock or plant, and to provide payment of arrears on the company's guaranteed stocks.

THE Worcester Town Council elected recently Mr. C. M. Shaw, Wakefield, to the position of electricity engineer at a salary of 400*l.*, rising by annual increments of 20*l.* to 500*l.* The two selected candidates before the Council were Messrs. W. J. Bache, Gloucester, and E. E. Hoadley, Maidstone.

THE Tramways and Light Railways Association will meet on the 13th inst. at the rooms of the Society of Arts, when a lecture on "Overhead Equipment" will be delivered by Mr. Henry M. Sayers, M.I.E.E. The chair will be occupied by Mr. A. L. C. Fell, chief officer of the London County Council tramways.

THE Holborn Borough Council have received a letter from the Railway Department of the Board of Trade stating that, after full consideration, the Board have approved of

the use on the northern tramways of a slot, not exceeding 1 inch in width, in connection with the underground conduit system of electrical traction proposed to be adopted.

THE Birkenhead electricity committee having in view the advantages of the penny-in-the-slot meters for the supply of gas, are now adopting the system for the supply of electricity. The meters are installed without any charge, and the cost of the current is 5½*d.* per unit, an equivalent to one penny for five hours' illumination.

THE Bahia Blanca and North-Western Railway Company have passed a resolution approving certain alterations in the articles of association, enabling the company to use and supply electricity for lighting and motive power, it being intended to light the company's various works by electricity, and, if hereafter thought advisable, to electrify the tramway.

THE Secretary of State for India has sanctioned the appointment of an adviser on electrical matters to the Government of India at a salary commencing at 70*l.* per month, rising to 110*l.* Private practice will be allowed, but not for municipalities or district boards, as it will be part of his regular duties to advise such bodies. It appears to be probable that ere long a school of mines will be established in India.

THE extensive defensive works being constructed by the Austrian Government in the coast region of the Trentina is a huge electric reflector. Part of the equipment is being erected in the fort on Mount Brione. This reflector is of such power that it will search the whole of Lake Garda by night or day, and will, besides, command the coast-line so completely that no torpedo-boat could possibly escape it.

It is computed (says the *Standard*) that if the whole of the twenty-nine borough councils of the Metropolis adopted the combination of dust destructors and electrical works in the different areas under their jurisdiction, which is utilised at the present time by only six of them, a saving of 300,000*l.* per annum to the ratepayers could be effected. Some forty boroughs in the provinces have adopted the system which is now so earnestly advocated in various quarters, and at least twenty others have the matter under consideration. Several metropolitan borough councils, too, are discussing the advisability of following the examples set by Shoreditch, the pioneers of this method in London.

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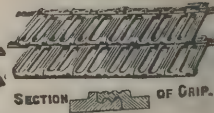
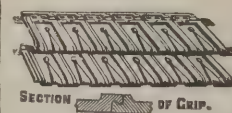
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THE Marylebone Borough Council have accepted the conditions proposed by the London County Council for the raising of a loan of 100,000*l.* (on account of the 340,405*l.*) upon the terms that the loan is taken up as to 50,000*l.* at once and as to 50,000*l.* at a time convenient to the County Council and repaid with interest at the rate of 3*l.* 15*s.* per cent. per annum, calculated quarterly, by seventy-nine equal half-yearly instalments of principal and interest combined within a period of forty-two years from the date of the advance.

A DEPUTATION of the Bradford electricity committee recently visited Dublin for the purpose of inspecting and inquiring into the working of the new three-phase alternating current system, with a view to its adoption by the Bradford Corporation, who are about to expend some 50,000*l.* or 60,000*l.* in extending and improving their existing system, which is continuous current. The members stated they had, before coming to Dublin, visited the works at Newcastle-on-Tyne and Erith, near London, but what they experienced in Dublin had confirmed their decision to adopt the three-phase system for lighting and power instead of making a further extension of the continuous system.

THE Manchester City Council have arranged terms in the matter of the action of *Hartars v. The Corporation of Manchester*, which was brought to recover compensation for vibration caused in the plaintiff's works by the processes carried on at the Bloom Street electricity station. The writ was issued two years ago. It was hoped by the electricity committee that the purchase of any property might be avoided, and an eminent authority on vibration was consulted. His scheme, which was tried at a cost of several thousands of pounds, proved a failure. The electricity committee have received sanction to purchase two warehouses adjoining the Bloom Street station.

THE General Electric Company of Berlin (*Allgemeine Elektrizitäts Gesellschaft*) have entered into a working alliance with the Thomson-Houston for business in Spain and Portugal. In these markets the allied firms will trade under the style of the "*Allgemeine Elektrizitäts Gesellschaft Thomson-Houston*," or Thomson-Houston General Electric Company, which has been formed with a capital of 3,000,000 pesetas. Under this arrangement the actual

industrial and commercial work to be obtained in Spain and Portugal will be carried out by the General Electric Company, and the Thomson-Houston Company's interest will be exclusively financial.

THE Crewe Town Council had, at last week's meeting, further tramway proposals under consideration. Various schemes, both private and municipal, have been proposed, and one company obtained an order to construct a tramway in the borough, but on account of certain restrictions the order was allowed to lapse. The last municipal scheme was defeated by a poll of the ratepayers. The Corporation has since been inquiring as to the practicability of motor buses. A report from the Hastings Omnibus Company showed that the working cost of a motor bus was 11*½d.* per mile, the earning capacity 1*s.* 2*d.* per mile, and that two buses ran 55,000 miles in twelve months. It was finally resolved to inform Dr. Rhodes, of Manchester, who asked the Council to support a private electric tramway company, and Mr. S. Jackson, who offered to promote a service of steam motor omnibuses, that the Council could not support their schemes for the borough.

THE Hampstead Borough Council have decided to purchase the undertaking of the North-West London Electric Supply Company. This concern, which was formerly known as the Hampstead Battery Company, has offices and a generating station near the Midland Railway in Finchley Road, almost exactly in the centre of the borough, and has been a rival of the Council for the supply of electricity in one of the wealthiest parts. Several years ago the late vestry secured an order enabling them to establish a municipal electric supply, and the undertaking has been developed to such an extent that the Council now has 5,000 customers. The capital expenditure amounts to 346,608*l.*, and last year the income was 58,051*l.*, and the surplus profit 5,796*l.* In spite of the fact that the private company were not allowed to lay mains in the public roads, they succeeded in obtaining concessions to pass through private property, chiefly railway land, and so they secured over 700 customers in the heart of the district. Their inability to extend their supply was a serious obstacle to them as a company, and, after protracted negotiations, they have agreed to sell the whole concern to the Council for 12,000*l.*

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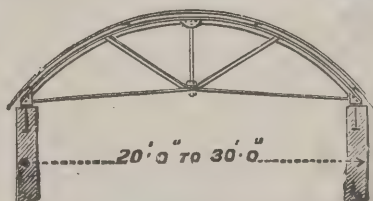
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BUILDING AND BUILDERS.

THE Aston Board of Guardians adopted on the 10th inst. detailed plans of a new pavilion to be erected for the accommodation of 112 male pauper imbeciles and epileptics.

MR. WHITWORTH WHITTAKER, of Rochdale Road, Oldham, builder and contractor, who died on October 4, left personal property of the value of 77,179*l.*; the whole of the estate being valued at 90,079*l.*

THE Essex County Council have decided, on account of the crowded state of the lunatic asylum at Brentwood, to erect an additional asylum at Colchester at a cost of half a million sterling.

THE Smethwick education committee have given instructions that plans should be prepared for the erection of buildings to accommodate a technical and a secondary school upon a site provided by the Town Council, at a cost of 10,000*l.*

THE Portsmouth Corporation are to institute proceedings for the first time under their new building by-laws, which were only put into force after consideration extending over a period of several years. It is alleged they have been infringed by a local builder by using a quantity of mould instead of sand in the making of mortar used in the construction of houses at Southsea.

UNDER the provisions of the Accrington District Gas and Water Board Bill it is intended, at a cost of several thousand pounds, to authorise the Board to make new waterworks and to extend the limits of supply for gas and water. The new works are to include the construction of a reservoir, to be known as the Deanclough reservoir, and other works in the parish of Great Harwood, and the extended boundary would be to the outer limits of the parish of Altham.

THE Foreign Office have issued a consular report on the German cement industry. The report states that no other branch of industry in Germany has probably ever experienced such a rapid expansion, and also during recent years such an extraordinary over-production, as the cement trade. The beginning of the industry dates back only to the year 1852. Yet the annual output at the present time is estimated at 30,000,000 casks. Of this quantity some 700,000 tons, valued at nearly a million sterling, were ex-

ported during the year 1903. The over-production has had a ruinous effect on prices in Germany.

THE Metropolitan Asylums Board have been informed by the works committee that the actual cost of completion of the Park Hospital was 251,711*l.*, of which 227,457*l.* (less a certain sum paid out of the surplus on fees of medical students and an amount received for old buildings and materials) was for erecting and fitting-up the hospital, constructing a well and providing a water-softening apparatus making up and paving roads abutting on the site, and a few minor works, 10,920*l.* for furnishing the hospital, and 15,293*l.* for architects' commission, quantity surveyor's charges, clerks of the works, wages and lithography and printing. Exclusive of the cost of the land and of the furniture the cost per bed was nearly 440*l.*

THE Bolton Town Council recently received a letter from a Liverpool firm of contractors respecting their tender for the Hacken sewage works contract. They complained that the tender of another contractor had been reduced after the amount of theirs had been ascertained, and that the former was accepted, although still somewhat higher than theirs. The subject was discussed at length by the Council, and it transpired that the reason was that the committee which had the matter in hand desired to afford an opportunity of employment to local men by giving the contract to a local firm. In the end it was resolved that the matter could not be reopened.

THE Accrington Town Council discussed on Monday the placing of the contracts for the erection of a school to accommodate about 100 children. The education committee had recommended the acceptance of the tender of Messrs. W. Eaves & Co., a Blackpool firm. Afterwards it was decided to consider whether the greater part of the work could not be given to local contractors, whose tenders had been previously rejected. In the discussion it was urged by some that it would be unfair and dishonourable not to give the contract to Messrs. Eaves, and by others it would be quite legitimate to do so, seeing that both the education committee at a later meeting and the general purposes committee had recommended it. By seventeen votes to eleven the Council decided to give the contracts to five persons, four of whom were local, their combined tenders amounting to 11,273*l.* (23*l.* more than that of Messrs. Eaves).

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THE Arbroath Town Council had under consideration on Monday a letter from H.M. Office of Works referring to the intimation that the Council were disposed to enter into an arrangement for handing over the buildings outside the Abbey gate, at present in possession of the Council, to the charge and management of H.M. Office of Works. A plan received from Mr. Oldrieve, the surveyor, indicating what are the buildings referred to, was laid before the Council. Mr. Oldrieve asked if the plan showed correctly what is intended, in order that a report on the subject might be made to the Board of Works. The plan was approved of, and it shows that the buildings in question, which include the Regality Tower, should be transferred to the Board of Works, who shall in future undertake the preservation of the buildings. It was agreed that the Abbot's House, excluding what is known as the kitchen, should be retained in the hands of the town and the rent drawn as hitherto.

THE report of Mr. Thackeray Turner, architect, upon the condition of the ancient parish church at Carisbrooke, which we summarised last week, has been submitted to a meeting of the church restoration committee, who have decided to form a sub-committee of practical men, experienced in building work, to look into the matters mentioned in the report, and also to report on other important points which Mr. Turner had not dealt with. The committee spent two days going over the whole building, examining the tower, church roof and walls, &c., making a thorough investigation, and have found that in some points their report does not bear out Mr. Turner's views. The

bells were found to be properly hung, some of the tower stairs need renewing, and the pinnacles require attention; the tie-beams and roof are sound, but the roof will have to be stripped and relathed. Mr. Turner's objections to the chancel are, the report states, based on mistaken observation, due to bad weather and shortness of the day. The old foundations are in existence, and no graves need be disturbed if the chancel is rebuilt on the ancient lines. To build the chancel will not necessitate the reseating of the church.

VARIETIES.

MR. H. H. STOTT, borough surveyor to the Hove Town Council, has prepared a scheme for dealing with the sewage of Aldrington so as to drain it into the intercepting sewer. Application for a loan of 26,200*l.* is recommended.

MR. JAMES BARTON, C.E., has expressed his willingness to give his services to the Bann drainage conference committee in the preparation of an alternative scheme to that suggested by the Board of Works engineer.

THE Tamworth Rural District Council have instructed the plan committee to consider the advisability of adopting new by-laws for the whole of the rural district of Tamworth.

THE St. Helen's Town Council rejected a resolution that instead of three members attending the Health Congress in London, as arranged, only two should attend, and that a professional stenographer should be engaged to supply a verbatim report of the proceedings.

THE Great Central Railway Company are about to lay pick-up water tanks at various points on their system for the use of all descriptions of trains. It has been found that the usual process of filling boilers from the standards wastes time and impedes traffic.

THE death is announced, at Melbourne, of Mr. Ernest Lyon Fletcher, eldest son of the late Mr. Thomas Fletcher, of the firm of Fletcher, Russell & Co., Ltd., gas engineers and artistic ironfounders, Warrington, London, &c. He was formerly a director of the firm, and was also at one time a captain in the Volunteers. He was about 33 years of age.

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THE Edinburgh Merchants' Association, who are the principal movers in the exhibition proposed to be held in Edinburgh in 1907, have circulated petitions for signature praying the Town Council to take the proposal into consideration and call a public meeting of the citizens.

ONLY 200 yards more remained on the 7th inst. to be bored before the perforation of the Simplon tunnel is accomplished, and it is hoped that if no fresh springs of water are discovered the two apertures will be united about the middle of next month.

THE Local Government Board have distributed circulars containing the order which it has issued under sub-section 2 of section 8 of the Housing of the Working Classes Act, 1903, prescribing forms in substitution for those in the fourth schedule to the Housing of the Working Classes Act, 1890.

PROFESSOR BOSTOCK HILL will give a course of lectures on "Sanitary Engineering Law and Statistics" at Birmingham University to meet the requirements of public health students. The lectures will commence on Monday, and will be illustrated by models, diagrams, &c. Fee for the course, 2*l.* 2*s.*

THE Macclesfield Town Council has appointed Mr. William Newbiggin, of Manchester, to be the gas engineer, at a salary of 300*l.*, with permission to continue his practice as a consulting engineer so long as it does not interfere with the management of the works. Three members of the same family have held the position in succession.

THE paving committee of the Manchester Corporation have found work this week for 834 of the unemployed, or twenty more than last week. All the men are engaged through the Labour Bureau. The conditions of employment are that men who work not less than three full days in succession are paid at the rate of 5*s.* 6*d.* an hour, and those who work for shorter periods receive 5*d.* an hour.

THE Parish Council of Shavington, a suburb of Crewe, recently erected some lamps. The ratepayers held a meeting, passed a resolution protesting against the lamps, of light being paid for out of the rates, censuring the Council and requesting them to resign. For some nights following the lamps were unlighted. They have since been relighted and there is a recurrence of excitement.

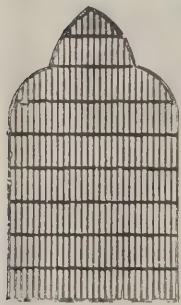
THE Aston Town Council recently applied for a loan of 12,500*l.* to pave Lichfield Road. At the inquiry it was stated that an agreement had been entered into with the County Council to pay 1,000*l.* per annum towards the upkeep of the road. The Corporation recently took over the tramway system, which has been running on this road for the past twenty years, and entered upon a scheme of reconstruction and electrical equipment of the new tramways. That work having been completed, it was thought desirable by the county and borough surveyors to pave the road from Tower Road to Grayelly Hill with granite setts, the total being 13,625 square yards.

FURTHER details were published on Saturday respecting the proposed docks at Harwich, concerning which a Bill has been deposited for promulgation next session. The promoters are asking for powers to raise 2,000,000*l.* in shares, and in addition to issue up to 500,000*l.* debenture stock. The total area proposed to be covered is about 250 acres, which would allow ample room for warehouses, offices, granaries and general quay accommodation. The docks proper would extend over 100 acres and would be approached by a main entrance lock 800 feet deep and 80 feet wide, with a minimum low-water depth of 20 feet, rising to 33 feet.

An inquest was held into the death of an aged couple who were poisoned in their bedroom at Holloway. A three-light telescope chandelier had been drawn down some distance, and there being no water in the tube, there was a large escape of gas. It was explained that with coal-gas it required very much less to poison than to suffocate. While one part of gas to ten of air was needed to cause an explosion, one in thirty would cause death. The Coroner remarked upon the danger of old-fashioned telescopic gas chandeliers, and said that an invention had been introduced which rendered the use of water in chandeliers unnecessary, and it was to be hoped the invention would be more generally adopted.

At the last meeting of Lewes Board of Guardians, a member complained that in connection with the Christmas decorations at the workhouse a cottage intended to be a burlesque of Sir William Grantham's cottage was erected. If his information was correct he thought the Board should dissociate themselves from anything of that kind. The clerk, who is also clerk of the Chailey Rural Council, said

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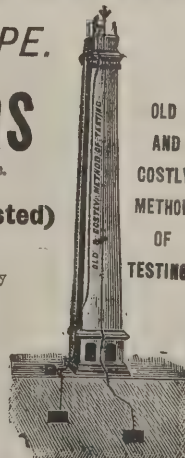
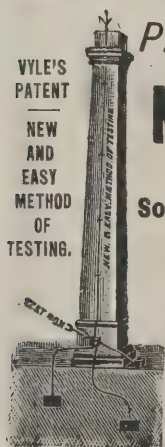
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he did not think the matter could be taken seriously. The plans of this cottage, though not approved, were, he believed, drawn about twelve months ago—long before the dispute arose with Sir William Grantham. It formed a background to a figure of Father Christmas, and was certainly not intended to be a "take off" of Sir William's cottage. The Board took no action.

The Stockport Corporation having purchased the Hazel Grove tramways, a meeting of the shareholders of the company was held on Monday night. The purchase price was 24,000*l.*, and it is proposed to pay the shareholders 27*s.* per share and 10 per cent. from the date of the last dividend. The secretary of the company, who was appointed liquidator, is to receive 200 guineas as compensation. The directors were awarded 150*l.*, the manager 200*l.*, and the solicitor to the company 100 guineas. A sum of 735*l.* was allotted for winding-up purposes, and it was decided to give the employees one week's extra salary. The Corporation tramways committee has accepted a tender, amounting to nearly 7,000*l.*, by Messrs. Scott & Co., of the Leeds Steel Works, for rails for the Hazel Grove route.

COAST EROSION.

At last week's meeting of the Isle of Wight Rural District Council a further letter was read from Mr. G. W. Colenutt, F.G.S., as to the damage being done by the removal of shingle from the beach at Whitecliff Bay for use in the construction of Government fortifications on the downs above, stating that, as a further opinion might have the effect of inducing the lord of the manor (Sir Graham Hamond-Græme) to reconsider the whole question, he had written to Sir Archibald Geikie asking whether he agreed that it was a short-sighted policy for the lord of the manor to allow the natural accumulation of shingle on the beach to be carted away. Sir Archibald Geikie wrote in reply:—"I entirely agree with you in your view as to the short-sightedness of the authorities who remove the shingle from the beach and thus take away the only natural protection to the base of the cliff. I hope your opposition and that of the Rural District Council may succeed in arresting the abstraction of the shingle." Mr. Colenutt added that it would

hardly be possible to find anywhere in Europe an authority whose opinion on questions of denudation and erosion carried more weight than that of Sir Archibald Geikie. As a student of the geological features of Whitecliff Bay for thirty years, Mr. Colenutt says:—"I emphatically repeat that the removal of shingle from the beach will inevitably result, at no distant date, in a marked and disastrous increase in the sea erosion of the cliffs along the whole sweep of the bay. As a matter of fact the sea, following the removal of shingle, is now washing away portions of the bases of the cliffs which, from my own knowledge, have not been touched by the sea since 1881." It was decided to send a copy of the letter to the lord of the manor with the object of preventing further removal of the shingle.

BUILDING IN BLACKPOOL.

A LOCAL GOVERNMENT BOARD inquiry was held at the Blackpool town hall last week for the purpose of obtaining sanction to borrow a further sum of 5,400*l.* in respect of the Corporation stables in Rigby Road.

The Town Clerk said the original application was heard in May 1902, when the Corporation applied for sanction to borrow 12,000*l.* to erect the stables. The actual cost had been 17,531*l.* 12*s.* 10*d.*, but as sanction was only given for 11,880*l.*, which left a balance in excess of 5,651*l.* 12*s.* 10*d.*, the application that day was for 5,400*l.*, and the balance of the amount in excess, 251*l.* 12*s.* 10*d.*, would be met in another way by the Corporation. The excess had been occasioned by the treacherous state of the land, which was far more boggy than they had expected. Tests were made by the use of weights, and the results justified the Corporation in building stables of one storey high. In the immediate district there were the refuse destructor works, with a large and heavy chimney and other buildings on land similar to that on which the stables were erected. Whilst the excavations were being made for the chimney, however, they found that the land was boggy, and the Corporation wisely decided to excavate down to firm clay, and in doing that they had a pump to draw off the ream water from the adjoining land. That caused a subsidence on the site of the stables, and in consequence a

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small portion had to be re-erected. In carrying out those works the Corporation, instead of paving the large yard of 8,500 square yards with old setts, decided to use new setts. There had been no material departure from the plans. The excess was almost entirely due to the treacherous nature of the soil and the drawing away of the ream water underneath.

Mr. J. S. Brodie, the borough surveyor, said three separate tenders were accepted for the buildings amounting in the aggregate to 7,038*l.*, against his estimate of 7,644*l.* At a depth of 23 feet yellow clay was found. Owing to the nature of the soil he had anticipated some little treachery. Special provision was made by making extra wide foundations, after which they tested by means of weights of about four times the actual weight of the buildings. The tests were made up to nearly 2 tons per square foot, and were quite satisfactory. At the same time the chimney of the destructor works was being erected about 36 yards from the stables, the chimney being 210 feet high and 8 feet diameter at the top, and in consequence the pressure on the foundations was very great. Knowing that, they carried the foundations down to the yellow sand, and in getting through the soil they came across a quantity of ream water, and in pumping that off the stables close by began to show signs of subsidence, which was visible almost as soon as the foundations were commenced. The building at the end of the smithy they had to store shoeing iron, and in order to get the proper height the walls were carried about 6 feet higher. The effect of that extra height was most marvellous. There was a clear subsidence of the foundations, and finally they had to take part of the building down and put in new foundations and rebuild. He attributed the excess in expenditure to the treacherous nature of the ground upon which they had to build, and that, in his opinion, was aggravated very much by the fact that they had to go on almost simultaneously with the destructor works close by. He thought it went without much proving that the site being adjacent to the destructor works, where about 80 per cent. of the carting is done, was most convenient, and the best site to erect upon from an administrative point of view, the horses practically finishing there at night. The full stable accommodation now was for seventy-five horses.

Mr. Preston and Mr. Eaves, contractors, gave evidence as to the nature of the soil.

There was no opposition.

BUILDING ACT AMENDMENT.

At a meeting of the United Wards' Club of the City of London on Tuesday, Mr. E. V. Huxtable read a paper "The New London Building Act Amendment Bill." He criticised generally the action of the County Council in framing the Bill, and dealt specifically with the effect of certain sections should it become law. He urged that these sections offended against the underlying principles of equity which had actuated the Legislature in passing enactments of this character for the last fifty years. Any Bill which departed from these principles, which was retrospective in character, and which did not provide for adequate compensation, would never become law. He did not suggest that the London Building Act of 1894 did not require a certain amount of amendment in order to provide for the ever-growing needs of the Metropolis for the parts of the measure referring to escape in case the fire might well be amended. One of the principal objects of the Bill with which he was dealing was an attempt to improve London at the expense of the owners and occupiers. As a present drawn it was as drastic and unsatisfactory as its predecessor. There was still a lack of differentiation between classes of property, and there was a repetition of the burdensome requirements in regard to existing buildings. The result of its application in some respects would seriously depreciate the value of commercial buildings. The City would be peculiarly affected by it, and in addition to the expense of the alterations demanded, there would necessarily be a considerable sacrifice of building space. Many of the defects of the Act of 1894 were in effect provided for by the Bill which the Corporation was about to introduce. In the course of a discussion the provisions of the London County Council's Bill were strongly criticised and notice was given of a resolution to be moved at the next ordinary meeting condemning the measure, and requesting the Corporation to call a meeting of the citizens at the Guildhall to protest against it.



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THE USHER HALL, EDINBURGH.

A MEETING of the special committee of the Edinburgh Town Council was held on December 30, when the report on the estimates for the erection of the Usher hall, which had been before the committee at two previous meetings, was finally adjusted, ordered to be printed and circulated amongst the members of the Council. The report is as follows:—

Edinburgh, December 30, 1904.—At a meeting of the special committee of the Town Council on the new City Hall. Present:—The Lord Provost, Convener; Bailie Dobie, Dean of Guild Bruce, Treasurer Brown; Judges Sir Andrew M'Donald and Telfer; and Councillors Forrest, Alfred A. Murray and M'Arthy.

The committee, having at previous meetings opened and considered the estimates received from contractors, along with reports from the architects thereon, and having obtained information on many points from the architects and measurers, beg to submit the following report:—

Of this date, February 16, 1904, the magistrates and Council at a special meeting approved of a report by the Lord Provost's committee recommending approval generally of design No. II. at a probable cost of 145,000*l.*, which includes the proposed widening of the roadway in front and the erection of a retaining wall, and remitted to obtain estimates for the work. During the discussion in the Council it was suggested, with the general assent of the members, that the floor and steps shown on the design submitted should be lowered.

Of this date, March 22, 1904, the magistrates and Council passed a resolution in the following terms:—"That the magistrates and Town Council resolve that the total cost to be incurred for the site, erection and completion of the new City Hall—including the proposed widening of the roadway in front and the erection of the retaining wall—shall not exceed the maximum sum of 145,000*l.*, and that the city architect be instructed to this effect."

Specifications and schedules were duly prepared, and, after due advertisement, estimates were received from a large number of contractors for the work of removal and erection in terms of the plan which is approved generally as aforesaid. Seeing that in the present case there has to be considered

the question of the maximum sum, the committee, instead of following the usual course at this stage and recommending the acceptance of the lowest estimates under the various heads, submit the particulars of these estimates, with explanations which will enable the magistrates and Council to remit to the committee with instructions regarding the tenders to be accepted.

Taking the tenders as they have been received upon the plan approved of as aforesaid, and after modification by the architects upon some of the items in the schedules, the result will be as follows:—

Mason work	£44,439
Smith work	3,372
Carpenter work	2,937
Joiner and ironmongery work	5,600
Plumber work	2,182
Slater work	709
Plaster work	6,378
Glass work	777
Marble work	3,807
Heating arrangements	4,438
	<hr/> £74,639

And the following items fall to be added:—

Electric-light installation, estimated at	3,930
Painter work (first)	1,200
Seating	1,250
Measuring, clerk of works, &c.	2,500
Organ and additional furnishings	4,000
Fire appliances	500
	<hr/> 63,380

To which add minimum tender for retaining wall at street widening 7,971

Total, exclusive of cost of site £95,990

The architects, in giving effect to the suggestion of the Council as aforesaid, have prepared an amended elevation showing six pillars in front. This amended elevation is submitted herewith. Members will judge how far it is an improvement on the original elevation, and it has the following advantages:—(1) Under it the steps will not project so far into the roadway, and the necessity of widening the

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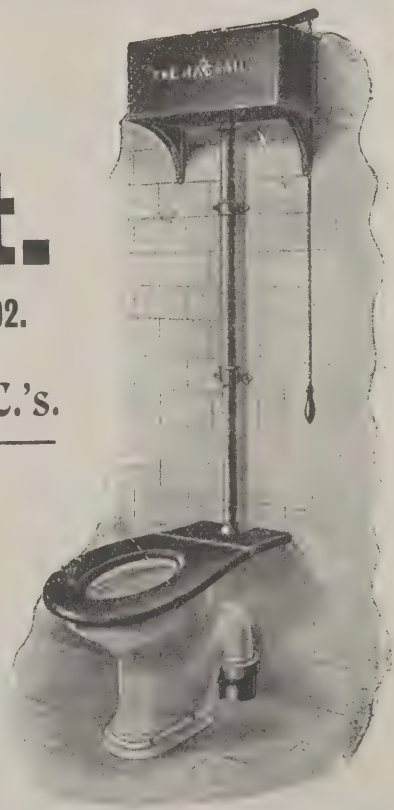
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roadway to the extent required by the original plan and the expensive retaining wall will be avoided, a light wall and railing with a modified widening being sufficient; and (2) the front as thus amended will cost 4,000*l.* less than the original design. If this modification is adopted the figures will work out as follows:—

The total contract price, as before, was £95,990
Deduct—

- | | |
|---|--------|
| (1) The cost of the retaining wall. | £7,971 |
| Less the estimated cost of the widening and substituted wall and railing | 1,200 |
| | £6,771 |
| (2) The sum saved on the original estimate by the adoption of the amended front | 4,000 |
| | 10,771 |

And *Add—*

Miscellaneous items 1,000

Total of the lowest alternative with the amended plan, exclusive of cost of site £86,219

The above figures cover the removal of the present building and the erection of the new building, with hewn stone front and returns, stone-faced walls at sides, part of back and sides cemented and rough-cast in panels; carving in stone work to the value of 2,000*l.*; steel-framed roof; fireproof floors, marble internal staircases, and tiled and terrazzo flooring; new hanging roadway and hewn stone screen on the south side; deal floors throughout and deal staging on galleries, and yellow pine for all finishings; lead-covered dome; Scottish slating on roofs; and about 4 per cent. for contingencies and models.

The estimated cost of the site, according to report by the Lord Provost's committee in February 1904, was 55,000*l.*, which included surplus property estimated as worth 5,000*l.*

The total amount brought out, as above, is thus less than the maximum fixed as aforesaid.

There are, however, a number of items upon which some additional expenditure might with advantage be made; and, to enable the Council to judge of these and select from them, the following alternatives are submitted, viz.:—

Improved Alternative No. I.

Taking the total tenders on amended plan (exclusive of site) as before	£86,219
<i>Add—</i>	
For British steel and cement	£263
For mahogany and oak finishings in vestibules, hall and corridors (instead of yellow pine)	3,090
Copper in place of lead on the dome	235
Additional for carving	3,000
Additional for contingencies	2,000
	8,588
Total improved alternative No. I. (exclusive of site)	£94,807

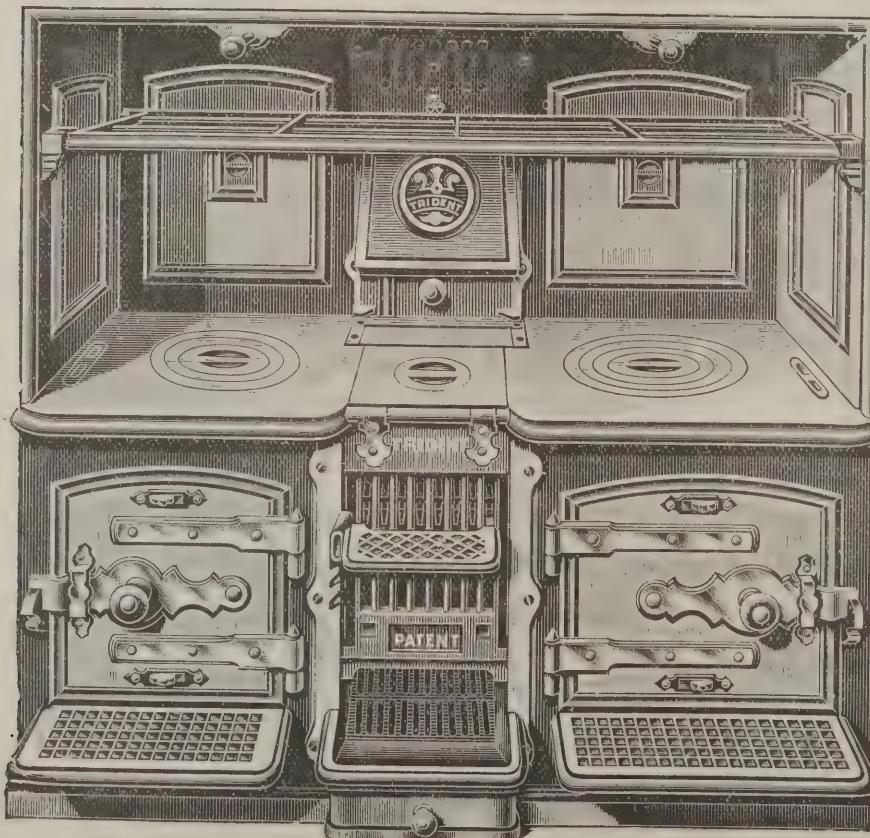
Improved Alternative No. II.

Taking total tenders on amended plan (exclusive of site) as before	£86,219
<i>Add—</i>	
For granite base instead of stone at front	£1,689
For British steel and cement	263
For mahogany or oak finishings	2,815
For copper in place of lead dome	235
Marble columns and pilasters in staircases and foyer	5,246
Marble pilasters in hall	1,477
Additional for carving	3,000
Additional for contingencies	2,000
	16,725

Total of improved alternative No. II. (exclusive of site) £102,944

The committee submit this report to the magistrates and Council, and crave a remit with instructions.

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When the subject was discussed the following amendment to the Lord Provost's motion that tenders should be accepted was adopted:—"The magistrates and Council, having now received and considered the estimates for the new city hall, before accepting same resolve to instruct the committee to forthwith submit a further report showing, in accordance with schedules of quantities—(1) The cost of the dome, the square tower, and their relative bearing walls; (2) stating whether the plans can be amended so that the large hall shall receive sufficient daylight so as not to necessitate the use of electric light during morning or afternoon concerts; (3) stating whether the gallery accommodation can be substantially increased and saying if the upper gallery can be lowered or otherwise improved; and (4) giving information on the acoustic properties of the proposed new large hall, with power, if necessary, to take high qualified expert opinion on this subject.

NEW MUNICIPAL OFFICES, LIVERPOOL.

THERE is talk of big developments in Liverpool civic life. It is rumoured, says the *Liverpool Courier*, that a scheme is on the tapis for the erection of new municipal offices and public buildings. Since the extension of the city boundaries there has been great pressure on the accommodation available in the existing buildings—the colloquial "Bedpost Palace"—in Crosshall Street and Sir Thomas Street, and alterations and additions have been made which do not provide satisfactory quarters for the various departments of the Corporation. Should a unification of rating come about such as exists at Birkenhead—and the scheme there works very satisfactorily—the present buildings would be entirely inadequate. The utilisation of the George's Dock site has been much debated for a long period. It is now hinted that the public offices might be erected there. A range of buildings in keeping with the new premises for the Dock Board might form a good show spot at one of the city's chief entrance gates.

THE Royal Sanitary Institute have arranged for a conference on "School Hygiene" to be held at the University of London from February 7 to February 10.

HOUSING OF THE WORKING CLASSES.

At a meeting of the Incorporated Society of Medical Officers, Sir Lauder Brunton, M.D., opened a discussion on the report of the physical deterioration committee. Referring to house accommodation, he said:—"The last, but not the least, question which I shall touch upon is that of house accommodation. Overcrowding, with its attendant evils of uncleanness, foul air and bad sanitation, stands out prominently in the opinion of the committee as prejudicial to the health of the people. Overcrowding is almost certain to arise if people will flock in from the country to the towns, and that they do so in great numbers there is no doubt. For to every one who lived in a town in 1851 three do so now. This may perhaps be diminished by making country life more attractive, country homes more comfortable, the food in them more appetising, the cottages more attractive, and by providing some sort of amusement in country villages or country districts for men and women after the day's work is done. Much, no doubt, should be done in regard to country cottages, and building by-laws require to be carefully supervised lest they do harm instead of good. In towns the effect of overcrowding in raising the death-rate came out very prominently in the evidence before the committee, and they think that in order to lessen the evils the local authority should, with a view of setting a term to these evils, exercise their power to treat any house, or any part of a house, so overcrowded as to be dangerous or injurious to the health of the inmates as a nuisance, and for the abatement of the same notify that at a given date no one-room, or two-room, or three-room tenements will be permitted to contain more than two, four, or six persons respectively. The slums must go, and in their removal, as one witness very truly said, everything must depend on the powers of the medical officer of health, on the keenness with which he exercises these powers and on the way in which he is supported. As things are at present the medical officer of health, by the very thoroughness with which he discharges his duty, may incur the dislike or resentment of some of the local authorities by whom he has been appointed, and they will in consequence try to get him discharged, if they can, sometimes unfortunately with success (Par. 13,511).

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In paragraph 118 of the report the committee make a proposal which seems to be a good one, that the medical officer of health should have security of tenure and not hold his office at the goodwill of the local authority. Behind the medical officers of health stand at present the Local Government Board, but the offices of this Board are so manifold that it is impossible for it to discharge them all properly, and perhaps the best thing for the country would be to have a Board of Health. There does not seem to be at present very much chance of such a Board being appointed, and in place of it the committee propose an Advisory Council which should represent the Department of State within whose province questions touching the physical welfare of the people fall, with the addition of members of the community by the medical corporation and others, whose duty it should be to receive and apply the information obtained from a bureau of the Local Government Board, with the whole weight of Government authority and scientific prestige behind them. It would be their function to advise the Government on all legislative and administrative points in respect of which State interference in health matters was expedient, consider and report upon all problems of public health, and guide the action of representatives in this country in foreign congresses of public health.

THAMES BARRAGE SCHEME.

At the last meeting of the Civil and Mechanical Engineers' Society, Mr. James Casey gave a description of his scheme for constructing a barrage across the Thames from Gravesend to Tilbury, a scheme which, in his opinion, offered a solution of the complicated problem of attempting to remove the difficulties and inconveniences attending the navigation of the river, owing to the increasing size of the steam vessels, and in properly controlling the enormous volume of commerce flowing into and out of the port of London. The proposed barrage would also afford a harbour capable of holding the entire British fleet afloat at all times; and, so far as facilities were on the spot, enable it to be ready for action, leaving nothing to chance or risk of delay. The barrage would be constructed of solid concrete, with granite facings, provided with four locks, two of which would be 1,000 feet in length and two of

800 feet, and 100 feet and 80 feet in width respectively provided with internal steel gates dividing them into lengths of 300 feet and 700 feet in the case of the large locks, and 300 feet and 500 feet in the case of the lesser ones. In addition to the outer gates a number of adjustable steel sluices would also be provided, fitted at the top and bottom of the barrage, and having sufficient area to regulate the flow and necessary scour of the river bottom during ebbs and tides. In the base of the barrage would be constructed a railway tunnel connecting Kent and Essex with the northern lines, which, from a commercial and strategic point of view, would be most valuable. At present a passenger, goods and luggage traffic to and from the Continent had to pass through London, there being no alternative route, but if this railway connection were made the traffic passing between the Continent and the eastern and midland counties and Scotland would pass directly through without change of carriage or touching London. As to the strategic value of the tunnel railway, it would be about 12 miles from Woolwich Arsenal on the west side and 75 miles from Chatham, our great naval dockyard, on the east side, thus affording direct and speedy means for the prompt shipment of men and material from their respective departments. The four proposed locks working twenty-four hours per day would be capable of passing 396 ships and 2,628 barges and small craft in one day, there being a level twice in the twenty-four hours, and special provision made for passing in and out by the aid of motor-capstans and kindred appliances. On completion the barrage would hold up a volume of fresh water from Gravesend to Teddington equal to 4,660,000,000 cubic feet. The cost of construction of the barrage, tunnels and auxiliary works was estimated at 4,100,360*l.*, and the time required for completion three years, so that, having regard to the magnitude of the work, the amount was not unreasonable in comparison with the purchase of docks, creating new ones, and dredging, extending over ten years in the river at a proposed combined outlay of 37,000,000*l.* The barrage would contain nearly a year's supply of fresh water even at the estimated requirements of 1941. When the river was held up by the barrage the present unsightly mudbanks would be covered. The proposed new steam boat service would give an impetus to pleasure traffic

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facilities would be afforded for business and travel, and it would be possible to develop the large areas of sloblands lying idle on both sides of the river below the level of Trinity high-water mark. Between Woolwich and Gravesend the barrage would prevent flooding from the sea. Pumping arrangements were now being installed by the London County Council on both sides of the river for draining and preventing overflow. The adoption of the Thames barrage as a whole deserved, in his opinion, the most careful and serious consideration of the naval and military authorities, to whom alone they had to look for the protection of London, the very heart of the Empire, from the attack of any possible enemies. Further, it would add immensely to the prosperity of the Port of London by making it free. The Privy Council could constitute it a Royal harbour administered by the Board of Trade and in every way similar to the Royal harbour at Ramsgate.

the year, along with a comparative statement of the previous year and their respective approximate values. For the year ending, the total warrants granted number 832. These include 67 tenements, 71 villas, 212 self-contained houses, 128 public and other buildings and 583 alterations. In these tenements were 8 shops, 37 houses of one apartment, 266 of two apartments, 218 of three apartments, 156 of four apartments, 23 of five apartments and 9 of six apartments, representing a total number of 709 tenement houses of an approximate value of 977,883/. At this corresponding period of last year there were 785 warrants granted, and embraced 96 tenements, 52 villas, 97 self-contained houses, 115 public and other buildings and 580 alterations. In these tenements there were 25 shops, 48 houses of one apartment 207 of two apartments, 396 of three apartments, 189 of 4 apartments, 54 of five apartments, 2 of six apartments and 1 of seven apartments, representing a total number of 897 tenement houses—the year's work representing an approximate value of 825,584/, thus showing an increase in favour of this year to the extent of 152,299/.

BUILDING TRADE IN EDINBURGH.

Prominent builders, says the Scotsman, state that for dullness in trade the year 1904 has not had a parallel for a considerable time. It is rather curious to note that this view does not coincide with the building statistics of the Edinburgh Dean of Guild Court, the returns of which show more building warrants than last year. For the number of idle men, therefore, other causes must be looked for. In the first place, it must at once be admitted that only about 60 per cent. of the work included in this year's return is in operation, and, compared with ten years ago, the statistics bear out that a similar condition prevailed at that time. It would, therefore, seem to indicate that the working population in this trade is vastly in excess of what normal conditions would warrant. This is particularly the case as regards unskilled labour. In no other trade in the town has there been such an outcry about the number of idle men than in the building trade. It must also be borne in mind that there is no industry which employs a greater number of unskilled labourers, and these are as a rule not of the provident class. Undernoted is a classification of the various cases passed through the Dean of Guild Court during

The most outstanding building contracts in the centre of this city are the North British and Mercantile Insurance Company's offices, Princes Street; the premises of the Professional and Civil Service Supply Association, George Street; the British Linen Bank Company's premises at the corner of George and Frederick Street; and Jenner's at the corner of St David Street and Rose Street. Three of the largest buildings completed and occupied during the year were the Boroughmuir and Broughton schools for the Edinburgh School Board, and the imposing building in George IV. Bridge for the administration of county business.

Of other buildings for public purposes may be mentioned the large addition to the gas-works at Granton for the Edinburgh and Leith Gas Commissioners, and a very extensive addition to the electric-power station in Macdonald Road is in course of erection, which, from its recent construction, requires to be so extensively enlarged. The Scotsman Office and the Caledonian Railway Hotel have now been completed. The new premises in Forrest Hill for the Queen's Edinburgh Volunteer Brigade have been almost completed, and as seen from Lauriston, have a pleasing effect with their baronial turrets and crow-stepped gables.

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In the Warrender district tenements have been in progress during the whole year, and plans have already been passed to almost wholly complete Spottiswoode Street. During the year the only vacant stance, opposite Warrender Baths, has been built up with large flatted tenement houses. Tenements have also been in operation during the whole year in Strathearn Road. A new company has feued a large piece of ground at the foot of Kilgraston corner of Grange Loan, and are building small self-contained houses, which seem to be readily taken up.

There has been nothing of outstanding importance in Morningside, the most notable building being the branch public library for the city. East and west of Comiston has been devoted to self-contained houses by the same builders as in former years, and no doubt in a short period this desirable locality, with its splendid outlook and proximity to the Braid Hills, will be built up with a very desirable class of house. A new start has also been made on the Old Braid Road, facing the Braid Hills, which should suit golfers who want to be early at the tee. In Merchiston, Gorgie and West-End districts there has been little or no outstanding feature. A few tenements have been erected in Harrison Road and Westfield. A new motor depot has also been erected in Westfield, and one or two rather extensive additions to the North British Rubber Company's premises, Gilmore Park, have been made.

From Merchiston to Murrayfield the industry in the building trade has never had the slightest abatement. Villas, self-contained houses and tenements have been consistently erected here during the whole year. On the Murrayfield Estate Feuing Company's ground alone there has not been the slightest sign of a slow market, and building has gone on during the past year as persistently as ever. New streets have been opened up and built on both sides, and this area, with its high altitude and accessibility both by car and rail, is likely to remain popular. Comely Bank and Inverleith have both formed animated centres of building prosperity. Perhaps it may be said that in no other district where houses have been built from a speculative point of view have they met with so much acceptance. The death of the late Lord Provost, Sir James Steel, who was practically the pioneer of the building industry in Comely Bank locality, may somewhat

retard much progress meantime, but that will not deter householders from hankering after houses in a desirable district, with convenient access to parks and country strolls.

The district under the supervision of Edinburgh and Chancelot has not developed beyond what was anticipated but numerous tenements have been erected, and these find both ready purchasers and tenants. In Broughton district quite a new small town is quickly growing. Toward Abbeyhill there has been a very noted advance, both in tenements and self-contained houses. For some years the locality has been lying practically dormant, but at the present time a considerable building industry is being carried on in Willowbrae Road and Avenue, and plans for what will ultimately be a small village have partially been approved on an area of ground to the east of Piershill barracks. Indeed, in a very short time it will be a surprise if the road from Piershill to Portobello is not flanked on both sides with houses of the villa type.

In Newington district some extension has taken place. The new streets laid out by the superior have now been well built on both sides, and as the stances here are all secured by private individuals previous to building, there is not the same feeling of speculation apparent by the exhibition of "To Let" and "For Sale" tickets. Quite a number of self-contained houses have been passed through the Dean of Guild Court for erection in Lady Road and new streets through Craigmillar golfing park, and, although they have stood for a considerable time in abeyance, it is not expected that these houses when built, with their fine southern exposures looking towards Craigmillar Castle and Liberton, will be long tenantless.

Perhaps one of the busiest localities in the city during the present year has been Portobello, where tenements, villas and self-contained houses have been constantly added. There have also been a few public buildings of some importance, viz.:—The new Post Office in Windsor Place, rapidly approaching completion; the new premises in High Street for the National Bank, the masonwork of which is well-nigh completed; and the new chapel in Brighton Place for the Roman Catholic denomination, the memorial-stone of which was recently laid by Archbishop Smith.

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EDITORIAL NOTICES.

In view of the many difficulties which are certain to arise in connection with the law, practice rules and procedure under the Workmen's Compensation Act, we have added to our staff A VERY EMINENT BARRISTER, who has made the subject a special study, and will be glad to answer in the columns of this paper any questions relating to the complicated matters arising from the provisions of this difficult Act. Our LEGAL ADVISER will further answer any legal question that may be of interest to our readers. All letters must be addressed "LEGAL ADVISER," Office of "The Architect," Imperial Buildings, Ludgate Circus, London, E.C.

The Editor will be glad to receive from Architects in London and the Provinces results of Competitions and Tenders and other particulars of Works in progress in which they may be interested.

The authors of signed articles and papers read in public must necessarily be held responsible for their contents.

No communication can be inserted unless authenticated by the name and address of the writer—not in every case for publication, but as a guarantee of good faith.

Correspondents are requested to make their communications as brief as possible. The space we can devote to Correspondence will not usually permit our inserting lengthy communications.

TENDERS, ETC.

*** As great disappointment is frequently expressed at the non-appearance of Contracts Open, Tenders, &c., it is particularly requested that information of this description be forwarded to the Office, Imperial Buildings, Ludgate Circus, London, E.C., not later than 2 P.M. on Thursdays.*

COMPETITIONS OPEN.

ALNWICK.—Jan. 24.—The governors of Alnwick infirmary invite designs for a new building. First premium, £100; second premium, £30. Mr. Frank Caws, F.R.I.B.A., has been appointed assessor. Plans on application to Mr. W. T. Hindmarsh, 26 Bondgate Without, Alnwick, hon. sec. to the building committee.

AYLESBURY.—Feb. 28.—For public elementary school for 750 children. Premiums 50% and 25%. Conditions and plan of site obtainable from Mr. C. G. Watkins, Education Secretary, Aylesbury, on payment of 1*l.* 1*s.*

LAMBETH.—March 30.—For municipal buildings at Brixton Hill. Particulars from Mr. H. J. Smith, Town Hall, Kennington, S.E.

OXFORD.—Feb. 1.—The education committee of the county of Oxford invite competitive designs for a provided school for 800 children in three departments, together with a teacher's house, at Caversham. Mr. S. Stallard, county surveyor, Oxford.

PRESTON.—Feb. 28.—Designs and plans for new elementary school. Premiums of £50, £30 and £20. Plan and conditions from Director of Education, Education Offices, Preston.

WOLVERTON.—Feb. 28.—For public elementary school for 400 girls and 400 infants. Premiums 50% and 25%. Also for secondary school to accommodate about 120 boys and girls. No premiums offered. Conditions to be obtained on payment of 1*l.* 1*s.* in each case from Mr. C. G. Watkins, Education Office, Aylesbury.

CONTRACTS OPEN.

ABERYSTWYTH.—Feb. 4.—For completing the nave and building new tower, &c., to St. Michael's Church, Aberystwyth. Messrs. Nicholson & Hartree, architects, Hereford.

ARNSIDE.—Jan. 24.—For the erection of the north aisle, &c., to St. James's Church, Arnside, near Kendal. Mr. R. Morton Rigg, architect, Arnside.

BELGRAVE.—Feb. 23.—For the erection of a manager's house and boundary wall in connection with the pumping station at Belgrave, Leicester. Mr. E. George Mawbey, borough engineer, Town Hall, Leicester.

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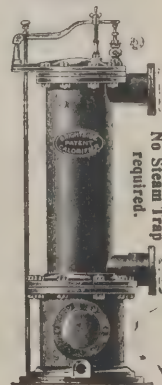
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BILLERICAY.—Jan. 23.—For the erection of cottage homes for children at Billericay, Essex. Mr. T. Hillier Pyke, architect, 61 Prestbury Road, East Ham.

BRADFORD.—Jan. 28.—For the erection of a warehouse in Canal Road, Bradford. Messrs. S. Jackson & Son, architects' valuers and engineers, Tanfield Chambers, Bradford.

BRIDGWATER.—Jan. 24.—For the clearing of a site and the erection of additions to the fire station, and also cartsheds, stores and mortuary, together with various other works, Town Clerk, Municipal Offices, High Street.

BURY.—Feb. 18.—For the construction of a storage reservoir on the Scout Moor brook. Mr. J. Cartwright, engineer to Bury Water Board, Peel Chambers, Bury.

CARLISLE.—Feb. 4.—For certain alterations and additions to property in Fisher Street. Mr. Henry C. Marks, city engineer and surveyor, 36 Fisher Street, Carlisle.

CASTLEFORD (YORKS.).—Jan. 25.—For the conversion of the laundry-room into a classroom at the Castleford Welbeck Street provided school. The County Hall, Wakefield.

CHESLYN HAY.—Feb. 9.—For the erection of a new girls' school and extensions to existing buildings at Cheslyn Hay. Education Committee Office, Stafford.

ERDINGTON.—Jan. 25.—For erection of a council house and library, for the Erdington Urban District Council, near Birmingham. Mr. J. P. Osborne, 95 Colmore Row, Birmingham.

FARNHAM.—Feb. 7.—For the erection of a new grammar school at Farnham, Surrey. Messrs. Jarvis & Richards, 36 Victoria Street, Westminster, S.W.

FERRY FRYSTON.—Jan. 25.—For repairs required at the Ferry Fryston, New Fryston provided school, for the education committee of the West Riding County Council, Yorks. Mr. J. Vickers-Edwards, county architect, the County Hall, Wakefield.

FOLESHILL.—Jan. 24.—For the erection of an infectious diseases hospital in Exhall, for the Folehill Rural District Council. Mr. T. F. Tickner, architect and surveyor, High Street Chambers, Coventry.

GILLINGHAM.—Jan. 26.—For erection of a Freemasons' hall, near Balmoral Road, Gillingham. Mr. Fredk. Smith, architect, Carrara Buildings, High Street, Gillingham, Kent.

GORING-ON-THAMES.—Feb. 9.—For the construction, delivery and erection complete of retort-house roof and annular condenser at the gasworks, Goring-on-Thames, the Thames Valley and Goring Water and Gas Company, Ltd. Mr. George H. Robus, 20 Bucklersbury, London, E.

GREAT WYRLEY.—Jan. 28.—For additions to Great Wyrley school, Staffordshire. The Education Committee, Stafford.

GRANGE.—Jan. 28.—For the erection of a higher standard mixed school, with cooking, laundry and manual instruction centre, playsheds, latrines, boundary walls, playground and caretaker's house at Grange, Rhos, near Ruabon, the Denbighshire Education Authority. Mr. Walter Slater, architect, 9 High Street, Wrexham.

HALIFAX.—Jan. 31.—For the supply and erection of coal-conveyer, shutes, &c., in connection with the electric light and power works. Mr. W. M. Rogerson, borough electrical engineer, Foundry Street, Halifax.

IBBOTSHOLME.—For additions to stable buildings. Mr. J. J. Bintley, 7 Lowther Street, Kendal.

ILFORD.—Jan. 24.—For the extensions to switchboard gallery, with office on same, and steel gangway from engine room to boiler-house, at the electricity works, Ley Street, Ilford, for the Urban District Council. Mr. H. Shaw, Town Hall, Ilford.

IRELAND.—Jan. 21.—For erection of twenty-three Labourers' Acts cottages, with out-offices, gates and fence for the Bandon Rural District Council. Mr. A. Haynes, Council Room, Workhouse, Bandon.

IRELAND.—Jan. 23.—For alterations and improvements at the Youghal branch of the Provincial Bank of Ireland, Ltd. Messrs. W. H. Hill & Son, architects, 28 South Main Street, Cork.

IRELAND.—Jan. 26.—For the removal of the building and clearing the site of the new Royal College of Science, Merrion Street, Dublin (Sir Aston Webb and Mr. T. M. Dean, architects), cleaning and stacking the old material carting away rubbish, erecting an hoarding and excavating the ground to an average depth of 10 feet, strutting banks, and carting away the earth, &c. Mr. H. Williams, secretary, Office of Public Works, Dublin.

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IRELAND.—Jan. 24.—For making and carving new oak pulpit, communion table and furniture for the Trinity Presbyterian Church, Cork. Messrs. W. H. Hill & Son, architects, 28 South Mall, Cork.

IRELAND.—Jan. 30.—For erection of buildings for the extension of the electrical power station, for the tramways and electricity committee, Belfast. Surveyor's Office, Town Hall, Belfast.

IRELAND.—Feb. 17.—For the construction of breakwaters, wharf, booms, slip and other works at Cape Clear, Cork. Secretary, Office of Public Works, Dublin.

KIRTON.—Feb. 9.—For the erection of a science laboratory at the Sir Thomas Middlecot's endowed school, Kirton, Lincs. Mr. James Rowell, architect, Church Lane, Boston.

LANCASTER.—Jan. 23.—For building a chimney at the Gasworks, St. George's Quay, for the Corporation. Mr. C. R. Mitgate, engineer and manager, the Gasworks, Lancaster.

LEEDS.—Jan. 21.—For the erection of a Wesleyan school chapel at Harehills. Mr. J. W. Thackray, architect, Greek Street, Leeds.

LEEDS.—Jan. 24.—For supplying and fixing doors and screens to second-class dressing-boxes at Union Street and Kirkstall Road baths. City Engineer's Office, Leeds.

LONDON.—Jan. 24.—For the erection of a public elementary school on the Senrab Street site, Mile End Old Town. The Architects' (Education) Department (Room 148), Education Offices, Victoria Embankment, W.C.

LONDON.—Jan. 24.—For the completion of the restoration of 17 Fleet Street, E.C., for the London County Council. General Section, Architect's Department, 15 Pall Mall East, S.W.

LONDON.—Jan. 24.—For the erection of refreshment pavilions and dressing and store-rooms at Bruce Castle, Townhills, and the Chestnuts Parks, for the Tottenham Urban District Council. Mr. W. H. Prescott, Coombescroft House, 712 High Road, Tottenham.

LONDON.—Jan. 26.—For carrying-out certain alterations in the Stepney Union workhouse, Salmon Lane, Ratcliff, E.

Messrs. J. & W. Clarkson, architects, 136 High Street, Poplar, E.

LUTTERWORTH.—Jan. 21.—For the erection and completion of a small police court, cottage, &c., at Lutterworth. Mr. S. Perkins Pick, county architect and engineer, 6 Millstone Lane, Leicester.

MANCHESTER.—Jan. 23.—For the reconstruction of retaining walls at Berry Brow, Newton Heath. The City Surveyor's Office, Town Hall, Manchester.

MORLEY.—Jan. 23.—For the erection of stables and coach-house. Messrs. T. A. Buttery & S. B. Birds, architects, Morley.

NELSON.—March 4.—Designs for a free public library. Premiums of 50*l.*, 25*l.* and 15*l.* Mr. J. H. Baldwick, town clerk, Town Hall, Nelson.

NEWCASTLE-ON-TYNE.—Jan. 23.—For the construction of two public conveniences—one, an underground, situated at the corner of Shields Road and Union Road; and one aboveground, situated in Heaton Road, near the entrance to Armstrong Park. City Engineer's Office, Town Hall, Newcastle.

NEWCASTLE-ON-TYNE.—Jan. 24.—For erection and completion of new school at Shiremoor, Earsdon Urban District Council, for 256 children. Mr. J. A. Bean, C.E., county surveyor, The Moot Hall, Newcastle-on-Tyne.

NORTH SHIELDS.—Jan. 31.—For the erection of a concrete retaining wall in Liddell Street, North Shields. Mr. John F. Smillie, borough surveyor, Tynemouth.

NUNEATON.—Jan. 31.—For the construction of two silt filters and execution of under-drainage works at the Hartshill sewage-disposal works. Mr. F. C. Cook, engineer, Council Offices, Nuneaton.

OVER.—Jan. 25.—For additions to the school buildings, High Street, Over. Mr. H. Beswick, county architect, Newgate Street, Chester.

PLYMOUTH.—Jan. 21.—For the removal of a partition and other work at the Regent Street secondary day school. Education Offices, 18 Princess Square, Plymouth.

SCOTLAND.—Jan. 23.—For alterations and additions to Commissioner Street public school, Crieff. Mr. M. Finlayson, clerk to the Crieff School Board, Crieff.

SCOTLAND.—Jan. 23.—For the construction of buildings in the Concourse of Glasgow Central station, for the Cale-

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donian Railway Company, Glasgow. Company's Engineers, Buchanan Street Station, Glasgow.

SCOTLAND.—Jan. 23.—For the mason, carpenter, slater and plasterer's work of the following dwelling-houses at Haddo House Estates, Aberdeen. Parish of Methlick—(1) Flinthills, cottage; (2) Skilmonae, cottage; (3) Blackbrig, dwelling-house; (4) Auchencrieve, kitchen wing; (5) Broomhill, dwelling-house. Parish of Tarves—(6) Mains of Cairnbrogie, cottage; (7) Boghouse, cottage; (8) Bankhead, dwelling-house. Parish of Fyvie—(9) Fetterletter, double cottage; (10) St. John's Wells Croft, dwelling-house; (11) Blackhillock, dwelling-house; (12) Cottown of Fetterletter, dwelling-house. Parish of Ellon—(13) Inverebrie, dwelling-house. Parish of New Deer—(14) Auchreddie, Croft, dwelling-house. Mr. Charles G. Smith, factor, Estate Office, Haddo House.

SCOTLAND.—Jan. 25.—For the mason, carpenter, slater, and plasterer's work of the following:—Parish of New Deer—Mains of Artamford, new dwelling-house; Slacks, Cairnbanno—new cottar house. Estate Office, New Aberdeen.

SELLY OAK AND STIRCHLEY.—Jan. 30.—For the erection of two public libraries, one at Selly Oak and one at Stirchley. Mr. Ambrose W. Cross, 23 Valentine Road, King's Heath.

SKIPTON.—Jan. 23.—For alterations to shop premises in High Street, Skipton. Mr. James Hartley, architect, Skipton.

SOUTHEND-ON-SEA.—Jan. 27.—For the erection of a building for manual instruction, &c., adjoining the London Road schools, Queen's Road, for the Corporation. Mr. Ernest J. Elford, borough engineer, Southend-on-Sea.

SOUTHEND-ON-SEA.—Feb. 10.—For extension of the boiler-house at the electricity works, London Road, for the Corporation. Mr. E. J. Elford, borough engineer, Southend-on-Sea.

STREATLEY AND GORING.—Jan. 26.—For repairing the Streatley and Goring bridge. Mr. Francis E. Hedges, clerk to the Commissioners, Market Place, Wallingford.

TEIGNMOUTH.—Jan. 28.—For the construction and erection of about 220 lineal yards of dwarf stone wall and ornamental wrought-iron railing, together with entrance

gates, pillars, at Bitton Hill. Mr. Charles F. Gettin, surveyor and water engineer, Town Hall, Teignmouth.

THAMES DITTON.—Jan. 31.—For the removal of an existing cast-iron bridge and the erection of a steel bridge over the river Mole. Mr. A. J. Henderson, engineer, County Offices, Thames Ditton, Surrey.

TIDESWELL.—Jan. 25.—For erection of a new lock-up Tideswell, Derbyshire. Mr. J. Somes Story, county surveyor, County Offices, St. Mary's Gate, Derby.

TOTNES.—Jan. 25.—For the erection of some buildings and alterations at Hampstead Farm, near Totnes. Messrs. Bourne & Son, land agents, Totnes.

WALES.—Jan. 21.—For additions, &c., to Pendoyl National schools. Mr. E. Jenkin Williams, architect, 17 Queen Street, Cardiff.

WALES.—Jan. 25.—For the erection of a manse Llanymynech, Oswestry. Messrs. Shayler & Ridge, architects, Bank Chambers, Oswestry.

WALES.—Jan. 25.—For the erection of thirty cottages Penrhiwceiber, for the Tanycoed Building Club. Mr. T. W. Millar, architect and surveyor, Mountain Ash.

WALES.—Jan. 25.—For the erection of thirty-two houses at Deri. Mr. P. Vivian Jones, architect and surveyor, Hengoed.

WALES.—Jan. 26.—For the construction of sewerage disposal works and other works at Llandaff, Glamorganshire. Mr. James Holden, engineer of the Llandaff and Dinas Council, 20 Park Place, Cardiff.

WALES.—Jan. 27.—For the erection of two houses a stable at Richmond Road, Pontnewydd. Stone House, Richmond Road, Pontnewydd.

WALES.—Jan. 28.—For the erection of additional extensions at the Cardiff workhouse. Mr. Edwin Seward, architect, Queen's Chambers, Cardiff.

WALES.—Jan. 28.—For the erection of a higher-standard mixed school, with cooking, laundry and manual instruction centre, play-sheds, latrines, boundary walls, playground and caretaker's house at Grange, Rhos, near Ruabon. Mr. Walter Slater, architect, 9 High Street, Wrexham.

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James Jones, architect, Dolwen, Rhydlewis, Henllan, S.O.

WALES.—Jan. 31.—For the erection of about twenty-five cottages at Rhydfelen, near Pontypridd. Mr. P. R. A. Villoughby, surveyor, District Council Offices, Pontypridd.

WALES.—Feb. 6.—For the construction of the Carno reservoir, for the Ebbw Vale Rural District Council. Mr. F. Deacon, engineer, 16 Great George Street, Westminster, S.W.

WALES.—Feb. 7.—For the rebuilding of the Labour in-ain inn, Pontypool. Mr. D. J. Lougher, architect, Bank chambers, Pontypool.

WOKING.—Feb. 11.—For supply and erection of a retort-ouse constructed of steel stanchions, roof and girders, and overed with corrugated iron, for the Woking District Gas company. Messrs. W. A. Valon & Son, 140 Temple hambers, E.C.

WORKINGTON.—Jan. 23.—For the building of house and op and house in Napier Street, Workington. 45 Cumber-nd Street, Workington.

THE Bill which the London and North-Western Railway company intend to promote in Parliament contains a clause which would empower them to break open the streets of rewe to lay, or relay, or repair their gas mains. The own Council have decided to oppose the Bill. The own clerk was instructed to write to the railway company tating that such a clause ought not to have been even uggested after the decision of the House of Lords com- ittee on the company's previous Bill; that the Council as not prepared to grant any permanent rights in their reets to the railway company as a gas company; and that ey felt bound to intimate that all future breaking up of e streets for gas purposes must be done by Corporation ficials at the company's expense. It will also be pointed ut that while in two or at the most three instances the ompany had asked permission to break up the streets in umerous instances they had done so without permission, nd the Council decline to allow this to be continued.

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"JINGOSO" Ventilators.
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TENDERS.

ALDERSHOT.

For the erection of two houses at Aldershot, for Mr. H. Stratton. Messrs. FRIEND & LLOYD, architects and sur-veyors, Aldershot.

Martin, Wells & Co.	£1,200	0	0
Kemp	1,120	0	0
Metherell	1,099	0	0
Knight	1,089	0	0
Pullinger	1,079	0	0
Crossby & Co.	1,075	0	0
Moss	1,011	0	0
Edgoose	978	0	0
Bateman & Sons	969	0	0
CAESAR BROS, Hale, Farnham (accepted)	950	0	0
Kersley	863	0	0

BARNESLEY.

For the completion of Boundary Street and Gold Street.

JOHN HOOD (accepted)	£857	0	0
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BATH.

For enlargement of post office sorting office, for the Com-missioners of H.M. Works and Public Buildings.

Wills & Sons	£1,969	0	0	£90
Hayward & Winter	1,775	0	0	65
Long & Sons	1,491	0	0	98
A. J. COLBORNE (accepted)	1,419	4	0	70

A.—Credit for old materials.

BURY (LANCS).

For cast-iron pipes and special castings required under the following contracts, for the Bury and District Joint Water Board. Mr. J. CARTWRIGHT, engineer, Bury, and Westminster, S.W.

Accepted tenders.

Holwell Iron Co., Melton Mowbray, for Contract No. 1.
Stanton Ironworks Co., Nottingham, for Contracts Nos. 2 and 4.

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BRADFORD.

For erecting a steam-boiler chimney at the Royal infirmary
Mr. F. HOLLAND, engineer.
W. R. BOOTH, Clayton, Bradford (*accepted*) £675 0 0

COLCHESTER.

For sewerage and other works in Constantine Road. Messrs.
BAKER & MAY, surveyors, Colchester.
Burgoyne £1,134 0 0
Dobson & Son 1,080 0 0
Everett & Son 837 0 0
Howard & Son 820 0 0
Scales & Robins 775 0 0
Z. FAIRCLOUGH, Clacton-on-Sea (*accepted*) 760 0 0

DARTMOUTH.

For erecting slaughter-houses at Great Ridges. Mr. A.
SMITH, borough engineer.
Watts £862 9 0
Pillar 849 14 6
WILLS & ANDERSON, Dartmouth (*accepted*) 838 11 8

EAST HAM.

For the supply of tools for carpentry, plumbing and metal-
work, &c., for the technical college and secondary day
school.

Chemistry.

Brewster, Smith & Co. £453 13 3
Baird & Tatlock 405 12 6
Griffin & Son, Ltd. 377 0 0
Becker & Co., Ltd. 368 13 10
GALLENKAMP & Co., LTD., 19 and 21 Sun
Street, Finsbury (*accepted*) 346 7 11

Physics.

Baird & Tatlock 465 15 5
Griffin & Son, Ltd. 436 9 0
BECKER & Co., LTD. (*accepted*) 421 17 6

Botany.

Baird & Tatlock 58 10 4
Becker & Co., Ltd. 51 14 9
Griffin & Son, Ltd. 50 16 2
GALLENKAMP & Co., LTD. (*accepted*) 47 15 5

EAST HAM—continued.*Tools for carpentry.*

Buck & Hickman £318 11
PFEIL & Co. (*accepted*) 249 18

Photographic apparatus.

Baird & Tatlock 63 2
Griffin & Son 56 6
Tella Camera Co. 53 18
PERKEN, SON & Co., LTD. (*accepted*) 53

Cookery, &c., utensils.

Jones 77 11
G. J. BAKER (*accepted*) 50 12

ELTHAM.

For new stabling, for Messrs. T. Tilling, Ltd. Messrs.
GILBERT & CONSTANDUROS, architects. Quantities
Messrs. BATSTONE BROS.

Whistler & Worge £7,202 0
Wagstaff 6,352 0
Minter 6,224 0
T. Rider & Son 6,078 0
W. Downs 6,035 0
Holliday & Greenwood 5,922 0
Todd & Newman 5,892 0
J. Greenwood, Ltd. 5,868 0
Roberts 5,842 0
Kennard 5,839 0
Knight 5,813 10

HARROW.

For works in Fairholme Road, for District Council.

J. P. BENNETTS, engineer.

Mayo £772 11
Brown 729 0
Thacker 721 15
Fowles 686 2
Wimpey & Co. 684 12
Trueman 666 0
Champness 665 8
Adams 662 9
FREE & ADAMS, Maidenhead (*accepted*) 618 10
Surveyor's estimate 658 0

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Chapel Street, St. Philips Mars

LONDONDERRY.

For the erection of the municipal technical school. Mr. DANIEL CONROY, architect, 21 Shipquay Street, Londonderry. Quantities by Mr. W. M'ELWEE, 36 William Street, Londonderry.

Maultsaid	£10,300	0	0
Shannon & Rutledge	9,223	10	0
Campbell & Son	8,984	0	0
Smith Bros.	8,938	4	8
Robert Colhoun	8,775	0	0
J. & W. Stewart	8,490	0	0
Ballantine	8,449	2	2
Courtney & Co.	8,390	0	0
Laverty & Sons	8,200	0	0
M. Sweeney, Londonderry*	7,236	10	3
Surveyor's estimate	8,989	0	0

* Recommended for acceptance.

LINSLADE.

For sewerage and sewage-disposal works. Messrs. SANDS & WALKER, engineers, Nottingham.

Wheeler	£17,268	0	0
Wilmott	13,991	0	0
Jackson	13,188	13	3
Harrison & Co.	12,860	0	0
Redhouse, sen.	12,837	0	0
Green & Co.	12,822	0	0
Johnson Bros.	12,800	0	0
Byroms	12,623	0	0
Mackay & Son	12,596	11	1
Chamberlain	12,570	0	0
Riley	12,369	14	10
Ray	11,969	0	0
Price	11,850	1	9
Yirrell	11,815	0	0
Jewell	11,800	0	0
Muirhead, Greig & Matthews	11,702	0	0
Bower Bros.	11,695	0	0
Barry	11,400	0	0
Dean, Ltd.	10,980	0	0
Rayment & Son	10,975	0	0
Siddons & Freeman	10,829	0	0
H. BROWN, Watford (accepted)	10,560	0	0

HOVE.

For supply of 3,000 feet lineal of granite kerbing and 2,000 feet lineal granite channelling, to be delivered free at Shoreham harbour or at Hove railway station, Sussex. Mr. H. H. SCOTT, borough surveyor. A. & F. MANUELLE, kerbing 1s. 1 $\frac{1}{4}$ d. per foot, channelling 1s. 0 $\frac{1}{4}$ d. (accepted).

IRELAND.

For the erection of a dispensary residence and dispensary for the Dunganstown dispensary district, for the Guardians of Rathdrum Union. GOWAN, Rathdrum (accepted) £1,448 0 0

MANCHESTER.

For the erection of a new laundry at Longsight, Manchester. Messrs. MAXWELL & TUKE, architects, Manchester.

J. & J. Parrish	£3,159	0	0
Normanton & Son	3,145	0	0
Daniels & Son	3,137	0	0
Roberts & Son	3,110	0	0
Bland	3,085	0	0
Peters & Son	3,075	0	0
Matthews & Sons	2,982	0	0
Neill & Sons	2,953	0	0
Burgess & Galt	2,855	0	0
W. BROWN & SON, Manchester (accepted)	2,850	0	0

MENSTON.

For five houses and shop at Menston, Yorks. Mr. WILLIAM H. SHARP, architect, Bradford.

Accepted tenders.

Mounsey & Sons, mason	£755	0	0
Thompson Bros., joiner	345	0	0
Clapham, plumber	196	0	0
Walsh Bros., plasterer	95	0	0
R. & I. Nelson, slater	83	0	0
Bunting, painter	25	0	0

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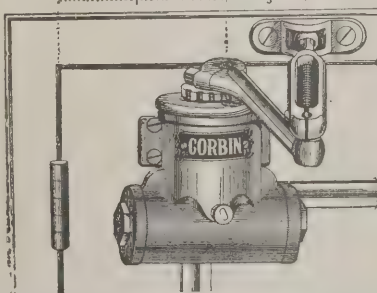
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Phillips	£4,650	0	0
Cox Bros.	4,485	0	0
West Bros.	4,468	0	0
Elmore & Sons	4,397	0	0
Avard	4,345	0	0
G. E. WALLIS & SONS (accepted)	4,344	0	0

For the rebuilding of the corner of Mill Street.

G. Pearce & Sons	£3,125	0	0
Corben & Co.	2,989	0	0
Avard	2,933	0	0
G. E. Wallis & Sons	2,872	0	0
Cox Bros. (accepted)	2,870	0	0

NEWHAVEN.For erecting an isolation hospital, &c., in Lewes Road.
Mr. F. J. RAYNER, architect, Newhaven.

White & Sons	£7,353	10	0
Pickard	6,400	0	0
Longley & Co.	6,125	0	0
Cooke & Sons	6,045	0	0
Jarvis & Son	6,000	0	0
Waters & Sons	5,998	0	0
Padgham & Hutchinson	5,935	0	0
Hockley & Co.	5,900	0	0
Miskin	5,835	0	0
Field & Co.	5,830	0	0
Peerless, Dennis & Co.	5,769	0	0
Norman & Burt	5,692	0	0
Woolger	5,640	0	0
Godfrey Bros.	5,378	12	0
Martin	5,200	0	0
C. COOKE, Newhaven (accepted)	5,085	0	0

PURLEY.

For the erection of billiard-room in Brighton Road. Mr. FRANK WINDSOR, architect.

Walker	£580	0	0
Pearson & Co.	435	0	0

PURLEY—continued.

For the erection of stable in Brighton Road, Purley. Mr. FRANK WINDSOR, architect.

Walker	£490	0	0
Pearson & Co.	420	0	0

NEWTON ABBOT.

For the construction of a masonry reservoir to contain 85,000 gallons, and providing and laying about 900 feet of 4-inch cast-iron water-mains. Mr. SAMUEL SEGAR, engineer.

Callender & Co.	£1,288	0	0
Pethick Bros.	1,243	0	0
Patrick	1,099	0	0
Bennet	1,092	0	0
Porter	1,048	0	0
Howe	1,047	7	0
Pike	988	15	6
Tabor	984	4	0
Hawking & Best	964	0	0
STACEY, Newton Abbot (accepted)	880	0	0

PORTSMOUTH.

For the erection of a cookery centre in the playground of Francis Avenue school. Mr. ALFRED H. BONE, architect, Portsmouth.

Evans	£1,050	0	0
Coltherup	1,040	0	0
Salter	1,035	0	0
Tanner	1,000	0	0
Dugan	995	0	0
Privett	983	0	0
Davis	975	0	0
Croad	968	0	0
Harding	952	0	0
Learmouth	939	0	0
J. CROCKERELL, Southsea (accepted)	920	0	0

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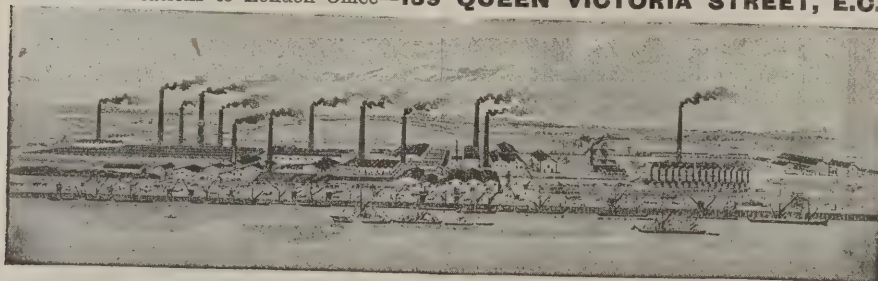
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RAVENSTONEDALE.

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Mason's work, walling and slating.

Thoms & Son	£1,321	18	1
Brassington & Co.	1,166	18	0
Grisenthwaite	1,086	0	0
Brockbank	1,025	15	0
Potter & Son	1,010	5	0
HINCHCLIFFE & Co., Morecambe (accepted)	995	4	0

Plastering.

Steel & Co.	138	10	0
Woodburn & Storey	121	18	0
Brockbank	117	12	9
DIXON, Penrith (accepted)	93	15	7

Plumbing, painting and glazing.

Brown & Garnett	192	19	6
Dixon	157	13	9
Airey & Co.	147	17	3
Brumskill & Nicholson	138	3	5
J. P. TANNER, Kendal (accepted)	120	0	0

SCUNTHORPE.

For laying and jointing about 12,700 yards of mains and pipes.

H. ASHLEY, Mansfield (accepted)	£934	0	0
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SHALDON.

For the erection of a dwelling-house at Ringmere, Devon. Mr. SAMUEL SEGAR, architect, Newton Abbot.

Hayman	£640	0	0
Goss	580	0	0
Pike	577	10	0
Stacey	575	0	0
Parker Bros.	539	0	0
Andrews	534	1	10
Francis	533	2	6
Mumford	499	0	0
Penwill	489	14	0
Denley	482	10	1
Bulley	464	19	0
T. BROAD, Shaldon (accepted)	430	0	0

SOUTHAMPTON.

For works in connection with the out-bathing station and ambulance shed.

G. R. LONG (accepted)	£1,400	0	0
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SURBITON.

For the making-up of Bond, Douglas (part of), and Thornhill Roads, for the Urban District Council.

Mowlem & Co.	£4,912	0	0
Free & Sons	4,575	0	0
Thacker	4,500	0	0
T. KAVANAGH & Co., Surbiton (accepted)	4,390	7	9
Surveyor's estimate	4,325	13	0

SWINTON.

For sewage works extensions for the Swinton and Pendlebury Urban District Council. Mr. HENRY ENTWISTLE, surveyor.

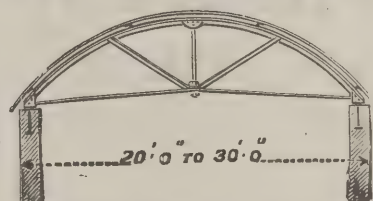
Sewage works extensions.

Edmunds & Co.	£4,181	3	0
Monk & Newell	3,325	17	8
Naylor & Sons	2,888	19	6
Johnson & Hindley	2,880	0	0
Snape & Sons	2,830	14	0
Bell	2,648	0	8
Graham & Sons	2,470	0	0
Byrom	2,466	10	0
Lomax	2,405	12	6
Jowett	2,386	9	5
Pollitt & Co.	2,303	10	7
Etheridge & Clarke	2,268	15	8
Worthington	2,219	14	3
Watson & Co., Ltd.	2,225	7	10
P. & S. Kearsley	2,193	5	11
Davies & Sons	1,970	6	2
Johnson & Son	1,961	0	0
MUSKER BROS., Swinton (accepted)	1,898	3	10

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Monk & Newell	£5,751	13	8
P. & S. Kearsley	4,944	12	0
Johnson & Hindley	4,112	8	9
Edmunds & Co.	4,009	10	6
Jowett	3,995	14	8
Watson & Son	3,938	8	0
Naylor & Sons	3,758	7	0
Bell	3,662	6	0
Etheridge & Clarke	3,601	4	6
Byrom	3,489	10	0
Graham & Sons	3,220	0	0
Lomax	3,049	3	9
Snape & Sons	3,021	6	11
Worthington	2,981	11	3
H. DAVIES & SON, Pendlebury (accepted)	2,908	6	9

WALTHAMSTOW.

For alterations and additions to Gamuel Road schools.

Mr. H. PROSSER, architect.

Shelbourne & Co.	£6,597	0	0
Stimpson & Co.	6,498	0	0
Shurmur & Son	6,480	0	0
Treasure & Son	6,404	0	0
W. Lawrence & Son	6,383	0	0
H. Knight & Son	6,355	0	0
J. & M. Patrick	6,279	0	0
Crisp	6,250	0	0
Pollard & Brand	6,250	0	0
Martin, Wells & Co., Ltd.	6,119	0	0
Myall & Upson	6,100	0	0
Nightingale	6,000	0	0
J. & J. Dean	5,871	0	0
Foster Bros.	5,822	0	0
Barton	5,813	0	0
Hammond & Son	5,775	0	0
Manders	5,550	0	0
Rowley Bros.	5,500	0	0
Evans	5,477	0	0
W. J. MADDISON, Canning Town (accepted)	5,429	0	0

WALTON (SURREY).

For constructing high level sewer along the Poplars frontage, Molesey Road.

Ingram & Co.	£228	0	0
Potterton & Co.	144	0	0
G. HEBBURN, Hersham (accepted)	115	0	0

WANDSWORTH.

For the construction of an underground sanitary convenience in Merton Road.

Dakin & Co.	£939	10	0
Jewell	900	0	0
Vigor & Co.	897	0	0
White & Co.	885	0	0
Martin, Wells & Co., Ltd.	850	0	0
Horton	825	0	0
Triggs	820	0	0
Parsons	783	0	0
W. & C. Brown *	729	0	0

* Recommended for acceptance.

WOBURN SANDS.

For the erection of new shop and stores. Mr. W. B. STONE-BRIDGE, architect.

Botsford	£997	0	0
Sharpe	977	0	0
Gregory	945	0	0
Fleet	840	0	0
Miles Bros.	779	0	0
C. SINFIELD (accepted)	762	0	0

THE Salop County Council have for several months been bringing pressure on the Ellesmere District Council to remove a nuisance caused by allowing the town sewage to flow into the river Perry. Several schemes of sewage disposal, ranging in cost from 11,000*l.* to 4,000*l.*, have been prepared by a Westminster engineer. At the last meeting of the District Council it was considered that these were too costly, and it was decided to ask a local engineer to prepare a new and cheaper scheme. The present borrowing powers of the Council amount to only 4,000*l.*

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 Lancaster.—Abbott & Co., Chapel Street.
 Gloucester.—Sessions & Sons, Ltd., Gloucester.
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 Edinburgh.—Currie & Co., 4 North St. David Street.
 Sheffield.—Shaw, Thurkettle & Co., Rodgers Chambers, Norfolk St.
 Dublin, Ireland.—James A. Campbell & Co., Oaffe Lane, Stephen's Green.
 Leicester.—H. O. Snow, 8A Pocklington's Walk.
 Newcastle-on-Tyne.—Reed, Millican & Co., Croft Street Works.
 Birmingham.—William Pearce, Ltd., Bridge Street, Broad Street.
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 Brighton.—A. W. Loomes, 7 Blatchington Road, Hove.
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TRADE NOTES.

THE Stobhill general hospital for the Parish Council of Glasgow is being warmed and ventilated by means of eighty Shorland's double-fronted patent Manchester stoves with descending smoke flues.

A HANDSOME fountain has been erected at Hursley Park under the supervision of Messrs. A. Marshall, Mackenzie & Son, the architects. The handsome Venetian glass mosaic floor in various shades of blue was entrusted to Arrolithic, Ltd., of 18 Berners Street, London. The same firm have just carried out the floors in chancel of Sherfield English Church under Mr. Fred Bath, the architect, in their cloisonné mosaic.

ELECTRIC NOTES.

MR. J. E. WINSLOW, 30 Bishopsgate Street Within, has been appointed by the authorities of Coventry to superintend the construction of about 3 miles of new tramways and the reconstruction of $5\frac{1}{2}$ miles of existing tramways.

THE police committee of the Belfast Corporation estimate that the cost of lighting the principal streets (where poles are to be used in the centre of the carriageway) by electricity would be 2,093*l.* 15*s.* per annum as against 763*l.* for gas lighting. The City Council will not be recommended to carry out the lighting by the former method.

THE Metropolitan Borough Councils decided at a conference last week to inaugurate combined opposition to the large number of companies who are promoting Bills in the

next Session of Parliament to enable them to supply electricity in London in competition with the Borough Councils. There were representatives from twenty-one Borough Councils.

THE Yarmouth Town Council have accepted the recommendation of the borough electrical engineer to extend the undertaking at a cost of 10,000*l.* The principal items are the purchase of another 300 kw. engine and dynamo with boilers for 4,500*l.*, and the increase of the condensing plant at a cost of 2,500*l.* A new conduit to the harbour will also be required at an expenditure of 1,000*l.*

THE Nottingham ratepayers have, at a public meeting, accorded the necessary consent to the Corporation for the promotion of a Bill in the next session of Parliament for the extension of the present system of electric tramway traction in the city and the carrying out of works of street improvement at an estimated cost of about 100,000*l.* The new lines are designed to meet the wants of the eastern district of Nottingham. Six hundred thousand pounds have already been spent on the tramways in other parts of the town.

BUILDING AND BUILDERS.

THE education committee of West Bromwich strongly recommend the extension of the technical school and the establishment of a pupil teachers' centre without delay.

THE Doncaster Rural Council have approved plans and sections submitted by Messrs. D. Balfour & Sons, C.E., for the sewerage and disposal of the sewage of Askern, and application is to be made to the Local Government Board for sanction to a loan for carrying out the works for 3,430*l.*

THE Admiralty, it is believed, intend establishing three coastguard stations in the Isle of Man—one at Peel, on the west coast; one at Point Cranstal, near the north of the island; and one on Spanish Head, near the south of the island. The outlay will amount to several thousands of pounds.

THE Court of Common Council having been asked by the London County Council to give their views on the London Building Acts (Amendment) Bill, appointed a small com-

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mittee for the purpose of taking all the necessary steps to oppose the Bill, and instruct the City Remembrancer from time to time on it.

MESSRS. JESSE HAYWARD & EDGAR W. WOOSTER, building contractors, Bath, announce that the partnership known under the title of Hayward & Wooster is by mutual consent dissolved. Mr. Hayward retires, and his son, Mr. Geo. Hayward, joins Mr. Wooster as junior partner, by whom the business will in future be continued under the old style of Hayward & Wooster.

Two new Council schools are proposed to be built at Old Trafford to provide for nearly 2,000 children. The Stretford education authority have secured sites—one on Stretford Road, near the Cornbrook Wesleyan school, where it is proposed to erect a building for 1,000 scholars, including 400 infants, and another in Ayres Road, Brooks's Bar, adjoining St. John's Church, where 800 scholars will be accommodated.

THE plans and buildings committees, in their report to the Handsworth District Council for the year 1904, state that 242 plans were submitted, of which 106 represented 317 houses. Other plans included new streets, public baths, a Baptist church and a Church institute, all of which were approved. The number of houses passed for occupation was 572. No prosecutions had been instituted during the year. In 1903 179 plans were approved, representing 778 new buildings, and the number of houses passed for occupation that year was 747.

THE Manchester City Council at a recent meeting appointed a special committee to inquire into the question of the establishment of a municipal works department, under which Corporation enterprises might be carried out directly by the Council, instead of under contract. The committee held their first meeting on the 13th inst., and balloted for the appointment of chairman and deputy chairman. The Lord Mayor was appointed chairman, and Councillor J. Royle (ex-Lord Mayor) deputy chairman. It is understood that the committee will, as soon as possible, obtain information necessary for them to report to the Council.

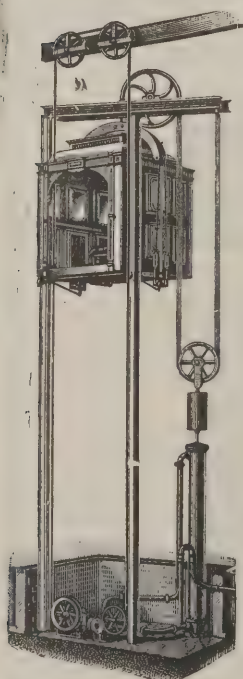
THE Scottish Amalgamated Society of House and Ship Painters state with regard to working agreements, in their monthly report, that several branches have again been able to

settle for another year without any alteration upon existing conditions. In the new Glasgow agreement, however, there is an extension of a half-mile on the suburban and county boundary, the concession removing what employers considered to be a long-standing grievance on their part. Dumfries branch have withdrawn their proposed alterations, and the Paisley employers have made several drastic changes and threaten to lock out the men if they decline to accept them.

A NEW school was opened recently at Bathgate, near Edinburgh. The building, which has been erected from plans by Mr. J. Graham Fairley, architect, Edinburgh, consists of two storeys, and its eight spacious, high-roofed and well-lit classrooms give accommodation for 480 children, provision having been made for teaching sixty pupils in each room. These classrooms, however, by no means represent the full space available within the building, a feature of which is its two large halls, one on each floor, measuring 60 feet by 26 feet each. These halls will be used for drill and as music classrooms. In laying out the plan the School Board have been careful to keep in view the possibility of having to provide further accommodation in the future, and it has been arranged that, without destroying the main features of the building, further accommodation can be provided for a total of between 1,000 and 1,200 scholars. The new school has been erected at an estimated cost of 9,500l.

THE Glasgow Trades Council at their last meeting considered the following letter sent by Mr. A. Cameron Corbett:—"I shall be glad if you put the following proposal before the secretaries of the different building trades in Glasgow. If they unite together and form a committee for building workmen's houses of 2, 3 or 4 rooms in any suburb of Glasgow, I am willing to give a guarantee to the Bank of Scotland enabling them to draw up to 2,000l. for this purpose. If this proposal seems likely to meet with their approval, I should be glad to have a talk over the matter with them. Of course I could not under any circumstances derive any profit out of the transaction, but if it succeeded I should have the satisfaction of having initiated a very interesting experiment in working-class management, and of having done something to mitigate the difficulty of finding employment." A meeting of the building trades secretaries is to be held to consider the proposal.

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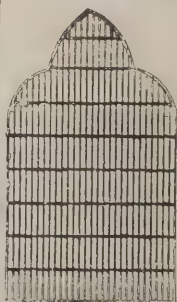
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At the Southwark County Court, on Tuesday, Judge Addison heard a case under the Workmen's Compensation Act in which the point at issue was this:—Is a firm obliged to go on paying compensation to an injured man if he refuses to undergo an operation that might, or might not, cure him? Counsel for the firm urged that it was clearly reasonable that the man should undergo the operation, and it would be only fair if some pressure were put upon him by the Court to consent. "If you can persuade him, you may do so," said Judge Addison, "but I never attempt to persuade people to do something that I have no power to compel them to do. I have not even the power to order an injured person who is claiming damages to undergo a medical examination. I have power to order an examination of anything save a human being." The application to discontinue the award was then dismissed with costs.

A FIRM of architects have designed a building to be erected at Baltimore in which no wood will be used. It will be six storeys, 41 feet by 70 feet, and the entire structure is to be of reinforced concrete and steel. Even the doors, trims and door jambs are to be of metal. The windows are also to be of metal, and will be glazed with wire glass. The side walls, columns and rear walls, as well as the supporting columns of the front walls, will be of concrete. The floors will all have a top dressing of cement $1\frac{1}{2}$ inch thick. The stairs will be of concrete, with slate treads and wrought-iron balustrades. The elevator shaft will be of concrete, as will also the enclosure around the stairway and elevator hall. The cellar and roof are to be of cement. One of the interesting features of the structure is that in an ordinary building of this height the walls are about 21 inches thick, but by the use of the reinforced concrete 6 inches will give sufficient strength. This will give 40 feet clear breadth on the inside of the building.

THE Aberdeen Town Council decided on Monday that, before any further steps be taken regarding the lighting of the streets with electric light, a deputation be sent to Edinburgh and Dalkeith to ascertain the conditions of agreement existing in these towns.

VARIETIES.

THE waterworks committee of the Bolton Town Council are considering the afforestation of the Corporation watershed as a means of providing work for the unemployed.

THE Barton education committee have approved of the proposal to extend the Cadishead Wesleyan day school to accommodate 200 more children. St. John's National Schools, Walkden, are also to be enlarged.

THE Scarborough advertising committee and the Scarborough Traders' Association are strongly advocating an increase of the amount spent upon advertising the town. The present allowance is 500*l.* a year.

HIS Grace the Duke of Richmond and Gordon has accepted the position of joint trustee of the Central Insurance Company, Ltd., in succession to the late Mr. Herbert Chamberlain, the other trustees being the Hon. Mr. Justice Grantham and Sir Peter Walker, Bart.

THE Surrey County Council have convened a conference of local authorities in Surrey and Hampshire which are interested in the question of fixing the responsibility for compensation for damage done to the roads by extraordinary military traffic.

THE Mayor of Scarborough (Mr. Morgan) has sold the iron of the wrecked North Pier at Scarborough for 500*l.* Last September Mr. Morgan bought the pier (which originally cost 25,000*l.*) for 3,500*l.* It was wrecked by the recent gale.

THE Royal Commission on Sewage Disposal will carry out a series of special experiments, extending from twelve to eighteen months, at the Dorking outfall works for the purpose of determining the relative value of the different methods of treating domestic sewage.

MR. JAMES WALKER (engineer to the Tyne Commissioners, Newcastle) has consented to inspect the Scarborough Marine Drive sea-wall, and advise as to safeguarding against future injury of a similar nature to that caused by the recent gale and tidal wave.

A SUM of 150,000*£l.* is set apart for the creation of a maritime terminus for the railway at Sheikh el Barghout, a place some thirty miles to the north of Suakin. The new port, the official name of which has not yet been decided on,

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THE construction of a light railway from Falkland Road station to Falkland burgh has been under consideration at a meeting of Cupar district committee of Fife County Council. The cost of carrying out the scheme is estimated by the surveyor at 10,500*l.*—3,000*l.* per mile.

THE East United Free Church in Coldstream, Berwickshire, is to be sold by auction. The public are informed that "the building is in thorough repair, and the area was a few years ago entirely re-seated with pitch-pine and fitted with hot-water heating apparatus. Entry at Whitsunday, 1905, or sooner if so arranged. Feu-duty nominal."

THE Runcorn Urban District Council has resolved to apply to the Local Government Board for sanction to a loan of 6,000*l.*, to be repaid in sixty years, for the purpose of laying a 12-inch main from the Liverpool Vyrnwy main at Norton Tower to the Runcorn reservoir. The scheme will add 5*d.* in the £ to the general district rate.

THOMAS ROSE, one of the bell-ringers at Stoke-on-Trent, was killed on Saturday while examining the bells. It is supposed that the bell was hanging at an angle when deceased went to examine it, and that he disturbed it in some way, causing it to fall towards him and crush him against the girder.

THE Wigton Medical Officer of Health in his annual report comments upon the tenements in the poorer part of the town, and states that the lack of attention and cleanliness on the part of the occupants seems to be their worst feature, so that there is greater need for improvement in the persons than in their dwellings. If drunkenness and vice could be abolished, other insanitary conditions would cure themselves automatically.

THE *Bulletin Commercial* (Brussels) states that several projects are contemplated by the Municipality of Athens for the improvement of the streets. It is proposed to lay down three kinds of paving in different parts of the city—macadam tarred on the surface, asphalt and granite. About 300,000 square metres would be macadamised, 74,000 square metres asphalted and 60,000 square metres paved with

granite. The total cost of the work is estimated at about 140,000*l.* and the upkeep during the first ten years at about 2,400*l.* per annum.

THE general purposes committee of the Burnley Corporation has selected the following applications for the vacant town clerkship for further consideration:—Mr. Edward Cooper, solicitor, Blackburn; Mr. J. W. Halloway, deputy town clerk of Chatham; Mr. Leonard Hewlett, senior solicitor, town hall, Leeds; Mr. H. L. Parr, assistant solicitor of the West Riding County Council; Mr. P. Thomas, town clerk of Leigh; and Mr. Alfred Varley, town clerk of Colne. The salary is 700*l.* a year, rising to 900*l.*

A QUESTION has arisen as to the disposal of the sum of 300*l.* (shown in the Town Chamberlain's books) between the trustees of the Watt Library Memorial Buildings and representatives of the Glasgow Corporation. The claim on the part of the trustees, who on Wednesday held their first meeting for over fifty years, is that the money was the residue of public subscriptions for the erection of the buildings and the Chantry statue of Watt, and that it ought to be applied for the upkeep of these, as being in harmony with the original object of the donors. The counter-claim is that the sum should be handed over to the Carnegie fund.

THE Manchester city coroner held an inquest last week as to the death of a man who was found dead on a burning brick-kiln, where he had been sleeping. Mr. Lewis, Government inspector of factories, in giving evidence, said the watchmen at the brickfields had expressed to him their fears of violence. The problem of how to keep the tramps away from the brickfields was so difficult of solution that all he could suggest was that it should be made as difficult as possible for them to climb on the kilns, which furnished a cheap and comfortable night's "doss."

BROOKLYN Bridge, one of the engineering wonders of the world, and the main artery that connects New York with suburban Brooklyn, shows signs of decay (says the *Telegraph's* New York correspondent). No bridge has ever borne such a tremendous daily traffic of trains, trams and other vehicles, besides foot passengers. In order to prevent a tremendous disaster, the engineers have now recommended the adoption of plans entailing the virtual reconstruction of

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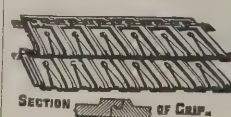
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the bridge. Two years must elapse before its completion, and the cost is roughly estimated at 1,000,000*l*.

THE Manchester Steam Users' Association will on February 14 celebrate the fiftieth anniversary of the foundation of the Society by Sir William Fairbairn, Mr. Henry Houldsworth and Sir Joseph Whitworth, under the presidency of the then Mayor of Manchester. The full title of the Institution is "The Manchester Steam Users' Association for the prevention of Steam Boiler Explosions and for the Attainment of Economy in the application of Steam." It is pointed out that in comparison with all other countries, even with those where there is compulsory boiler inspection by the State, England has now relatively the fewest boiler explosions.

KING LEOPOLD (says the Brussels correspondent of the *Standard*) has just taken possession of the new Japanese palace which has been building for him in the royal park at Laeken during the last four years. When visiting the Paris Exhibition of 1900, His Majesty greatly admired the "Tour Japonaise"—one of the architectural marvels of the French World's Fair—and conceived the idea of reproducing it. A French architect (M. Marcel) was charged with the work, which has cost about 5,000,000 francs. The palace is built in genuine Japanese style. It is divided into several wings.

THE watch committee of the Manchester City Council propose to take action with regard to the use of the congested thoroughfares in the city by steam locomotives used for heavy traction, and have called upon the police for a return of traffic using the congested areas. It is desired that a clause should be inserted in the next Manchester General Powers Bill which comes before Parliament to prohibit the use of specified streets and roads by locomotive traction-engines during specified hours when such streets and roads are congested by electric-traction cars, horse and vehicular traffic, which is quicker moving.

LOCAL opposition strenuously opposed the proposal to erect a theatre in the Soho Road, Handsworth. It was pointed out that providing the promoters complied with the building by-laws laid down by the District Council it was questionable if the local authority had any power to prevent the erection of the theatre. The architects have now

presented plans to the Handsworth District Council for the proposed building, which were considered recently. The committee, it is stated, will recommend the local authority at their meeting to disapprove of the plans owing, it is alleged, to the fact that the exit arrangements are not adequate.

THE Aberdeen Harbour Board have prepared their annual accounts. The increase of 4,394 tons of cement is chiefly accounted for by the Commissioners' own requirements at the harbour. Foreign granite still continues to increase, and the quantity imported was 24,199 tons, or 5,379 tons more than in the preceding year. Ten years ago the quantity imported was 8,224 tons. A serious falling-off occurred in the chief article of export, viz. stones. Causeway stones were down 11,422 tons; pavement and building stones, 1,993 tons; rubble and chip stones, 2,530 tons; and granite waste slabs, 1,680 tons; while polished granite was up 841 tons.

THE Eastbourne Corporation new swimming and slipper baths in Motcombe Lane, Old Town, have been opened. The style of the building is Late Domestic Renaissance. The red walls are faced with Portland stone, and half-timbering is introduced. There are twelve slipper baths for men and three for women, and a shower bath. The swimming bath is 60 feet long and 24 feet broad, with thirty-six dressing boxes, a diving stage at the deep end, and an umbrella spray at the shallow end for removing bubbles and scum and freshening the water. For the convenience of those leaving the bath a footbath with shower over has been provided. Fresh water is used and the heating apparatus will be capable of keeping the water at uniform temperature without necessarily renewing the supply. The building was designed by the borough surveyor Mr. W. Chapman Field. The cost was 5,000*l*.

ALTHOUGH the asphalt lakes of Trinidad and Venezuela furnish over 90 per cent. of the asphalt used, small deposits are found elsewhere. The largest South American asphalt lake consists of a dark brownish deposit of a semi-fluid and semi-solid substance surrounded by banks from 3 to 6 feet high. In the centre of this lake is a continual ejection of hot fluid asphalt, accompanied by large bubbles of gas. It is excavated in pieces weighing about twenty-



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five pounds, sections 40 feet in area and about 4 feet deep being worked at one time. It is placed in large tubs, resting upon small flat-topped tramcars operated upon a narrow-gauge road. The entire surface is constantly moving, thus necessitating a continual relaying of the tracks. The freshly-excavated asphalt is conveyed to the shore, where the tubs are lifted by hydraulic power to an aerial tramway, by which it is conveyed to the large wharf situated on the Guanoco river, about five miles distant from the lake. Upon its arrival at a factory it is heated until the water is expelled and the earthy material cast to the bottom of the large vats, and it is poured through a sieve into barrels, where it solidifies.

NEW CATALOGUES.

THE latest catalogue of the British Uralite Company, Ltd., contains a remarkable variety of buildings in which their sheets or slabs have been used. The series relating to the Naval College buildings at Osborne, in the Isle of Wight, comprises the interior of the master's quarters, the cadets' dormitories (interior and exterior), the officers' quarters, gymnasium, master's quarters, chemical laboratory, &c. The views show that it is equally adapted for interior and exterior work, and no sign of patchiness is anywhere to be discerned in the photographs. The style of the buildings of the college is that of the cottage type. But in such a structure as the Pavilion at Great Yarmouth the style departs from precedents. Mr. J. W. Cockrill, the architect, says:—"I have now used some 2,000 sheets of Uralite in erecting a pavilion to seat 1,000 persons, with standing room for 800 more, on the Corporation Pier. The material has lent itself to the rapid construction which was necessary, the whole building being completed within two months after the steel structure was ready, and the decoration of the interior, which is panelled with Jarrah strips, was an easy and rapid matter, as the Uralite permitted the work being distempered and decorated at once." Among other buildings which are illustrated are a garage at Herne Bay, an Irish cottage, office buildings for the County Council of Yorkshire, lodges, a school church, buildings for tea planta-

tions, bungalows, pavilions, hospitals, billiard-rooms, &c. In the large "Electra House" the material has been also employed, and Messrs. Colls & Son, the builders, say: "For covering partitions and ceilings, in lieu of plaster, the advantage of quick application and the absence of wet and dirt, as with plastering, make Uralite most valuable, apart from its fire-resisting properties, which, of course, form the most important argument for its use, as it satisfies the requirements of insurance and other surveyors." With such manifold tests it would be a waste of time and labour to say more about the applicability of the material in cases where rapidity of erection and lightness of weight are required as well as immunity from fire.

It is well known that the manufactures of Messrs. Hartley & Sugden, Ltd., of Halifax, are only obtainable through the trade, but as all their boilers bear the familiar trade mark in a prominent position there is little risk of deception. The firm also guarantee for two years the materials, workmanship and working under ordinary conditions of all their boilers. The catalogue of 120 pages gives representations and details of the numerous types of steam and hot-water boilers which are produced by the company. The particulars are sufficiently ample to enable the reader to decide what class is best adapted to his requirements. There is no attempt at persuasion; the forms, dimensions, prices and heating power are left to be their own advocates. It is unquestionably a great advantage for architects, engineers and contractors to be able to deal with makers who can supply whatever is required for heating from their own establishment, which in this case, it may be added, has been lately enlarged and supplied with the latest plant. Among the varieties we desire to point out those for low-pressure steam and hot-water heating. The "Savile" is especially adapted for the supply of hot water and may be used for that purpose as well as heating in clubs, hotels and country houses. This boiler can also be obtained with an asbestos jacket and decorated case which will conserve the heat and make it presentable in passages or halls when required. Messrs. Hartley & Sugden, Ltd., were awarded the gold medal at the Paris International Exhibition.

C. JEAKES & CO. 51, GREAT RUSSELL STREET, BLOOMSBURY, LONDON.

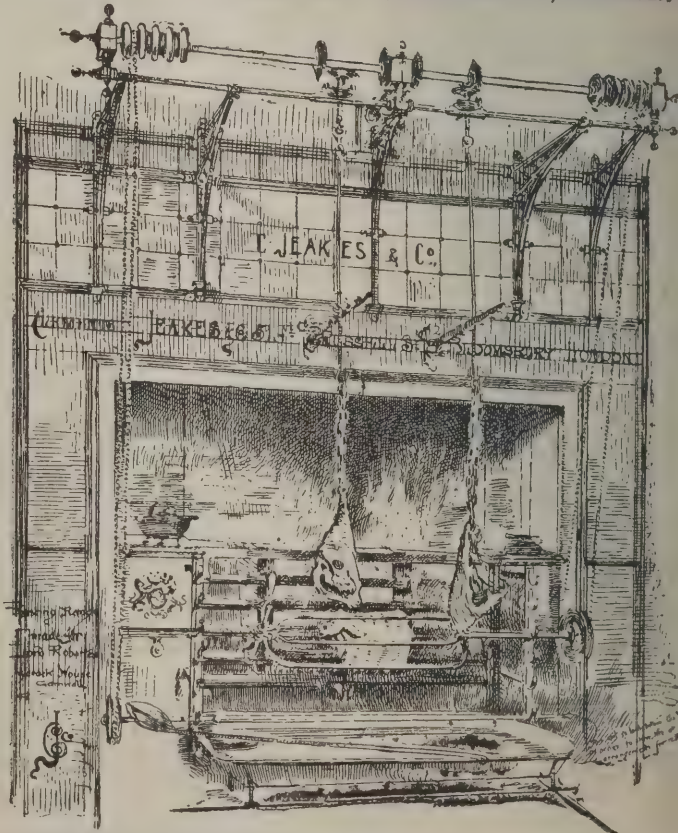
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BUILDING EXHIBITION, 1905.

THE Building Trades Exhibition will open on April 27 this year and close on May 6. Notwithstanding the general depression in the building trades, this biennial fixture will outrun all its predecessors in numbers and in the variety of exhibits.

Almost all the 1903 exhibitors will be represented, and they will be reinforced by some sixty leading firms who have never before exhibited.

Several novelties are promised, particularly in fire-prevention partitions and floors. Over 256 exhibitors have already taken space, and every inch of the spacious ground floor has been appropriated.

The Right Hon. Lord Windsor (First Commissioner of H.M. Works) has kindly consented to perform the opening ceremony, and he will be supported by leading men interested in the building industries.

AN IRISH CONTRACT CASE.

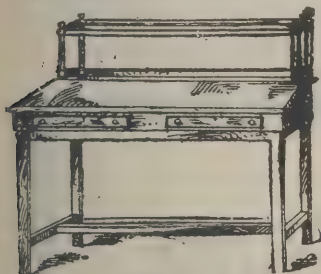
On Saturday counsel applied in the King's Bench Division, Dublin, on behalf of the defendants to have the case of Hill v. the County Council of Galway and the County Council of Roscommon set down for hearing before a judge without a jury, but with the assistance of an architect as assessor. It was explained that last sittings it was moved to have the matter in dispute referred to arbitration, as it was a very complicated building contract case. The action arose out of certain building alterations in the lunatic asylum of Ballinasloe amounting to nearly 60,000*l.*, and was for the balance alleged to be due on foot of the contract amounting to 4,905*l.* In the course of the argument it was suggested by the Court that probably the case was of such a character that an arbitration would not be the best form of trial, and, on the other hand, that a jury would probably not be the best form of trial. Mr. Justice Gibson suggested that probably the best form of trial would be by a judge without a jury, and with the assistance of an experienced architect as assessor, and they all agreed that probably that would be the most satisfactory form of trial, having regard to the nature of the case. But counsel had at that time no authority on the part of his clients, the County Councils of

Galway and Roscommon, to come to any definite undertaking of the kind. Since then, however, it had been agreed on both sides that that form of trial would be the best under the circumstances, namely, a trial before a judge without a jury, but with an architect to be selected by the parties as assessor, the remuneration of the assessor to be the costs in the cause. No architect had yet been selected, but an effort would probably be made to secure the services of Sir Thomas Drew.

The Court made an order directing the case to be set down for trial in the manner proposed.

OVERHEAD TRAMWAYS.

A PAPER on "Tramway Overhead Equipment Materials" was read before the Tramways and Light Railways Association by Mr. H. M. Sayers. He pointed out that the necessity of studying appearance should not be a serious addition to the primary engineering necessities, for the appropriate use of materials and obvious adoptions of means to ends satisfied the æsthetic as well as the practical sense, and where incongruity with architectural and natural beauties was the danger unobtrusiveness would probably give better results than any elaborated attempts at ornament. The first mechanical condition to be satisfied was evidently that of safe and stable support. After discussing at length the technical questions of design and erection of the line, the choice of materials and design of parts, he said that the cost of overhead work seemed to vary a good deal more than it should. Some authorities put it at 1,500*l.* to 2,000*l.* per mile of route, but he did not know how so much could be properly spent. Thoroughly good span-wire work for either double or single lines could be erected for 1,200*l.* per route mile with fair profit to the contractor. Bracket armwork for single lines, where a single line of poles was generally sufficient, could be done for 1,000*l.* per route mile, or even less under specially favourable conditions. These rates included average amounts of guard wiring and proportion of junctions, but very heavy and complex junctions, car shed, fanwork and similar special requirements would involve some additional expenses. A great deal of money could be spent on elaborate scrollwork and fancy painting,



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For Index of Advertisers, see page x.

especially if a little gold leaf was thought necessary to harmonise with the surroundings, but these were matters of taste rather than engineering. In some towns there certainly was the excuse that the overhead structure was the only thing visible in the streets that bore the slightest trace of design or grace, of which the most should therefore be made. A discussion followed.

CORE MAKING.

At a meeting of the Metallurgical Society on Saturday, at the Birmingham Municipal Technical school, a paper on "The Principles and Practice of Core Making" was read by Mr. Robert Buchanan, the president of the British Foundrymen's Association.

Attention was called to the two prime necessities of core sand, viz. infusibility of the components and penetrability by gases formed by the molten metal. It was also pointed out that just as in the human body the bones knit the whole together, so in cores the deficient cohesion of sand was reinforced by rods and irons for the purpose of binding together and keeping in shape the masses of sand. The particular advantage and disadvantage of green sand, dry sand and loam cores were pointed out, and the method of manufacture of each was illustrated practically. A core-making machine, kindly lent by Messrs. G. M. Riches & Co., Beccles, Suffolk, was shown at work making small sand cores, which were quickly made and accurate in shape. A number of lantern slides were shown illustrating British and American methods of core making. One of these views depicted a core weighing 30 tons, made by Messrs. Bellis & Morcom, Birmingham, and used to make a large casting for the Birmingham Corporation. Another notable illustration was that of the patent core-forming machine, invented and patented by Mr. Walter Jones, Titan Works, Stourbridge, and manufactured at the works there. This machine is operated by power, and makes cores from 2 inches up to 21 inches diameter, and to any length from 9 inches to 10 feet. A core 12 inches in diameter and 10 feet long can be made by it in three minutes. A number of these machines are at work in various parts of the country, and prove formidable competitors to the ordinary methods of core making, especially loam cores.

A practical demonstration of how to make bent pipes in loam with a minimum of pattern-making and expense concluded the lecture. A discussion followed.

SCOTTISH PORTLAND CEMENT.

ARRANGEMENTS have been completed for the manufacture of Portland cement in Scotland. A company has been formed in Dundee with Mr. J. L. Spoor as technical director for the purpose, slow setting cement being preferred.

The extensive quarries are situated on the ridge and adjoining Cousland village, and at the foot of the hill the cement works have been erected. A tramway connects the quarry with the works, and a siding from the Ormiston branch of the North British Railway gives ready access to the railway system. The limestone is run down from the quarries to the crushing plant, where it is reduced to the size of road metal, thence, by gravity, falling into further pulverising machinery, which reduces it to fine powder. This powder is conveyed automatically into storage bins. The shale undergoes a similar process, and is also binned. From these separate stores the raw materials are carried by conveyers and elevators to an automatic weighing machine, which is so set as to weigh at one operation the exact quantities of each material required for the proper mixture. This object having been obtained, the mixture finds its way into the huge cylindrical tube mill, where it is thoroughly incorporated and ground to the finest powder, thence passing on to the brick presses to be made into bricks. Up to the delivery of the bricks from the presses, the whole process is automatic and free from the variations usually found in cement works built on haphazard rule of thumb lines. A constant scientific check on the mixture is kept by analysis throughout the day, with the object of securing regularity of quality and uniformity of product.

The bricks are then placed in the hoists and taken up to the top of the kilns, in which they are burned to clinker.

This clinker, after passing through Blake crushers, is reduced in ball mills and finished to fine powder in tube mills, passing by automatic conveyers to the warehouse floors as the finished Portland cement for the market.

It will be seen that the plant is what is termed a "dry process" plant, and designed to eliminate rule of thumb

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risks by automatically controlling the manufacture on scientific lines.

The most modern plant by the best makers has been installed. The engine (compound condensing, with rope driving), of over 400 horse-power, is by Shanks, of Arbroath. The boilers are Scottish, while the Continent has been laid under contribution for the ball mills and tube mills. Leeds has furnished the brick presses, Leicester the crushers, while locally everything has been ordered that could be suitably obtained. The kilns are the well-known Schneider kilns. The whole plant has been erected under expert supervision and by local workmen, who now, under the experienced cement works manager, Mr. Greaves, manufacture the cement. The company has built cottages for the workpeople in the village of Cousland.

The warehouse is alongside the railway siding, and trucks are loaded under cover.

The testing laboratory is fitted with the requisite chemical and mechanical appliances for thoroughly testing the cement and controlling its manufacture.

The manufacture has been carried on all last summer, and the cement has been put to the proof of actual use in all classes of work by builders and contractors, and has given great satisfaction.

The best authorities have also made independent tests with satisfactory results. Mr. G. H. Gemmell, F.I.C., of Edinburgh, certifies it to be a Portland cement in which the ingredients are in correctly balanced proportions, free from adulterant of any kind, and closely corresponding to cement made from Thames chalk and estuary clay, or London Portland cement.

Professor Stanfield, of the Heriot-Watt College, certifies the cement as tested by him as of first-class quality, bore 440 lbs. at seven days and 622 at twenty-eight days, while a cube of concrete made of two parts cement and three parts granite chips gave a compressive test of 4,218 lbs. per square inch.

Tests made at Leith town hall recently gave at seven days, 516; fourteen days, 546; twenty-eight days, 666 lbs. per square inch. Tests made by Mr. Blount, F.I.C., of Westminster, S.W., gave:—Seven days, 623; twenty-eight days, 743; while in all cases the fineness of grinding is excellent.

THE NEW REGENT BRIDGE, ABERDEEN.

A new structure has taken the place of the old viaduct which for seventy-two years spanned the dock in the line of Marischal Street. It has been in course of construction for the past five or six years and has cost about 60,000/. The new passage, says the *Scotsman*, was kept to the south of the old one sufficiently far to allow of its construction without interfering in any way with the old bridge and shipping traffic, and also to bring it more in line with the south entrance at the dock gates, as well as to afford a more central access to Upper Dock itself. The new passage is 67 feet wide and is formed of granite masonry quay walls, the south wall or abutment being 190 feet long, while the north measures 95 feet. On the south abutment the new swing bridge rests with the machinery below, and the pump house and dock offices occupy the west corner. The north abutment forms the rest for the end of the bridge when swung over the passages for street and railway traffic, and also carries the curves of the connecting railway lines. The whole of the walls are built of solid granite masonry laid on a foundation of concrete and granite piers, sunk through the soft bottom of the dock until hard strata was reached, so that when future deepening of the dock takes place the walls may not fall in or subside. The foundation piers were each 14 feet wide, 12 feet long and 21 feet high, built up of large concrete blocks faced with granite, each weighing over five tons.

After the piers had been sunk to the required levels, and had withstood the severe test applied, the stonework of the walls was begun on the top of the piers, and raised as a solid mass, with a thickness of 12 feet and a height of 24 feet. The masonry is built of the largest and roughest kind of rubble stones, in cement mortar, to withstand the strains and rough usage from ships, the individual stones weighing from 3 to 5 tons each, and is aptly termed "cyclopean masonry." The walls are faced with dressed ashlar, surmounted by a heavy granite cope, all of grey Kemnay granite. These walls reach a total height of 47½ feet. Pivoting on the south abutment is the swing bridge itself, a steel structure of imposing dimensions. It has a total length of 156 feet and a total width of 45 feet,

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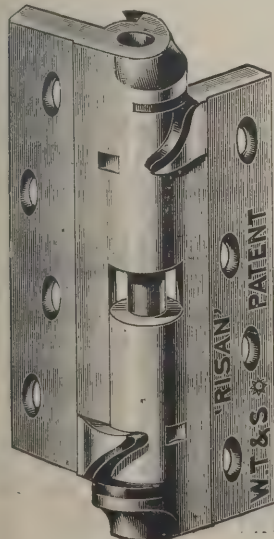
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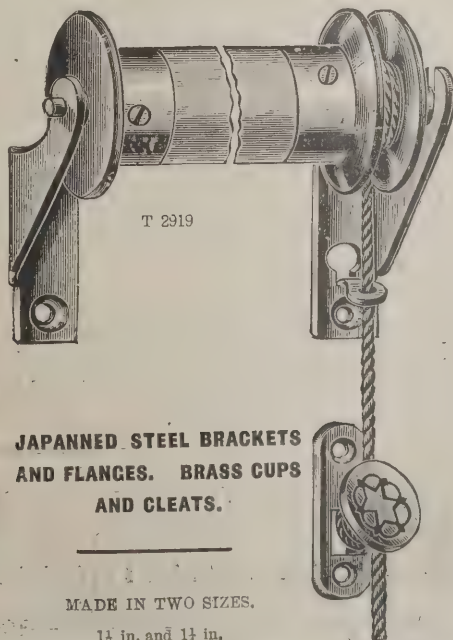
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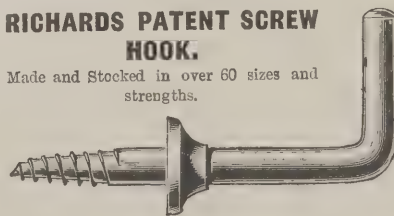
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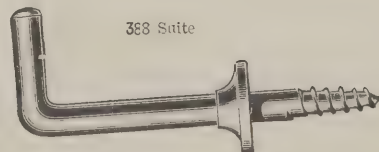
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390 Suite

or 5 feet wider than Marischal Street, and weighs nearly 700 tons when swinging. This enormous weight is carried on a large steel pivot, resting on a hydraulic press, so that the great mass swings round on a water cushion, which is practically frictionless. The large girders of the bridge are what is known as the "bowstring" type, being curved on the top, and measure 20 feet deep over the pivot, which is at the deepest part. The roadway carries two lines of railway for up and down traffic, two tracks for vehicular traffic wide enough to admit traction engines, and the sidewalks for foot passengers are placed outside the main girders on brackets, and are fenced off by steel latticework parapets. The bridge is built of the finest mild steel, and has been designed to carry the heaviest locomotives and trains on both lines of rails at one time, along with any vehicles, and as many people as can find standing space, or a dense crowd of people and vehicles all over the bridge. This has been necessary on account of the great weights to which locomotives are progressing, so that the steelwork may not be unduly strained in a few years. The deck of the bridge is neatly finished with timber causeway sets, to reduce the weight to be lifted and swung by the machinery.

Another and even more imposing feature is the powerful hydraulic machinery for lifting and swinging the structure, which lies concealed below the bridge itself in a huge pit far below the level of the water in the dock, but to which access is readily got by stone steps and passages in the masonry. The turning or slewing of the bridge is accomplished by two powerful hydraulic engines, which may be seen on the right and left sides of the bridge. The great feature of these powerful engines is their extreme simplicity, as no wheels, chains or gear of any kind is to be found about them; but they simply lay hold of the underside of the bridge, each with a massive steel arm or connecting rod, and revolve it in exactly the same way as the human arm opens or shuts a door. Should one of these engines break down, the other alone is able to revolve the bridge, and an arrangement of design enables each to work at half-power only when in combination. The pump-house is situated in the block of buildings on the south abutment, and there the water pressure is generated for operating the bridge by pumps working to 1,000 lbs. per square inch. The pressure water is stored in a large accumulator or

reservoir situated in the high tower at the north-west corner of the building, and sufficient water can be stored to enable the bridge to be swung and returned to its place without the aid of the pumps. The hydraulic pumps are in duplicate, one being driven by an electric motor, the other by a gas engine, as a safeguard against a complete failure of either source of power.

The approaches to the bridge are laid out with steel lattice parapets and fine-dressed Kemnay pilasters. Each of the end pilasters is of large proportions, and bears the inscription, "Regent Bridge, 1904," cut on the centre panel. To accommodate the public and ensure their safety in the midst of the volume of railway and vehicular traffic, large pavements and centre refuges laid with adamant slabs are provided, well lighted by electricity and protected by pillars. Each approach is guarded by a pair of large steel latticework swing gates, which effectually bar the roadway when the bridge is open for shipping. They are worked by electricity, the motors being placed below a small raised cabin, in which are situated the electric levers for opening and shutting them. On the north approach, in addition to the main swing gates, there are two smaller gates, forming the ends of the parapets next the passage, which are also open and shut with the main gates to allow the dockmen a clear passage alongside the entrance when handling ropes and fenders, and also to avoid collision with and damage from ships. Two handsome boat stairs are formed on the north approach, and both approaches are laid all over with granite causeway sets.

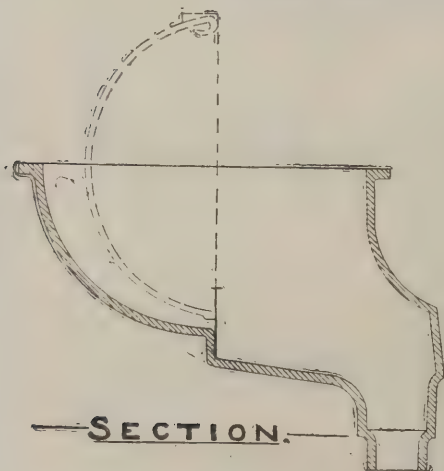
The engineers for the works have been Mr. Henry H. Wake, M.Inst.C.E., the consulting engineer; Mr. R. Gordon Nicol, M.Inst.C.E., the engineer-in-chief; Mr. William Simpson, Assoc.M.Inst.C.E., the executive engineer; and Messrs. Barr, Blackadder and Diack, assistant engineers. Sir William Arrol & Co., Ltd., Glasgow, have built the steelwork of the bridge; Messrs. Glenfield & Kennedy, Ltd., Kilmarnock, made the hydraulic machinery; and the railway work has been executed by Messrs. Hadfield's Steel Foundry Company, Ltd., Sheffield. The Regent Bridge improvement scheme, of which the new bridge is the most important feature, includes also the widening (still in progress) of the quays, and the total cost of the completed scheme is put at about 120,000l.

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This system has been adopted in Buckingham Palace, Windsor Castle, Marlborough House, and in the Residences of Royalty, the Nobility and Gentry, the principal Clubs, Hotels, Schools, &c., throughout the world, and as a guarantee of efficiency bears the name and address of the Patentee.

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THE

Architect and Contract Reporter.**EDITORIAL NOTICES.**

In view of the many difficulties which are certain to arise in connection with the law, practice rules and procedure under the Workmen's Compensation Act, we have added to our staff A VERY EMINENT BARRISTER, who has made the subject a special study, and will be glad to answer in the columns of this paper any questions relating to the complicated matters arising from the provisions of this difficult Act. Our LEGAL ADVISER will further answer any legal question that may be of interest to our readers. All letters must be addressed "LEGAL ADVISER," Office of "The Architect," Imperial Buildings, Ludgate Circus, London, E.C.

The Editor will be glad to receive from Architects in London and the Provinces results of Competitions and Tenders and other particulars of Works in progress in which they may be interested.

The authors of signed articles and papers read in public must necessarily be held responsible for their contents.

No communication can be inserted unless authenticated by the name and address of the writer—not in every case for publication, but as a guarantee of good faith.

Correspondents are requested to make their communications as brief as possible. The space we can devote to Correspondence will not usually permit our inserting lengthy communications.

TENDERS, ETC.

*** As great disappointment is frequently expressed at the non-appearance of Contracts Open, Tenders, &c., it is particularly requested that information of this description be forwarded to the Office, Imperial Buildings, Ludgate Circus, London, E.C., not later than 2 P.M. on Thursdays.*

IMPORTANT NOTICE

TO THE

**ARCHITECTS & CIVIL ENGINEERS
OF WESTMINSTER.**

As Westminster has become one of the most important centres of the professions of Architecture and Civil Engineering, arrangements have been made by Messrs. GILBERT WOOD & CO., Limited, to establish Branch Offices in that district at

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Advertisements for Tenders, Building Land, Situations Vacant or Wanted, &c., can be left at those Offices, and copies of "The Architect," "Builders' Reporter," and other publications of Messrs. GILBERT WOOD & CO. can be obtained as early as at the City Office, Imperial Buildings, Ludgate Circus, E.C.

COMPETITIONS OPEN.

AYLESBURY.—Feb. 28.—For public elementary school for 750 children. Premiums 50*l.* and 25*l.* Conditions and plan of site obtainable from Mr. C. G. Watkins, Education Secretary, Aylesbury, on payment of 1*l.* 1*s.*

LAMBETH.—March 30.—For municipal buildings at Brixton Hill. Particulars from Mr. H. J. Smith, Town Hall, Kennington, S.E.

NELSON.—March 4.—Designs for a free public library. Premiums of 50*l.*, 25*l.* and 15*l.* Mr. J. H. Baldwick, town clerk, Town Hall, Nelson.

OXFORD.—Feb. 1.—The education committee of the county of Oxford invite competitive designs for a provided school for 800 children in three departments, together with a teacher's house, at Caversham. Mr. S. Stallard, county surveyor, Oxford.

PRESTON.—Feb. 28.—Designs and plans for new elementary school. Premiums of £50, £30 and £20. Plan and conditions from Director of Education, Education Offices, Preston.

WOLVERTON.—Feb. 28.—For public elementary school for 400 girls and 400 infants. Premiums 50*l.* and 25*l.* Also for secondary school to accommodate about 120 boys and girls. No premiums offered. Conditions to be obtained on payment of 1*l.* 1*s.* in each case from Mr. C. G. Watkins, Education Office, Aylesbury.

CONTRACTS OPEN.

ABERCARN.—Feb. 1.—For the erection of eighteen cottages at Crumlin, near the high-level station, for the Abercarn Urban District Council. Mr. J. Williams, engineer and surveyor, Council Office, Abercarn.

ABERYSTWYTH.—Feb. 4.—For completing the nave and building new tower, &c., to St. Michael's Church, Aberystwyth. Messrs. Nicholson & Hartree, architects, Hereford.

BARNOLDSWICK.—Feb. 1.—For supply and erection of a coal store, for the Barnoldswick Urban District Council. Mr. J. W. Thompson, manager, Town Hall, Barnoldswick.

BATH.—Feb. 3.—For building show-yard for the forthcoming show of the Somerset County Agricultural Association. Mr. A. B. Cottam, Bridgwater.

BELGRAVE.—Feb. 23.—For the erection of a manager's house and boundary wall in connection with the new pumping station at Belgrave, Leicester. Mr. E. George Mawbey, borough engineer, Town Hall, Leicester.

BLANDFORD.—Jan. 31.—For the erection of classrooms, &c., adjoining the Wesleyan chapel, Blandford. Messrs. C. Hunt & Son, architects, Blandford.

BRADFORD.—Jan. 28.—For the erection of a warehouse in Canal Road, Bradford. Messrs. S. Jackson & Son, architects' valuers and engineers, Tanfield Chambers, Bradford.

BURY.—Feb. 18.—For the construction of a storage reservoir on the Scout Moor brook. Mr. J. Cartwright, engineer to Bury Water Board, Peel Chambers, Bury.

BUXTON.—For the erection of new infants' school, for the Fairfield Endowed School Trustees. Mr. W. R. Bryden, architect, George Street, Buxton.

CARLISLE.—Feb. 4.—For certain alterations and additions to property in Fisher Street. Mr. Henry C. Marks, city engineer and surveyor, 36 Fisher Street, Carlisle.

CHESLYN HAY.—Feb. 9.—For the erection of a new girls' school and extensions to existing buildings at Cheslyn Hay. Education Committee Office, Stafford.

CRANBROOK.—Feb. 1.—For the erection of corrugated iron laundry and disinfecting-room at the isolation hospital at Swattenden, Cranbrook, Kent. Mr. T. H. Crampton, clerk, Cranbrook.

ECCLES.—Feb. 1.—For the building of an annexe to the sewage works machinery buildings, for the Eccles Corporation, Lancs. Mr. Edwin Parkes, town clerk, Town Hall, Eccles.

FARNHAM.—Feb. 7.—For the erection of a new grammar school at Farnham, Surrey. Messrs. Jarvis & Richards, 36 Victoria Street, Westminster, S.W.

GALLEYWOOD.—Feb. 11.—For supply of materials and construction of foundations and chimneys for an isolation hospital, Galleywood, Essex. Mr. Arthur S. Duffield, clerk, 98 High Street, Chelmsford.

GLASGOW.—Feb. 8.—For various works required in the erection of baths and wash-houses at Parkhead. Mr. A. B. M'Donald, city engineer, City Chambers, 64 Cochrane Street, Glasgow.

GORING-ON-THAMES.—Feb. 9.—For the construction, delivery and erection complete of retort-house roof and annular condenser at the gasworks, Goring-on-Thames, for the Thames Valley and Goring Water and Gas Company, Ltd. Mr. George H. Robus, 20 Bucklersbury, London, E.C.

GREAT WYRLEY.—Jan. 28.—For additions to Great Wyrley school, Staffordshire. The Education Committee, Stafford.

GRANGE.—Jan. 28.—For the erection of a higher standard mixed school, with cooking, laundry and manual instruction centre, playsheds, latrines, boundary walls, playgrounds and caretaker's house at Grange, Rhos, near Ruabon, for the Denbighshire Education Authority. Mr. Walter Slater, architect, 9 High Street, Wrexham.

HALIFAX.—Jan. 31.—For the supply and erection of a coal conveyer, shutes, &c., in connection with the electric light and power works. Mr. W. M. Rogerson, borough electrical engineer, Foundry Street, Halifax.

HESSENFORD.—Feb. 11.—For erection of schoolroom, classrooms, &c., in connection with the Wesleyan chapel at Hesseford, near St. Germans. Mr. S. P. Hosking, architect, Landrake, St. Germans.

ILAM.—Jan. 31.—For building latrines at Ilam schools, near Ashbourne. Rev. G. Dalrymple, Ilam Vicarage.

IRELAND.—Jan. 30.—For erection of buildings for the extension of the electrical power station, for the tramways and electricity committee, Belfast. Surveyor's Office, Town Hall, Belfast.

IRELAND.—Feb. 17.—For the construction of breakwaters, wharf, booms, slip and other works at Cape Clear, co. Cork. Secretary, Office of Public Works, Dublin.

KIRTON.—Feb. 9.—For the erection of a science laboratory at the Sir Thomas Middlecot's endowed school, Kirton, Lincs. Mr. James Rowell, architect, Church Lane, Boston.

LEEDS.—Feb. 7.—For erection of a sorting-office at Leeds. H.M. Office of Works, Head Post Office, Leeds.

LEFTWICH.—Feb. 2.—For the following works at the new hospital at Leftwich, Northwich:—(1) Lighting hospital buildings and approaches by gas or electricity; (2) making roads, fencing and the laying of drains and water-pipes; (3) provision of laundry fittings, disinfectant and steam-boilers. Mr. Joseph Cawley, architect, Bull Ring, Northwich.

LONDON.—Jan. 31.—For excavating and for the construction at the infirmary of a boiler-house, with iron girders and concrete roof and other work, for the Chelsea Guardians. Mr. Joshua Dawling, clerk, 250 King's Road, Chelsea.

LONDON.—Jan. 31.—For erecting a public convenience in All Saints Road, Acton, for the Acton District Council. Mr. D. J. Ebbetts, surveyor, 57 High Street, Acton.

LONDON.—Feb. 2.—For the erection of buildings, &c., in connection with a housing scheme at Lower Cross Road, Fleet Road, Hampstead. Mr. O. E. Winter, borough engineer, Town Hall, Hampstead.

NORTH SHIELDS.—Jan. 31.—For the erection of a concrete retaining wall in Liddell Street, North Shields. Mr. John F. Smillie, borough surveyor, Tynemouth.

NUNEATON.—Jan. 31.—For the construction of two silt filters and execution of under-drainage works at the Hartshill sewage-disposal works. Mr. F. C. Cook, engineer, Council Offices, Nuneaton.

OULTON.—March 17.—For the enlargement of the Oulton Council school buildings, near Lowestoft. Mr. F. W. Richards, architect, 14 Stanley Street, Lowestoft.

PORTSMOUTH.—Feb. 13.—For the erection of a school in Copnor Road. Mr. G. C. Vernon Inkpen, architect, 40 Commercial Road, Portsmouth.

SCOTLAND.—Jan. 30.—For the erection of a new public hall at Tainuill. Mr. G. Woulfe Brenan, architect, Oban.

SCOTLAND.—Jan. 30.—For the renewal of the western return and of the East India Wharf, Greenock Harbour. Mr. R. Crawford, engineer, Municipal Buildings, Greenock.

SCOTLAND.—Feb. 4.—For the extension of about 500 feet in length of the east pier, Kirkcaldy. Messrs. Rendel & Robertson, engineers, 8 Great George Street, Westminster.

SCOTLAND.—Feb. 4.—For the construction of a separating weir, collecting tank, composite brick and concrete re-

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servoir, and other works connected with the Auchtermuchty Waterworks. Mr. H. Bruce, engineer, 67 Crossgate, Cupar.

SELY OAK AND STIRCHLEY.—Jan. 30.—For the erection of two public libraries, one at Selly Oak and one at Stirchley. Mr. Ambrose W. Cross, 23 Valentine Road, King's Heath.

SOUTHAMPTON.—Feb. 1.—For the construction of ferro-concrete foundations for a crane, Town Quay. Mr. E. Cooper Poole, engineer, Harbour Office, Town Quay, Southampton.

SOUTHEND-ON-SEA.—Feb. 10.—For extension of the boiler-house at the electricity works, London Road, for the Corporation. Mr. E. J. Elford, borough engineer, Southend-on-Sea.

STAFFORD.—Jan. 31.—For alterations at the markets. Mr. W. Blackshaw, Borough Hall.

STRATHFILLAN.—Feb. 1.—For the erection of a portable school and offices in Strathfillan, near Tyndrum. Mr. Peter Stewart, clerk, Killin.

SUTTON-IN-ASHFIELD.—For alterations and additions to the town hall buildings, Sutton-in-Ashfield. Mr. J. P. Adlington, architect and surveyor, High Pavement, Sutton-in-Ashfield.

TEIGNMOUTH.—Jan. 28.—For the construction and erection of about 220 lineal yards of dwarf stone wall and ornamental wrought-iron railing, together with entrance gates, pillars, at Bitton Hill. Mr. Charles F. Gettings, surveyor and water engineer, Town Hall, Teignmouth.

THAMES DITTON.—Jan. 31.—For the removal of an existing cast-iron bridge and the erection of a steel bridge over the river Mole. Mr. A. J. Henderson, engineer, Council Offices, Thames Ditton, Surrey.

THRYBERGH.—For structural alterations, &c., at the Thrybergh temporary provided school, Yorks. Mr. J. Vickers-Edwards, county architect, County Hall, Wakefield.

TWICKENHAM.—Feb. 9.—For the erection of a pumping station, boiler-house, destructor-house, chimney-shaft, &c., at the sewage disposal works. Mr. F. W. Pearce, surveyor to the Council, Town Hall, Twickenham.

WALES.—Jan. 28.—For the erection of additional exits at the Cardiff workhouse. Mr. Edwin Seward, architect, Queen's Chambers, Cardiff.

WALES.—Jan. 28.—For the erection of a higher-standard mixed school, with cooking, laundry and manual instruction centre, play-sheds, latrines, boundary walls, playgrounds and caretaker's house at Grange, Rhos, near Ruabon. Mr. Walter Slater, architect, 9 High Street, Wrexham.

WALES.—Jan. 30.—For the erection of two single cottages at St. Nicholas Village, near Cardiff. Mr. W. Beddoe Rees, architect, 37 St. Mary Street, Cardiff.

WALES.—Jan. 30.—For the erection of eighteen or more houses at Ystrad Mynach, for the Cylla Cottage Co. Mr. William Dowdeswell, architect, Treharris.

WALES.—Jan. 31.—For building a villa residence and farm buildings at Rhyd, Blaenarnerch, near Cardigan. Mr. James Jones, architect, Dolwen, Rhydlewis, Henllan, R.S.O.

WALES.—Jan. 31.—For the erection of about twenty-five cottages at Rhydfelen, near Pontypridd. Mr. P. R. A. Willoughby, surveyor, District Council Offices, Pontypridd.

WALES.—Feb. 1.—For the erection of stabling, lofts, &c., with boundary-walls and outbuildings, at Merthyr. Mr. Arthur Marks, architect and surveyor, Merthyr Express Chambers, Merthyr Tydfil.

WALES.—Feb. 6.—For the construction of the Carno reservoir, for the Ebbw Vale Rural District Council. Mr. G. F. Deacon, engineer, 16 Great George Street, Westminster, S.W.

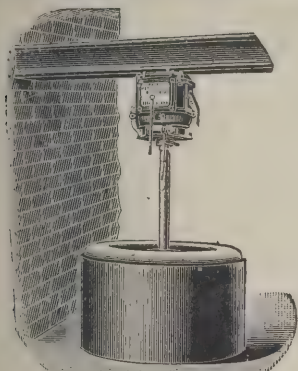
WALES.—Feb. 7.—For the construction of a new engine shed and other works at Carmarthen, for the Great Western Railway Company. The Engineer, Neath Station.

WALES.—Feb. 7.—For the rebuilding of the Labour in Vain inn, Pontypool. Mr. D. J. Lougher, architect, Bank Chambers, Pontypool.

WALES.—Feb. 7.—For the erection of thirty-five houses, built at Bargoed, for the Aberdare Bargoed Building Club. Mr. E. G. Henton, architect, 22 Cardiff Street, Aberdare.

WOKING.—Feb. 11.—For supply and erection of a retort-house constructed of steel stanchions, roof and girders, and covered with corrugated iron, for the Woking District Gas

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WALES.—Feb. 13.—For the erection of a boys' school and the execution of works connected therewith at Caegarw, Mountain Ash. Mr. W. G. Thomas, architect, Public Offices, Mountain Ash.

WIRE SAWING.

ACCORDING to a paper by Mr. E. Bourdon in the *Bulletin* of the Society for the Encouragement of National Industry, stone sawing by wire is done successfully in France. A complete plant comprises an endless wire passing round a series of pulleys, one of which is a driving pulley. The necessary tension is obtained by a straining trolley working on an incline plane, and between the driving shaft and this trolley is situated the saw frame, which carries the guide-pulleys for the wire saw. This wire, which is driven at a given speed, is caused to press lightly on the stone, and the cutting is done by sand mixed with water, which is conveyed into the saw-cut as the work proceeds. Though the mode of operation appears simple, it entails various difficulties in practical application. Three twisted steel wires are used, each wire having a diameter of 0.098 inch. The strands must be twisted fairly tight, and should make one turn in 1.18 inch. The wire may be driven in the workshop at a speed of 23 feet per second, but in quarries or adits the speed should not exceed 13 feet per second. The force exerted by the wire to produce the cut must be uniform, and must be capable of being readily varied. Moreover, it must be proportionate to the length of the cut.

An agreement has been come to between the Lytham Urban District Council and Messrs. Foote & Milne, electrical engineers, whereby the latter will produce, store and supply electricity for all public and private purposes within the urban district of Lytham. The Lytham electric-lighting order was allowed to lapse last year, but favourable terms have now been secured from the private company referred to, with powers of purchase at the end of ten or twenty years.

TENDERS.

AYLSHAM.

For alterations and additions to premises, Market Place, Messrs. MORGAN & BUCKINGHAM, architects, Norwich.

Blyth	£483	0	0
Tuddenham	447	5	0
W. & H. WADE, Aylsham (accepted)	406	5	0

CRICKLADE.

For the construction of a concrete collecting trench, brick engine-house and store, concrete filters and tanks, and covered service reservoir of about 50,000 gallons capacity; providing, laying and jointing about 4,000 yards of 4-inch and about 2,300 yards of 3-inch cast-iron mains and branches, with valves, hydrants and fittings, and other work in connection therewith. Mr. F. REDMAN, engineer, Swindon, Wilts.

Simmonds	£5,565	0	0
Davies, Ball & Co.	4,939	0	0
Tabor	4,937	0	0
S. W. Harrison & Co.	4,796	0	0
Docwra & Son	4,796	0	0
Colborne	4,736	0	0
Cruwys & Hobrough	4,592	0	0
Mackay & Sons	4,555	0	0
Perkins	4,530	0	0
Meredith Bros.	4,489	0	0
Hull & Son	4,383	0	0
Rutter	4,372	0	0
Roberts	4,278	0	0
J. W. Dean, Ltd.	4,179	0	0
Muirhead, Greig & Matthews	4,134	0	0
Riley	4,085	0	0
Moran & Son	4,047	0	0
Rowell & Son	4,036	0	0
Wright & Son	3,787	0	0
Flewelling	3,750	0	0
W. B. WINCHCOMBE, Wroughton, Swindon (accepted)	3,748	0	0

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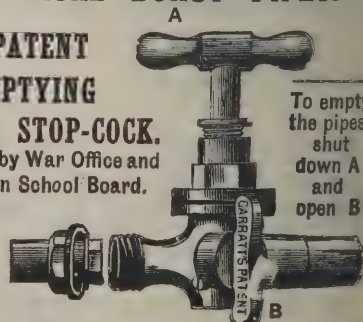
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Streather	£2,147	0	0
Dashwood & Son	1,725	0	0
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Whitehead Bros.	1,533	0	0
Hudson & Co.	1,525	0	0
Gathercole Bros.	1,500	0	0
Jones & Son	1,500	0	0
Smith & Son	1,493	0	0
Burges & Son	1,450	0	0
Sayers	1,450	0	0
Waller	1,450	0	0
Pearce	1,446	0	0
Stewart & Sons	1,438	0	0
Roberts	1,436	0	0

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Hudson & Co.	875	0	0
Smith & Son	628	0	0
Burges & Son	600	0	0
Waller	599	0	0
Stewart & Sons	590	0	0
Dashwood & Son	577	0	0
Sayers	556	0	0
Pearce	533	0	0
Roberts	510	0	0

DONCASTER.

For private street works in Thurnscoe, for the Rural District Council. Messrs. DODDS & HIGGINBOTTOM, surveyors.

Sprakes & Sons	£1,260	9	6
Damms	1,120	0	0
Wilson	1,077	0	0
F. & E. Fox	1,050	0	0
Meanley	970	0	0
Hall	895	17	6
J. MORAN, Sheffield (accepted)	890	0	0

EVESHAM.

For 4,500 yards of pipe sewers. Messrs. BERRINGTON & Son, engineers.

Macdonald	£4,200	0	0
Mason	3,915	13	2
Dickson	3,739	4	8
Espley & Co.	3,682	11	2
Riley	3,554	15	7
Free & Co.	3,550	0	0
Curral, Lewis & Martin, Ltd.	3,532	7	7
Lovell	3,518	0	0
Meredith	3,430	0	0
Vale & Sons, Ltd.	3,290	0	0
Braithwaite & Co.	3,120	15	6
Wheeler	3,095	4	1
Cooper	2,995	0	0
Holloway	2,851	0	0
Cresswell	2,787	4	11
Owens	2,749	11	7
W. H. READING, Wolverhampton (accepted)	2,700	0	0
Engineer's estimate	3,000	0	0

EEPING.

For addition to administrative block of isolation hospital at Rood Street. Mr. HORACE WHITE, architect, Loughton.

Keen	£260	11	6
Warriner	251	0	0
Palmer Bros.	245	0	0
Foster & Son	238	0	0
Whiffin & Son	189	0	0
P. Wood & Sons, Epping (accepted)	159	18	0

HULL.

For work in connection with erection of two observation blocks at the sanatorium. Mr. JOSEPH H. HIRST, city architect.

Houlton	£2,870	0	0
Arnold & Sons	2,765	0	0
Harper	2,643	18	9
Goates	2,619	0	0
Hull General Builders, Ltd.	2,617	15	0
Levett	2,595	0	0
Southern	2,575	6	0
F. SINGLETON, Hull (accepted)	2,547	0	0

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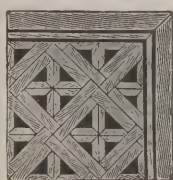
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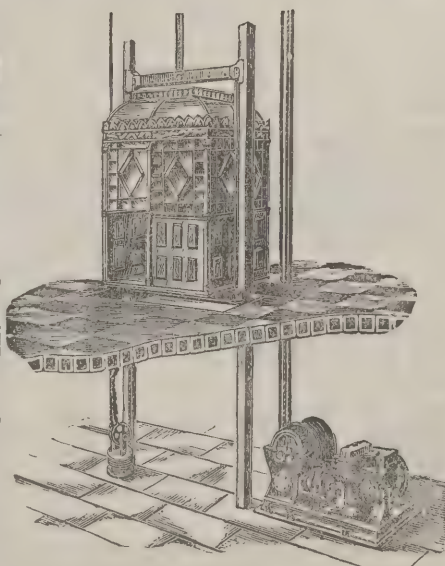
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General contractors.

Norris	£2,489	0	0
Smith & Bunning	2,350	0	0
Neal	2,341	0	0
Smith, Edmunds & Co.	2,288	0	0
Manby	2,275	0	0
Co-operative Builders	2,252	0	0
Henson	2,249	15	0
Payne	2,234	10	0
Bamford	2,233	0	0
Goodwin	2,113	0	0
C. & F. HENSON (accepted)	1,985	0	0

Plumbers.

Tunnicliffe	312	0	0
Cooper	290	0	0
Stanley & Co.	287	15	0
Arber & Co.	284	9	11
Davis & Kyle	269	0	0
Hodge	263	11	0
W. COOPER & SON (accepted)	249	7	0

KIRKCALDY.

For laying with 3-inch by 6-inch Aberdeen granite setts roadway. Mr. JAS. L. LUMSDEN, surveyor.

Kennedy	£1,189	16	11
Fraser	1,163	16	0
Smith & Sons	1,140	11	10
Gilmour	1,110	17	4
W. DOBSON, Edinburgh (accepted)	1,030	2	6

LONDON.

For extending telephone system, &c., at the North-Western hospital.

Richmond & Co.	£258	10	0
Buchanan & Curwen	168	0	0
Gifkins & Co.	162	0	0
New System Private Telephone Co., Ltd.	160	12	4
Private Wire and Telephone Installation Co., Ltd.	140	0	0
J. W. GRAY & SON (accepted)	126	13	0

LONDON—continued.

For enlargement of the Eastern District post office, for H.M. Office of Works, &c.

Multon & Wallis	£23,900	0	0
Holliday	23,871	0	0
King & Son	23,700	0	0
Simpson & Co.	23,400	0	0
Mowlem & Co., Ltd.	22,990	0	0
General Builders, Ltd.	22,497	0	0
Foster Brothers	22,330	0	0
Lorden & Son	22,138	0	0
H. J. Williams, Ltd.	22,100	0	0
L. H. & R. Roberts	21,977	0	0
Leslie & Co., Ltd.	21,942	0	0
Johnson & Co., Ltd.	21,932	0	0
Gladding & Co.	21,699	0	0
Martin, Wells & Co., Ltd.	21,580	0	0
F. & A. Willmott	21,274	0	0
Higgs & Hill, Ltd.	21,163	0	0
Smith & Sons, Ltd.	20,870	0	0
Edwards & Medway	20,560	0	0
F. & T. Thorne	20,509	17	9
J. Shelbourne & Co.	19,782	0	0
Nightingale	19,745	0	0
Perry Brothers	19,657	0	0
Garrett & Son	19,066	0	0

For detached residence and stabling, Hendon Avenue, Finchley, N. Mssrs. BENNETT & RICHARDSON, architects.

Godson & Sons	£2,954	0	0
Tont	2,710	0	0
Quibell	2,640	0	0
Gough & Co.	2,634	0	0
Mattock & Parsons	2,617	0	0
Patman & Fotheringham	2,593	0	0
Chapman Bros.	2,590	0	0
Lawrence & Son	2,549	0	0
Clifton	2,542	0	0
J. PHOENIX (accepted)	2,540	0	0

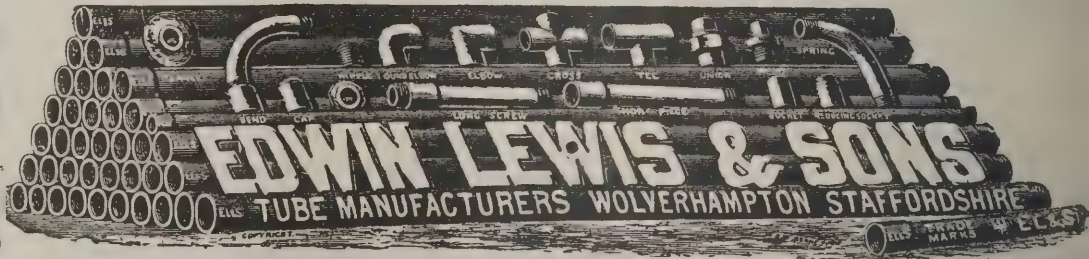
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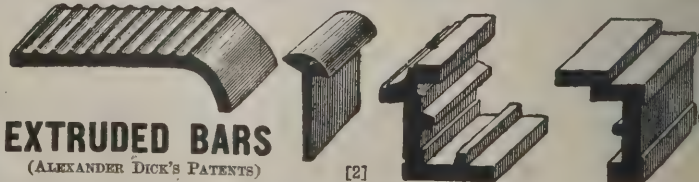
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LONDON—continued.

For installation of electric light, telephones and fire alarms in Belmont asylum.

Bergtheil & Young, Ltd.	£3,176	10	0
Wenham & Waters, Ltd.	2,806	0	0
Buchanan & Curwen	2,675	0	0
Belshaw & Co.	2,660	0	0
Glover & Co., Ltd.	2,483	10	0
BROMLEY & BATSTONE (accepted)	2,244	0	0

For the erection of engineer's cottage at the North-Western hospital, for the Metropolitan Asylums Board.

Richards	£750	0	0
F. W. Harris & Co., Ltd.	667	0	0
Aldridge & Son	667	0	0
Smith & Barber	661	10	3
Taylor	596	0	0
Cole	583	0	0
G. WILBY, Blackstock Road, N. (accepted)	570	0	0

LONGTON.

For the erection of a police-station. Mr. W. H. CHEADLE, county surveyor, and Mr. A. R. Wood, Tunstall, joint architects.

TOMKINSON & BETTELLEY (accepted)	£7,000	0	0
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NORWICH.

For the erection of house on Newmarket Road. Messrs. MORGAN & BUCKINGHAM, architects.

Holmes	£1,588	0	0
Smith	1,385	0	0
Gill	1,249	0	0
Utting	1,217	0	0
J. EVANS, Norwich (accepted)	1,171	10	0

For the supply of 70,000 creosoted deal blocks, 3 inches by 9 inches by 4 inches.

ENGLISH BROS., Ltd. (accepted), £6 3s. 6d. per 1,000.

RICHMOND.

For the reconstruction of the lantern lights at the public baths, Parkshot. Mr. J. H. BRIERLEY, surveyor.

Chesswas	£500	13	11
Speechley & Smith.	495	0	0
W. J. & A. Long	582	0	0
Seal & Co.	477	2	0
SOOLE & SON, Richmond (accepted)	440	0	0

SCOTLAND.

For painters' work at the male hospital district asylum, Melrose. Messrs. SYDNEY MITCHELL & WILSON, architects.

Bonnar & Son	£1,200	0	0
Macfarlane & Smith	953	0	0
J. & R. Anderson	895	8	4
Haddow	758	0	0
J. Clark & Co.	723	13	7
Kemp	713	9	3
F. C. Watson's Trust	677	10	0
W. Forsyth & Son	625	12	7
Tait Bros.	610	0	0
Cochrane	540	13	11
J. G. LINDSAY, Galashiels (accepted)	540	0	0
T. Lawrie & Co.	528	1	3
McLuskie	466	13	5
P. & J. Gordon	440	10	10

SOUTHBOROUGH.

For sundry works to be done in the formation and finishing of playgrounds and other works in connection therewith at the new schools, High Brooms. Mr. WILLIAM HARMER, surveyor.

Arnold & Sons	£375	0	0
Chittenden & Simmons	365	0	0
Crates & Son	336	0	0
Shepherd	334	19	10
Hallett & Sons	256	10	6
T. POTTER, Southborough (accepted)	287	0	0

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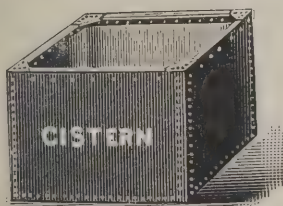
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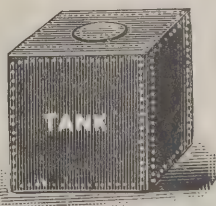
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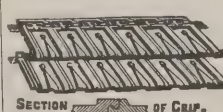
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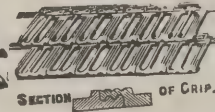
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GLASGOW.

For the reconstruction of the area bounded by Stockwell Street, Goosedubbs, Aird's Lane and Stockwell Street.

Accepted tenders.

F. Roger, mason, brick, iron and steel work	£9,320	17	9
H. M'Taggart, carpenter, joiner and ironmongery work	4,988	15	6
Wemyss & Livingstone, lath, plaster and granolithic work	1,328	9	2
J. T. Renfrew & Newall, plumber and gas-fitting work	940	0	0
Hobbs & Samuels, painterwork	500	0	0
Field & Allan, Ltd., tilework	356	12	7
R. Stevenson & Son, slatework	207	15	4

LONDON.

For the erection of a temporary end screen at the Greenwich electricity generating station of the London County Council.

Humphreys, Ltd.	£2,441	2	5
H. Lovatt, Ltd.	1,879	14	9
J. McManus	1,875	18	0
W. HARBROW, London (<i>accepted</i>)	1,437	0	0

TRADE NOTES.

We have been requested to announce that Mr. Albert Meek, wood and metal letter manufacturer, late of 44 Blackfriars Road, is carrying on his business at 2 Meymott Street, Blackfriars Road, London, S.E.

MESSRS. PATMAN & FOTHERINGHAM, LTD. (James F. Parker, managing director), builders and contractors, of 100 and 102 Theobald's Road, London, W.C., and Park Street, Islington, N., &c., have just secured a large contract for the Gunnery College additions and alterations on Whale Island, Portsmouth, for the Admiralty. These works have to be carried out in a very short time. This firm recently completed the London Coliseum.

A LARGE clock with two illuminated dials, striking the hours and chiming the quarters, is to be erected on the tower of the public library, Penarth. The order has been given to Messrs. John Smith & Sons, Midland Clock Works, Derby.

MESSRS. SPOTTISWOODE & Co., Ltd., are now showing at their West End office, 123 Oxford Street, upwards of 100 drawings and paintings suitable for reproduction as show-cards, catalogues and posters of various kinds. Among the artists who have contributed are Lewis Baumer, Hal Hurst, R. Pannett, Popini, F. Haviland, A. K. Macdonald, Chas. Pears, W. E. Webster, W. H. Caffyn, W. A. Breakspeare, S. E. Scott, Prescott-Davies, P. W. Gibbs and Denholm Davis. We have already noticed some of the successful efforts of the firm in colour printing for business purposes. Admission is free on presentation of trade card.

An order for a powerful motor steam fire-engine for the London Fire Brigade has just been placed by the London County Council, the machine selected being Merryweathers' patent "Fire King" pattern, with all the latest improvements. It will have quick steaming water-tube boiler and the firm's new patent oil-fuel arrangements, enabling a turn-out to be made in one minute. The vertical double-cylinder engine will drive the road wheels and the two double-acting pumps. The pumping capacity will be 500 gallons per minute, and the new machine will thus be the most powerful land steamer in the London Brigade. The speed will be 20 to 30 miles per hour and the engine will be able to climb a 1 in 6 gradient.

ELECTRIC NOTES.

THE British Electric Plant Company, Ltd., Alloa, have obtained from the Perth Corporation an order for a 500 kilowatt (say 750 horse-power) steam dynamo for the Perth Corporation tramways and electric-lighting system. This set has an overload capacity of 600 kilowatts (say 900 horse-power).

THE Lichfield Corporation have given their consent to a provisional order to supply electricity within the city being

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HARDENS.**

**RED LABEL FOR OUT-
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15 HOURS ACCORDING TO
WEATHER.**

granted by the Board of Trade to Foote & Milne, Limited, Westminster, subject to the terms specified in an agreement to which the common seal was affixed. By the terms of the agreement the Corporation have consented to the revocation of their own order of 1901, and Foote & Milne will within two years from the date of the new order repay the 175*l.* expended in procuring the original order. The site of the generating station is to be within the city and the Corporation are to approve of it and to be entitled to periodical inspection of the works, cables, lines, &c. The maximum price which may be charged is fixed at 7*d.* per Board of Trade unit.

THE contract between the Belfast Corporation and Messrs. J. G. White & Co., of London, for the electrification of the city tramways has been completed, and signed by the Lord Mayor and the town clerk and sealed with the corporate seal. Messrs. White & Co. have undertaken the whole of the relaying, electrification and equipment, with the exception of the extension of the power-house, for the sum of 543,404*l.* 4*s.* 9*d.*, and they are under heavy weekly penalties for any excess of the stipulated period of nine months for the completion of the work.

THE Arbroath Town Council, after much delay, have arrived at a settlement with the Empire Electric Light and Power Company, London. In the meantime the Board of Trade have been threatening the Town Council that if steps were not taken forthwith to have the provisional order obtained by the Council some years ago put in operation, the order would be cancelled. The Council during their communications with the company repeatedly asked the Board of Trade to delay the lapsing of the provisional order, and this was done. The Board of Trade have now, however, intimated the revocation of the order.

THE Barmouth Urban Council have been negotiating with an electric-lighting company. The offer of the company was that the town should provide the money and they would undertake to carry the project through and to maintain the same, subject to the option of transfer on certain terms, and in the course of about twenty-five years the company would hand it over to the Council. At the last meeting a letter was read from the company to the effect that they had gathered from a report of the previous

meeting that the Council had reconsidered their position, and as the scheme was a small one and they had considerable work in hand they withdrew their offer.

THE Leith tramways committee recently considered tenders for the thirty-seven cars to be required when the system is converted to one of electricity. Thirty are to be of the ordinary double-decked type, and seven of the double-decked type with covered tops. Complete offers for cars, trucks and equipment were made by six firms—five English and one Scottish—and the competition was very keen, one firm making four and another two offers. The highest tender was 20,087*l.* 12*s.* and the lowest 18,863*l.* The offer by the Brush Electrical Engineering Company, Ltd., Loughborough, has been accepted, who offered to supply the cars, trucks and equipment for 19,228*l.* The thirty cars without the top cover are priced at 15,000*l.*, and the seven with the top cover at 4,228*l.* The cars can be delivered in about sixteen weeks.

THE Sunderland District Electric Tramways, Limited, have arranged a contract for the supply of power to the important collieries in the county of Durham belonging to the Lambton Collieries, Limited. It is proposed to use the power for hauling, pumping, coal-cutting, lighting and winding purposes, as well as for the engine works at Philadelphia, which will make these collieries one of the most up-to-date groups in the country. These collieries employ over 10,000 men, and have an output of over three million tons per annum. A large central power station is to be at once erected on five acres of land at Philadelphia, from which the power will be taken to the collieries, and in addition the tramways, of which over twelve miles are fully completed, will be supplied with the necessary power, as well as the supply of power for electric lighting in the urban districts of Houghton-le-Spring and Heiton-le-Hole and the rural district of Essington, over which the company has statutory lighting powers.

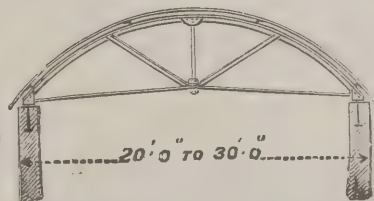
OWING to the vast amount of detail to be dealt with it has been found necessary to postpone for another year the promotion of the Bill for the proposed extensive docks at Harwich.

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MANCHESTER
TRAFFORD PARK.

VARIETIES.

THE general purposes committee of the Burnley Corporation decided on Monday to recommend the Town Council to appoint Mr. Peregrine Thomas, of Leigh, as town clerk. Mr. Thomas has been town clerk of Leigh since 1897, and before that he was clerk to the Milford Haven Urban District Council.

Two steeplejacks were repairing a chimney at Blantyre when one, overcome by the fumes, became unconscious. His mate, who was sitting astride of the chimney, which is 60 feet high, grasped him as he was falling, and held him—a man of 14 or 15 stone—suspended in mid-air for an hour and a half until help came.

THE Secretary of State for India has sanctioned the construction of three new huge canals in the Punjab—one on the Upper Jhelum, another on the Upper Chenab and the third in the Lower Doab. The estimated cost of the undertaking is 782 lakhs of rupees. The total length of the three canals will be 2,714 miles.

THE Essex County education committee have decided to grant 5,000*l.* towards the cost of a new secondary school at Brentwood, 2,250*l.* towards a similar new school at Braintree, 5,000*l.* towards the cost of extensions at the Ilford secondary school, and 4,000*l.* for enlargements at Palmer's endowed school, Grays.

THE London County Council have completed during the current financial year dwellings providing for the accommodation of 6,486 persons. Schemes in progress in regard to the clearance of insanitary areas involve the displacement of 4,794 persons and the provision of dwellings for 5,324 people. The estimated net cost of the various clearance schemes in question is 524,000*l.*

MR. JAMES WILLIAMS, of 11 Carteret Street, Queen Anne's Gate, S.W., has taken into partnership Mr. Edmund L. Wratten, A.R.I.B.A., and the name of the firm will in future be Messrs. Williams & Wratten. Mr. James Williams was formerly partner of the late Mr. George Devey, of Bond Street, W., afterwards carrying on his practice in Victoria Street, Westminster, moving from there to his present address, where he has been for some years past.

A NEW bridge over the river Earn at Comrie, erected by the Perth County Council, has been formally opened. The bridge was tested by driving over it a traction engine with five waggons laden with road metal, a weight of 40 tons. The construction of the bridge has been expeditiously carried out by the contractors, Sir William Arrol & Co., Glasgow. The cost of the bridge has been about 4,500*l.*

THE Glamorgan county surveyor has reported that the damage to main roads by locomotive traffic was still on the increase, and that last year it had necessitated an increased expenditure of about 2,313*l.* Should the traffic further increase, he advises the conversion of the limestone roads into granite roads. He has already provided in his draft annual estimate for the conversion of sections of four roads which were suffering from excessive ordinary haulage.

At Chester a school of girls has taken up its quarters in the county stand on the racecourse, premises in Chester having been searched for in vain. The education committee prevailed on the Race Company to allow the temporary use of the stand, which makes an admirable schoolroom, at a rental of 150*l.* per annum. His Majesty's inspector approves of the location, and the title of the City and County Girls' school has been given to it.

THE Staffordshire education committee having received a letter from the county medical officer suggesting the consideration of the whole question of school construction, it was resolved that a sub-committee should meet at the first available opportunity to consider the question with Dr. Reid. The chairman was to confer with the clerk of the County Council as to the advisability of publishing lists of the tenders received for building works, &c., and to report.

THE bridges committee of the London County Council reported to the meeting on Tuesday that the progress made by the contractor in the work of the erection of the superstructure of Vauxhall Bridge was very unsatisfactory. Under the terms of the contract it should be completed by December 31, 1905, but having regard to the progress already made it was not probable that it would be completed by the specified time. Everything possible is being done to make the contractor hasten on with the work.

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SAVOY HOTEL, STRAND, W.C.

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BALFOUR PLACE, W., FROM SOUTH-EAST.

NEW MAGISTRATES' OFFICES, BARGATE, SOUTHAMPTON.

THE HECTOR MACDONALD NATIONAL MEMORIAL, TO BE ERECTED
ON THE GREEN HILL, DINGWALL, ROSS-SHIRE.

THE chairmen of committees of Lords and Commons announced, with reference to the intimation of the Board of Trade that the London Tube schemes would not be taken until the report of the London Traffic Commission was presented to Parliament, that they did not feel inclined to decide what would be done with those schemes until Parliament had had an opportunity of considering the report. The London Traffic Commissioners will meet on Thursday, February 2, further to consider their report, but it is not anticipated that that report will be placed in the hands of the Government before the end of March.

THREE depôts owned recently by the Bury, Rochdale and Oldham Tramway Company, and which under the terms of purchase passed into the possession of the local authorities, were sold by auction in Manchester on Tuesday. The first lot offered was the Rochdale depôt, with the land—containing 7,239 4-9 square yards—buildings and two dwelling-houses, which was sold for 400*l.* The ground-rent is 101*l.* 3*s.* 4*d.* The second lot was the Bury depôt, including 3,600 square yards of land and the tramway buildings. The ground-rent is 150*l.* and the lease for 983 years from 1898. Eventually the property was knocked down for 50*l.* The Royton depôt, including 5,057 square yards and the buildings—ground-rent 42*l.* 4*s.* 6*d.*—was sold for 130*l.*

THE works committee of the London County Council have submitted a statement of the work carried out by the works department for the half-year ended September 30, 1904. Statement I dealt with eleven completed works in

respect of which complete specifications and bills of quantities had been prepared. The final certificate for the works was 98,062*l.* 16*s.* 10*d.*, and the actual cost was 87,388*l.*, or 10,674*l.* 3*s.* 3*d.* below the cost of the final estimate. Statement II. showed that work of the value of 1,076*l.* 2*s.* 4*d.* had been carried out on the basis of actual cost; and Statement III. showed that jobbing works of the schedule value of 23,986*l.* 10*s.* 7*d.* had been carried out at a cost below schedule value of 2,951*l.* 12*s.* 7*d.*

THE Birmingham city surveyor has made the following returns concerning the extra work involved in coping with a snow fall:—The total number of men engaged in clearing away the snow which fell during last week's storm was 720 (including 180 extra hands), and they had the assistance of 170 horses and carts belonging to the Corporation, and also fifty-six extra horses and carts. In addition, there were twenty sweeping machines, twenty-seven scraping machines and three snow ploughs engaged. Altogether there were 6,850 loads of snow removed, and taking the weight of each load at 1 ton 10 cwt., the total weight of snow cleared from the streets of the city was estimated at over 10,000 tons.

THE Kent and Essex Brickmasters' Association and other Thames and Medway barge owners' societies, at a meeting last week, passed the following resolution:—"That the meeting most strongly protests against any attempt to impose tonnage dues on vessels not exceeding 45 tons, as being injurious to owners of small craft, a tax on commerce and detrimental to the true interests of the Port of London; that owners of sailing barges should have direct representation on any board or commission appointed for the administration of the port; that the present system of compulsory pilotage should be abolished; and that a committee be appointed to watch the interests of sailing barge owners."

A CONVENTION of cement users has been held in Indianapolis. The following papers were to be read:—"The Determination of the Practical Value of Cement and its Products," by Richard L. Humphrey; "Methods and Results of Cement Testing," by Walter Buehler; "Quality of Sand," by James C. Hain; "Practical Mixing of Mortar and Concrete," by Kirk H. Brown; "The Mixture of Concrete," by A. L. Goetzmann; "The Testing of Cement Blocks," by John R. Allen; "Colouring of Cement," by

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J. P. Sherer; "Waterproofing of Concrete," by W. H. Finley; "Waterproofing of Concrete Blocks," by G. B. Kirwan; "Practical Work of Constructing Sidewalks," by Albert T. Gridley; "Cement Posts," by J. A. Mitchell.

VIENNA at the present time covers a superficial area of 44,530 acres, or some 25,000 more than Paris, and as large as Paris, Berlin and Dresden taken together. This will be increased by the incorporation of certain districts situated on the left bank of the Danube. A port for the projected canals from the Danube to the Elbe and from the Danube to the Oder is to be constructed there, and the city desires to profit by the increased value which the district is certain to acquire therefrom.

AN APPRECIATION.

On Monday evening last, January 23, an interesting little gathering took place at Simpson's in the Poultry. Under the genial presidency of Mr. Ellice-Clark, the chairman of Messrs. Hobbs, Hart & Co., Ltd., the well-known safe and lock makers, the staff met to celebrate the appointment of Mr. Chas. Lee as managing director of the company. Mr. Ellice-Clark was supported by his fellow directors, and testified in a particularly kindly little speech to the appreciation of Mr. Chas. Lee's valuable services to the company, and to the pleasure with which the directors had called him from the position of manager and secretary to the highest post which they could confer, that of a seat at the board, and the position of managing director. Mr. Lee, in responding, gave a most interesting account of the firm's rise, of its uphill work, and its important position at the present day amongst the leading firms of the safe and lock trades, showing that without any special influence at his back he had been able to progress with the firm until he had arrived at the "proudest and happiest day of his life," the recognition of his services by this appointment of the directors. We should like particularly to call the attention of those working, whether in offices or in works, to one of the reasons given by Mr. Lee for possible appreciation by his employers, and that was that he "never looked at the clock;" if work had to be done he did it. Mr. Lee testified ungrudgingly in his speech to the general ability and thoroughness of the work done by

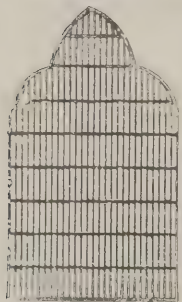
the staff in general. Mr. Pullman, who now becomes manager in consequence of Mr. Lee's appointment, in the course of the evening had the pleasing task of making a presentation from the staff to the new managing director, as a small memento of (as he put it) the affectionate respect and regard which his subordinates in the employ of the company had always entertained for their chief, and the pleasure with which they had seen the appreciation of the directors. The remaining part of the evening was devoted to music both vocal and instrumental. The firm have a staff who can work well, and on Monday night they proved they could both sing and enjoy themselves equally well.

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THIS firm, which is one of very old standing in the trade, was, as we recently announced, awarded at the St. Louis Exhibition both the Grand Prize and Gold Medal for the excellent design and workmanship appertaining to their fine display of furniture and cabinetwork, that formed a centre of great attraction and interest.

The bulk of the work, which embraces all kinds of furniture, is produced at their two extensive and well-equipped factories in High Wycombe, while the vast show-rooms situated at 370 Euston Road, N.W., are replete with the varied specimens of their manufacture, and there are upholstery workshops in addition contiguous. A stroll through these show-rooms forms an instructive object-lesson, as ample evidence is afforded that there are no signs of decadence in furniture manufacture, but, on the contrary, that a very earnest effort is being made to enhance, if possible, the high reputation appertaining to the elder days of art, and in this connection the firm in question occupy a unique position; inasmuch as they are manufacturers for the wholesale trade of practically everything in the way of furniture. One prominent feature is the great number of chairs turned out in wood, cane and rush, for large institutions of all kinds, as well as for libraries, while cabinetwork of every description is also well in evidence. Nor should mention be omitted of the very high-class marqueterie work and fabrics of elegant design and character, including admirably designed tapestries, needlework and appliqué. We also noticed in

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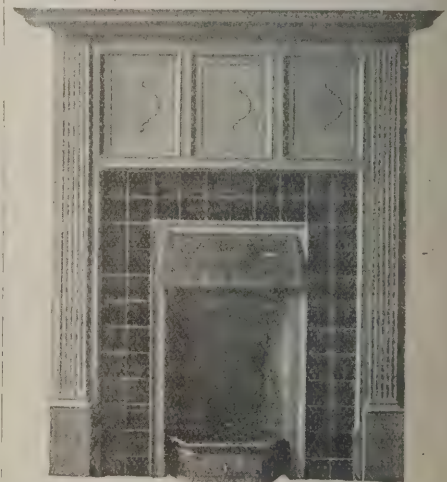
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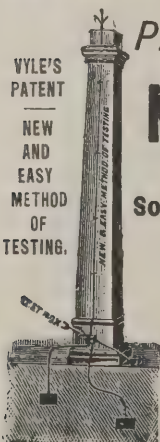
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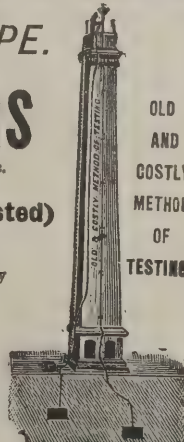
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addition luxurious sofas, settees and comfortable easy chairs upholstered in Morocco leather, the manufacturing of which is one of the firm's specialties.

In what is known as the drawing-room department upstairs, we were shown a large number of very fine reproductions of Hepplewhite, Chippendale and Sheraton chairs,

illustrations show specimens of high-class dining chairs, and convey some idea of the class of work manufactured.

A glance at the packing department gives some idea of the magnitude of the business done, which employs between 600 and 700 hands and is entirely of a wholesale character, including a large export trade, for the firm is



and special attention was drawn to a finely carved municipal chair of considerable intrinsic value, along with excellent specimens of elegantly-designed mahogany and satin-wood chairs, while in other departments there are bedroom suites, sideboards and many other articles of furniture, including specimens of chimney-breasts. The annexed

well known not only throughout the United Kingdom, but on the Continent and in America, the books of the firm showing that its customers are practically from all the ends of the earth, and this is a matter for congratulation, having regard to the controversy that now occupies so large a share of public attention.

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A GREEK AMPHITHEATRE OF CONCRETE.*

THE University of California, located at Berkeley, on San Francisco Bay, has the first Greek amphitheatre constructed of permanent material in the United States, and probably the first built anywhere for centuries that so closely conforms to the purpose and design of ancient open-air theatres of Greece. Its erection grew out of the practical need of the university for an assembly place large enough to accommodate the immense gatherings of people at commencement seasons and other public functions of the State institution of learning. Through lack of a more suitable place, the students had for several years been holding their class-day plays and football rallies in a natural amphitheatre discovered by a clever student in a depression surrounded by eucalyptus trees on the campus back of the university buildings. Here it was customary for the spectators to occupy the slope, the performance being carried on upon a comparatively level area at the base. The success of this natural amphitheatre suggested to President Benjamin Ide Wheeler, of the university, the idea of erecting a permanent structure on the same lines.

The present open-air theatre was accordingly designed by the university architect, Professor John Galen Howard. Construction work was begun on February 14, 1903. On May 14 the auditorium was practically completed and the stage had been finished up as high as the stylobate, so that the commencement exercises occurring on that day could be held there, President Roosevelt delivering the principal address before an audience of over 8,000 people. The theatre was finally completed in the latter part of September of the same year, and was dedicated then with a three-days' dramatic festival, one of the plays given being the "Birds" of Aristophanes, the presentation of which was made in the original Greek by student actors. The remarkable success of the amphitheatre, with its picturesque setting in the Berkeley Hills, surrounded by thickly-growing tall eucalyptus trees which tower above the classic walls, together with the mild California climate and rainless summers, make of this structure a useful and unique contribution to public buildings of America.

* From a description in the *Engineering Record* by Mr. C. W. Whitney.

Special interest attaches to the theatre because of its being constructed entirely of concrete and also on account of the methods used in its erection. The building consists of two unconnected parts, the auditorium and the stage, known respectively as the theatron and the logeion of the Greeks.

The former is in the form of a great semicircle, 254 feet 8 inches in diameter, and is composed of two tiers of seats. The lower tier is placed around a central level circle 50 feet 8 inches in diameter, which is 5 feet 5 inches below the stage floor, and at the nearest point is 7 feet from the stage. This circle corresponds to the orchestra of the ancient theatre, and is the part used by the Greeks for the chorus. From this central level rise twelve broad steps, each having a tread of 3 feet and a rise of 5 inches. On these steps 1,600 chairs can be placed. Between this lower tier and the upper sections of seats extends the diazoma, an aisle 9 feet wide, which is on a level with the stage floor and the parodoi (the entrances, one on each side between the stage and the auditorium). Bounding this diazoma on the upper or outer side is a wall 5 feet high and 10 inches thick, in front of which extends a concrete bench, broken at intervals by passageways, that will seat 160 persons. Above the wall rise the main seats of the auditorium, arranged in nineteen rows of steps, each with a 30-inch tread and an 18-inch rise. The seats are divided into ten wedge-shaped sections by aisles leading radially from eleven openings in the wall back of the diazoma. The steps in the aisles are half the size of the main seats, having treads of 15 inches and rises of 9 inches. This upper part of the auditorium ascends more steeply than the lower portion, the angle being 30 degs., so that all spectators can obtain an unobstructed view of the stage. Back of the highest row of seats runs a 2-feet by 10-inch wall, 32 feet 6 inches above the stage, with openings opposite all but the two end aisles. Each end of the auditorium next the paradoi is flanked by a radial retaining wall extending 3 feet above the steps. The retaining walls are 10 inches thick at the top, and step out under the seats in 1-foot ledges to a width of 10 feet at the foundation. The outside surfaces of the walls are smooth and have a slight batter.

The upper portion of the auditorium will seat 4,025 people, and as some 600 chairs can be placed in the

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orchestra in addition to the 1,600 on the lower seats, the seating capacity of the entire auditorium is over 6,000. On the stage may be seated nearly 1,000, thus bringing the total seating capacity of the whole amphitheatre up to about 7,500 people. The actual capacity of the structure when crowded even exceeds this.

As already stated, the elevation of the stage floor above the orchestra or central level is 5 feet 5 inches, and is on a plane with the parados or entrances. Connecting these entrances and thus dividing the stage from structural connection with the level circle and the lower tier of seats—those, in fact, unbounded by the retaining wall—is an 18-foot walk sloping from each end to the centre. The stage is 134 feet long, and is bounded on the back and sides by a panelled wall 42 feet high. This enclosing wall, which in ancient times was designed to represent the walls of a palace or temple, is severely Classical in design, and is faced by sixteen fluted columns with Doric capitals supporting a Classic cornice with triglyphs and metopes, enriched by bosses. The end walls terminate in massive pylons. There are five entrances (or exits) to the stage, one at each end and three in the rear, of which the larger and central opening is the "royal door" of the Greeks.

Although in general following the Grecian models, the amphitheatre is built after the original design of the architect. It bears closest resemblance to the Greek theatre at Epidauros, particularly in respect to the difference of slope between the upper and lower tiers of seats. The structure harmonises with the general Classic character of the new buildings designed and now being erected on the campus of the university.

In preparing the hillside for the erection of the amphitheatre it was necessary to excavate about 5,000 cubic yards of soil at a cost of 5,000 dols., this sum including all necessary trimming and sheathing. About three-fourths of the auditorium site had to be excavated. The two ends being beyond the line of emergence, required radial foundation walls. The soil was rather hard, being formed principally of decomposed rock. The steps, after having been cut into the bank, held their shape until the concrete was placed, and sheathing was necessary only on the rises of the steps. Concrete to a thickness of 12 inches was placed on the treads as well as on the rises. The method of truing up

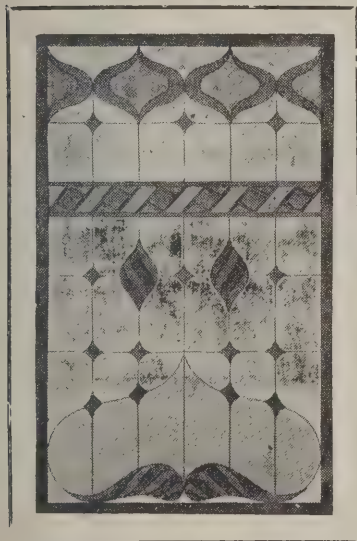
the boxes for the steps consisted in determining the accurate position of the lowest and top steps and laying radially between them 6 by 6 inch stringers 6 to 10 feet apart. The outer corners of the steps were then brought up to the bottoms of the stringers, the vertical sheathing being held in place by vertical cross-pieces nailed to the stringers. This method left no holes in the concrete, and after the work had set the wooden forms could be easily removed.

The task of accurately determining the radial points necessary in cutting the steps out of the soil and afterward in placing the concrete forms and truing up the work, was attended with some difficulties which were surmounted as follows:—Approximately at the central point of the auditorium semicircle there was erected a stout post which extended above the elevation of the upper wall. The post was securely fastened in a vertical position by means of four wire cables extending from its top to four large trees outside of the amphitheatre area. A vertical wire was then stretched from an iron bracket on the top of the pole to a similar bracket at the bottom above the exact centre of the semicircle. By means of turnbuckles in the four stay-wires the pole was then shifted and securely fastened in a position to make the upright wire correspond exactly to the axis of the auditorium. Small blocks were then fastened to the post corresponding to the elevation of each step, and from a hook on each of the blocks was stretched the tape, the centres of the hooks being in alignment with the vertical axis wire. The radial distances being thus ascertained, stakes were driven every 2 feet, the proper elevations being given by levels run from bench marks at the ends of the auditorium. Care was taken to have the tape handled by one man always, in order that the personal equation might be minimised in pulling it. After the concrete work was completed the steps were trued up and found to be within the $\frac{1}{2}$ -inch variation allowed for possible errors.

For the concrete Dyckerhoff Portland cement was used, the specifications calling for the following mixture:—One part cement, two parts sand, one part gravel and four parts of 2-inch sharp blue trap rock. Instead of the two parts of sand and one of gravel there was generally used three parts of river pit sand, which was in every way equal to the specified material.

The concrete was all mixed by hand. On a tight plat-

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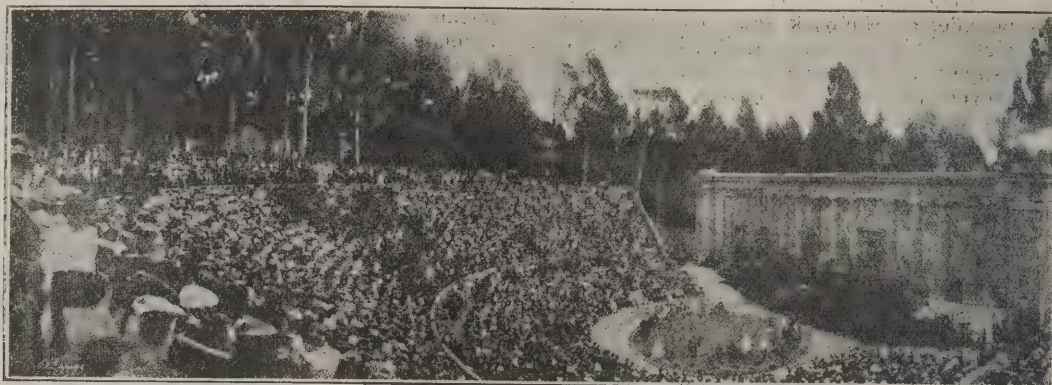
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For Index of Advertisers, see page x.

form of plank is placed a bottomless box, 14 inches deep, which is filled level with the top with rock, gravel and sand in the proportions specified. In this case 2 inches of gravel were placed at the bottom, then 8 inches of rock, 2 inches of gravel and 2 inches of sand. After filling the 14-inch box in this manner, another bottomless box, but 2 inches deep, although of the same length and width as the first, is placed squarely on it and filled to the top with cement. According to the specifications the rock, gravel, sand and cement are then turned over once, and again the reverse way, sufficient water being sprinkled over the mass

wheelbarrows to the place where it was wanted. The stagings were carried on around the semicircle as the work progressed. The concrete was dumped into the seat trenches in 6-inch layers and tamped with square rammers. One wedge-shaped section of seats was completed at a time, the aisle steps being left until the last.

On the portions of the seats on the embankment beyond the line of emergence, radial walls placed on approximately 8-foot centres and varying in thickness from 12 to 24 inches, were constructed as foundations for the seats. The walls were carried down to soil capable of supporting



View of the Amphitheatre during Production of a Play by Aristophanes.

to give the mixture the consistency of thick paste. When thoroughly wet the whole is turned over once more and mixed uniformly.

For the upper tier of seats the wet concrete was hoisted in a 1-yard car on an inclined track placed at about the centre of the seats. The cars were hauled up the track by a cable driven by a small engine. At the lower end the track ran into a pit so that the cars could be easily filled from the ground level. A Fresno scraper was used to haul the concrete into the car. When filled the car was raised to one of two stagings, where the contents were dumped into hoppers, from which the concrete was carried by

a weight of three tons per square foot, the footings stepping out in 6-inch steps. The spaces between, clear to the tops of the walls, were packed solid with soil, and over this inclined surface were laid 4 inches of concrete, then a galvanised No. 10 blanket mesh, and finally another 4-inch layer of concrete, the steps being built on the last. This gave an inclined wall below the steps 8 inches thick at its narrowest point, and strengthened through its centre with the 1-inch mesh. The latter was laid in 3 and 4 feet widths, the strips overlapping and lying perpendicular to the front of the stage.

The only metal used in the auditorium outside of the

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HUGH DORRAN, Yacht Builder.

Northampton, Kirkcubbin, Co. Down, June 24, 1901.

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C. SMEDLEY BECK, Architect.

11a, Prince of Wales Road, Norwich, Jan. 21, 1903.

ARCHITECT.

I am exceedingly pleased with the result of the Velure I had last year. Our doors look and feel like ivory, and show every appearance of great durability. I find that they keep very clean, and do not take the dirt.

A. E. PURDIE, F.R.I.B.A.

Meadow Grange, Blean, near Canterbury, Jan. 2, 1904.

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J. BROOK, S.I.C., A.S.I., Surveyor, R.D.C.,
Stratford-on-Avon, 5th December, 1902.

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JOHN MACKENZIE, Sail Maker.
Sandbank, Argyllshire, Sept. 26, 1901.

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HEAT OR DAMP, WITHOUT CRACK OR BLISTER.

mesh consisted of "cut-outs" of No. 30 sheet-steel, which were placed vertically in the steps every 8 to 10 feet. The object of these cut-outs was not to add to the strength, but to allow for any contraction or settling that might take place in the first few weeks after the completion of the work. The steel being very thin would be quickly destroyed, and would serve to break the solid mass of concrete into small sections, thus making it less rigid and allowing for the small settlements that usually take place. This provision was a wise one, as any serious cracks due to settling have been successfully prevented.

The stage was constructed by means of forms, the ornaments being moulded in place. Its floor is 6 inches thick, and the wall rests on a foundation 11 feet 4 inches high. The panels of the wall are from 10 to 18 inches in thickness and are built of solid concrete. For a length of 42 feet in the rear of the central portion the wall is extended back 7 feet, allowing cells $3\frac{1}{2}$ feet wide to be formed within it. The columns are 4 feet in diameter at the base, and taper to 3 feet 4 inches at the top, the central hollow core being 12 inches in diameter.

Sheet-steel cut-outs were also used in the panels of the stage wall, being inserted vertically in two strips 3 feet apart back of each column. Some iron was also used in the wall for reinforcement. In all the cornices 11-lb. scrap rail was laid on 3-foot centres across the wall and covered with expanded metal. The capitals of the columns were also reinforced by two layers of expanded metal. For furnishing additional support to the wall above the central door $\frac{1}{2}$ -inch iron rods placed on 1-foot 6-inch centres were used, having been bent to the general shape of the overhanging part.

All the work on the stage is finished with 1:1 mortar, the coating being $\frac{1}{2}$ inch thick. The concrete in the auditorium lacks this finish, having been merely smoothed off sufficiently for seating purposes, since it is the intention ultimately to cover the entire auditorium with a permanent finish, preferably marble.

For surface drainage purposes the seats, walks, stage floor, &c., are all given a $\frac{1}{4}$ inch to 1 foot slope, the water being collected in 12-inch semi-cylindrical gutters, one extending around the diazoma, another around the orchestra circle, a third along the inclined walk below the stage and a

fourth across the front of the stage. All of these gutters empty into two sumps below the stage, from which the water is led into vitrified sewer pipes and carried off from the ground. The gutters are covered with redwood boards. Ample drainage for the hillside under the concrete structure is provided in the shape of four lines of tile which empty into the campus sewer system. Two of these drains are placed inside of and parallel with the radial retaining walls and carry off the seepage from the made ground of the filled portion. As a further precaution against the accumulation of water under these end seats, the retaining walls are provided with 3-inch weepers every $3\frac{1}{2}$ feet, in order to give an outlet for the water in case the inside drains become clogged up.

The orchestra circle is made of a foot of loose rock covered with disintegrated granite, and is so well drained from underneath that no water ever stands on it after a storm.

About 4,000 barrels of Dyckerhoff cement were used in the building of the amphitheatre, and the entire cost of the structure was 42,000 dols. The funds were furnished by Mr. William Randolph Hearst, and the building was presented by him to the university. The concrete work was put in by Lingren & Hicks, of Berkeley, under the general supervision of Mahoney Bros., of San Francisco, who represented the owner. As already stated, the amphitheatre was erected after the general design of the university architect, Professor John Galen Howard. The engineering features were worked out by his staff.

THE LONDON BUILDING ACT.

THE District Surveyors' Association have adopted the following resolution in reference to the London Building Acts Amendment Bill:—

"Whereas the London Building Act, 1894, comprises about 700 clauses and four schedules of fourteen pages, and it is now proposed to add to this and the amending Act of 1898 a further Bill of nearly 400 clauses (and two schedules), the majority of which have to be read into the sections of the first-named Act, this Association, without reference to

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the merits of the proposals, submits that such a measure will be absolutely unworkable, that it will be almost impossible to grasp its provisions, and that such a combination, uncertain in its meaning and complicated as it will be, must inevitably lead to constant litigation. They further submit that the only satisfactory course in order to accomplish an amendment of the magnitude contemplated is to embody them in a new Bill to supersede the present Acts, which should only be brought before Parliament after careful consideration by the various authorities and professional societies interested therein. They further submit that many of the powers proposed to be taken by the L.C.C. are to a considerable extent such as should in the public interest be the subject of specific rules to be enacted by Parliament, and be administered by the district surveyors, who should be persons qualified by education and experience for that office. The constant reference to the Council will also cause uncertainty, great delay and expense to the public."

THE KING'S SANATORIUM.

THE King, when he paid his surprise visit last November to the sanatorium for consumptives which is being erected in his name at Midhurst, expressed a wish that the work should be pushed on so that it could be completed before the end of 1905. His Majesty inspected one of the rooms for the patients, which was practically finished for the committee's inspection, and also went all round the works, after which he stated how pleased he was at the appearance and progress of the works. The King's wish that the work should be pushed on has been fully carried out by those in authority, and rapid progress has been made. The works manager (Mr. H. W. Tingley) and the clerk of the works (Mr. W. Atkinson) very courteously conducted a representative of the *Sussex Daily News* over the building and explained the progress that had been made since the King's visit.

The east and west wings are already roofed in, and the plastering is being done, while the main part of the central patients' block has reached second-floor level. The foundations are being put in for the chapel which will be probably unique in character. The building will be V-shape and so

arranged that in wet weather the worshippers can be seated very comfortably in both aisles, while on other occasions they can sit in the courtyard and enjoy the fresh air, there being a pulpit both in and out of the chapel. The administration block is now partly roofed in and is up to first-floor level, while the laundry is being prepared for the reception of the machinery. The chimney-shaft is about 50 feet high, the proper height which it is to reach being about 90 feet.

Up to the present there has been delivered to the works three and a half million bricks with sand, lime, and cement in proportion, and considerably over four thousand yards of concrete, which has been used.

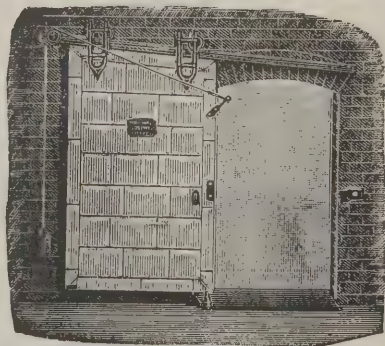
A rather interesting and beneficial idea is the construction of the verandahs or balconies in the patients' portion. These are situated so that any patient being unable to walk and desiring fresh air can be wheeled out into the open. In the lower rooms the beds can even be brought out on to the balcony.

At the present time about 180 men are engaged, and this number will be increased as the work proceeds. The accommodation for the men includes a mess-room with cooks, which enables them to have their meals properly prepared. This season the weather has been very favourable with the exception of three or four weeks of frost and rain.

An idea of the size of the building may be obtained from the fact that the front of it is about 700 feet long. Preparations are now being made for receiving the electric light for the laundry and also the hot-water apparatus. The sanatorium being situated so high above the level of the sea accounts for the climatical conditions being so different from those of Midhurst. It is often the case that when mud is prevalent in the town there is a hard frost in the vicinity of the new buildings.

When completed the sanatorium will present a very smart appearance, being built of red brick and Luton grey with dressings of Bath stone. Mr. H. Percy Adams, F.R.I.B.A., is the architect, and the builders are Messrs. J. Longley & Co., of Crawley, with Mr. Tingley and Mr. Atkinson in authority. It is hoped that the completion of the work will be effected before the end of the year. Perhaps there will be a few minor details which will be unable to be executed before that time, but it is stated that

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these will not hinder the opening of the sanatorium. Periodical visits are paid to the works by the members of the committee, who express their approval of the progress made.

WESTERN INFIRMARY, GLASGOW.

THE new buildings for out-patients at the Glasgow Western Infirmary are situated to the west of the main infirmary block, and are entirely isolated from it. The dispensary forms part of a scheme for the extension of the infirmary to the west, which is urgently needed, and it will be joined to the main building by a well-lit corridor. Entering off this corridor is the electrical department, conveniently placed for both infirmary and out-patient departments. It consists of a light room, 18 feet by 15 feet; an electrical room, 50 feet by 18 feet, each fitted with the most up-to-date electrical appliances; a physician's retiring-room, and a suite of rooms on the first floor for the accommodation of nurses attached to the department.

The entrance to the dispensary proper is from Church Street, a side street running north from Dumbarton Road, in which is situated the main entrance to the infirmary grounds. Entrance and exit gates are provided leading to courtyards separating the entrance and exit doorways. Patients enter by the east doorway, and, under the control of the porter, are directed, on their first visit, into the waiting-room for new patients, where all inquiries are made, the old patients passing into the general waiting hall. The new patients' waiting-room is 26 feet by 16 feet, and is in communication with a diagnosis-room for the examination and classification of cases. The diagnosis-room is lighted by a vertical and roof-light on the north side, and adjoining it is a well-lit room for the isolation of any suspicious or infectious cases. This room has a separate door to an ambulance court.

The general waiting hall, 86 feet by 31 feet, is seated for over 400 persons. The patients will be classified into groups for convenience of distribution into the various surgical and medical consulting rooms; suitable lavatory accommodation is provided in open courts adjoining the waiting hall. From the waiting hall the communication corridor leads eastward to the main operating theatre,

30 feet by 29 feet, with gallery accommodation for sixty students. This room is lighted by vertical and roof-light from the north, and has attached to it a sterilising and recovery-room, the latter divided for male and female patients. Above this there is a nurses' room for the preparation and storing of surgical dressings, &c. Immediately to the east of the waiting hall is the surgical dressing-room fitted with arm and foot sinks, and divided by enamelled slate partitions into separate compartments. Small lobbies lead off the waiting hall to the medical and surgical consulting rooms with their necessary dressing-rooms. These five consulting rooms are 24 feet by 24 feet, each having gallery accommodation for fifty students. The lighting, as in the operating theatre, is from the north.

At the west end the communication corridor leads into the ear, nose and throat rooms, consisting of a consulting-room 30 feet by 24 feet, having gallery accommodation for fifty students (lighted as before), and communicating by a sliding door with a dark room 37 feet by 24 feet, fitted with eighteen stalls for the examination of patients by artificial light. From each of the consulting rooms separate doors lead to the exit corridor, which runs along the entire north and west walls of the building and ends in the dispensary waiting hall. This hall (30 feet by 19 feet) is seated for seventy persons, and has two service openings, with sliding doors from the dispensing-room, and adjoins the exit vestibule near the street. The dispensing-room is 30 feet by 20 feet, and is furnished with all the most modern fittings and appliances. Adjoining this room is the laboratory, which contains the aerated water machine and an outfit of steam pans. Connected with the laboratory there is a fire-proof room for the storage of inflammables. There is also a basement for the storage of surgical dressings, &c., with a good hoist. A subway will eventually lead from this basement to the new west ward block.

The walls and floors have been carefully considered from a sanitary point of view. The floors are terrazzo throughout, except in the waiting halls, where the patients are seated. The walls of the vestibules and waiting halls are faced with terra-cotta and majolica. The consulting rooms, dressing-rooms and corridors are finished with glazed tiles, and the whole is designed with a view to facilitate cleanliness. Various devices have been employed for the

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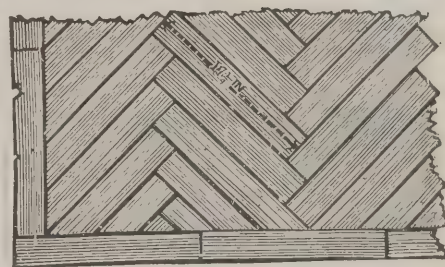
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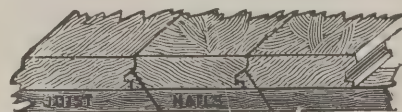
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easy and mechanical control of the patients and their passage through the buildings; the doctor in charge of each consulting room being able to signal to the general waiting hall for a new patient as he passes the former one out into the corridor, which has lettered tiles directing to the exit, thus preventing patients wandering over the building. All basins, sinks, &c., have been specially designed to suit the requirements of such a building. The access door for students is on the first floor at the east side of the building, and from this a corridor, with cloak-room accommodation, leads directly to the upper level of the galleries in the various consulting rooms, one stair only being provided at the west end of this corridor. Accommodation has been provided for the janitor over the dispensary-room and waiting hall in the south-west corner.

The heating is done by low-pressure hot water, on the Reck patent circular system, the circulating water being warmed by steam, which is taken from the main boilers of the institution.

The ventilation is arranged on the extract principle, four electric fans being used for removing the vitiated air. The incoming fresh air is introduced into the ducts at several points through copper gauze screens. The building is lighted throughout by electricity, the supply being obtained from the infirmary's own installation. The grounds of the infirmary have also been lighted by means of an installation of arc lamps.

The building has been constructed from plans prepared by Mr. John James Burnet, A.R.S.A., and Mr. Thomas Young, engineer, has had charge of the lighting and heating.

ELECTRIC SMELTING.

THE Canadian Government recently appointed a Commission to investigate the various electro-thermic processes in use for the smelting of iron ores and for the making of steel.

The Commission has now issued its report as a substantial volume of 230 pages, containing plates, plans and diagrams.

Professor Harbord says:—Steel equal in all respects to the best Sheffield crucible steel can be produced at a cost considerably less than the cost of producing a high-class

crucible steel. Grey pig-iron, suitable in all respects for acid steel manufacture, either by Bessemer or Siemens process, can be produced. Grey pig-iron, suitable for foundry purposes, can be readily produced. Pig-iron, low in silicon or sulphur, suitable for basic Bessemer, or for the basic Siemens process, can be made. Pig-iron can be produced on a commercial scale at a price to compete with the blast furnace only when electric energy is cheap and fuel dear.

Dr. Haanel also points out that with electric furnaces specially designed and constructed for the production of pig-iron, instead of pig-iron alloys, the latter being combinations of metals which the blast furnace cannot produce, considerable reductions in cost of production may be secured. A large number of trials were made by the Commissioner, some 90 tons of iron being employed. The trials included the making of a number of castings, with excellent results. The metal ran very fluid, gave sharp, solid castings, and in every case was soft for machining. Several castings were made from selected grey iron and were in all respects most satisfactory. The cost of production of 1 ton of pig-iron, based upon the results of these trials, was 28s. 6d., and this included electrical energy, labour, coke, electrodes, repairs and other items of expenditure.

Other trials were made for the conversion of pig-iron to steel. These were more satisfactory than the previous operation of reduction. Steel of the highest grade, ferro-chrome, ferro-silicon, &c., was made and sent to England for analysis, which proved to be excellent.

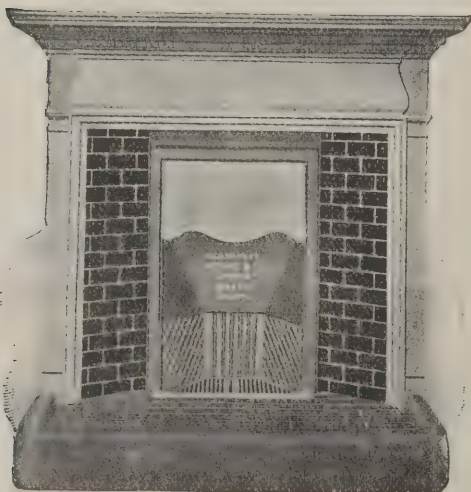
The following is an average sample of the grey iron made during the trials:—Total carbon, 4.200; combined carbon, 0.800; graphite, 3.420; silicon, 1.910; sulphur, 0.007; phosphorus, 0.027; manganese, 4.300; arsenic, trace.

The Commission visited Sweden, Italy and France, and inspected every working process, both for reduction and conversion. The report details every cost, it analyses every claim, and it has taken nothing for granted. During the lengthy trials some member of the Commission was always on the spot, and not one of the published figures was taken excepting by means of apparatus and instruments specially tested and adjusted for the particular purpose. All members of the Commission agree that the question of electric smelting has come within the range of commercial possibilities, and is controlled chiefly by the cost of electric energy, which

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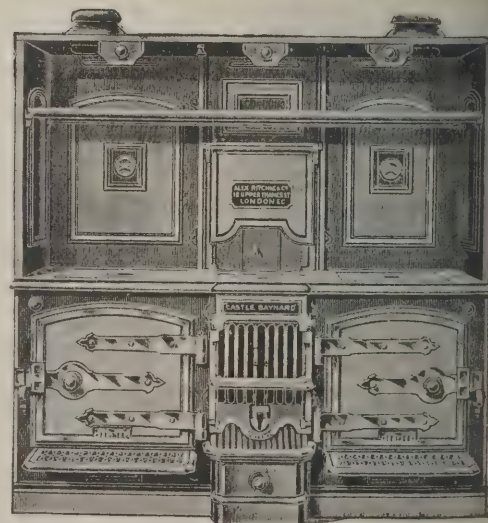
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should not exceed 2% per electrical horse-power per year. Another essential is the securing of a suitable situation for obtaining the supply of raw material and the distribution of the finished product.

The report has special reference to the Canadian iron deposits, which can, by the utilisation of the enormous water powers of Canada, be commercially worked and a large and important industry be created.

The report, too, has a special application for another colony—New Zealand—where it is said very pure iron-sand exists in almost unlimited quantities. Some tons of this iron-sand have been treated in the identical furnaces which Dr. Haapel used, and the most satisfactory results have been obtained.

Mr. Scott Anderson, of Sheffield, has been engaged in this work in connection with Dr. Haapel, and these gentlemen have together designed a furnace for reduction work which will greatly reduce the cost of smelting and overcome some of the difficulties hitherto experienced.

THAWING WATER-PIPES BY ELECTRICITY.

An American electric company has made arrangements for thawing street mains, service pipes and pipes in houses. The following letter from Mr. Dudley Farrand, general manager of the Public Service Corporation of New Jersey, explains his experience of the system:—

"Replying to your letter in regard to our experience in thawing of water-pipes last winter, I am pleased to give you the following data:—

"This work was begun partially, as an experiment and partially to accommodate two or three good customers who were without water either at their factory or home on account of frozen service connection. But the success of the first few hours' work was so pronounced and the feasibility of the scheme was so readily demonstrated, that it was simply necessary for us to indicate our willingness to go on with the work to produce a flood of orders, which it seriously embarrassed us to know how to handle for several weeks. The only injury done in any case was caused, I think, in the first attempt, and resulted from a

poor connection between the wire and a kitchen faucet, the result being that we melted off the faucet and burned out our transformer. Investigation showed that the mishap was caused by using too little resistance and too small a transformer.

"The first waggon was fitted up immediately after this with a considerable amount of apparatus for making calculations, but after a very brief experience all the instruments were discarded, and the operator simply gauged his work by the manner in which the water boiled in the barrel on the waggon, which was used as the resistance. Additional waggons were fitted up in this manner and the work carried on to the extent of our ability to spare men and waggons from other work. Most of the waggons contained a 300-light transformer wired up to a rough wooden rack, with primary fuse boxes on the side and sufficient lengths of wire to reach an ordinary overhead circuit, the custom being to stand the waggon alongside the pole nearest the building where the pipes were to be thawed out. On the secondary side a heavy knife switch properly fused was fastened in the bottom of the waggon and two coils of heavy wire mounted on reels were also provided.

"In the case of a single building the method of procedure was usually to connect the primary leads to the overhead circuit, insert the primary fuses, run out the two heavy wires from the reels to the desired length; one end being connected usually through the cellar window to the water-pipe, as near the cellar wall as possible, the other end being connected to the nearest hydrant or curb box, preferably on the opposite side of the street. The object was to allow treatment of the pipe at any point between the cellar wall and the street main, as there was no way of determining the exact point of interruption.

"When the pipes of two or more adjacent buildings were to be treated the water services were simply connected in series, and as a matter of fact it was found to be just as easy to thaw several houses and took no more time than it did for one. As a matter of experiment we tried grouping buildings, to see what the result would be, and the largest number we were able to find in one location, which consisted of a row of small tenements, fourteen in number, were thawed out as easily as a smaller number, although the time required was somewhat longer.

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"By having sufficiently long secondary leads, we also found it more convenient to extend the secondary than to move the waggon, and in one instance we thawed out about thirty pipes without moving the waggon. The length of wire used in this case, however, was about 500 feet.

"The number of actual services thawed out of which we have record is as follows:—Newark, 2,000; Harrison, 200; Kearny, 154; Belleville, 12; Jersey City, 130; Hoboken, 125; Orange, 15; Elizabeth, 7; Morristown, 25; Passaic, 102; Trenton, 65; Perth Amboy, 3; Plainfield, 75; Bound Brook, 50; total, 2,963. The gross revenue from this work was slightly over 12,000 dols. The charge rendered in each case varied from 4 dols. to 15 dols., according to the number of connections.

"In one case a 6-inch main was thawed out simply as a matter of experiment, the time required being about three hours. The record, however, as to the amount of current required is not at hand at this writing and I am unable to give full particulars. There is no doubt in our minds that this practice of thawing water-pipes cannot only be made profitable to electric companies, but also that the public would be willing to pay a good round price for the service, as the expense involved in digging up frozen ground usually runs into large figures, to say nothing of the expense of restoring pavement and the annoyance of broken pavement which cannot be properly relaid until warm weather returns.

"The number of services that can be handled by one outfit in a day depends entirely on local conditions of poles, wires and location of service. Our outfit consists of two men each with a horse and waggon equipped as above, and each outfit averages all the way from 10 to 200 pipes thawed out per working day."

TUNNELLING THE DEE.

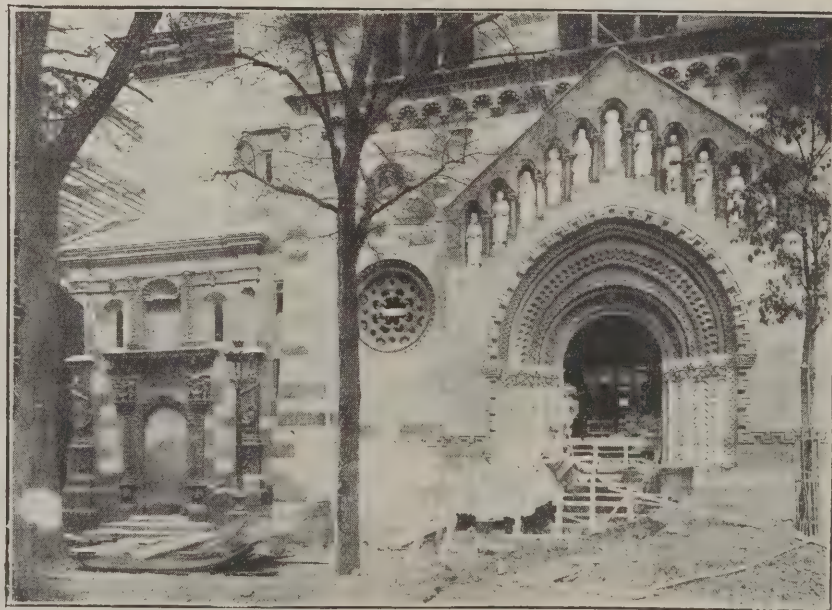
In his report to the Town Council of Aberdeen on the progress made during 1904 with the Girdleness outfall works for the sewerage of the city, Mr. William Dyack, burgh surveyor, dealing with the river Dee tunnels, says:—During the past year progress with this section of the contract has

been unfortunately delayed owing to unforeseen difficulties having arisen. At Point Law the tunnel shaft was sunk to the required depth—viz. 53½ feet below high-water of spring tides—by the middle of May, after considerable trouble had arisen, due to a large influx of water in the bottom of the shaft and the subsidence of the surrounding strata between the tunnel shaft and the quay-wall cylinders of the Harbour Commissioners. The shaft was successfully plugged with concrete by divers in October. At Torry a commencement was made to tunnel under the river bed in May, and the attempt to remove the shaft segments to permit of an entrance being made was one of extreme difficulty, water flowing into the shaft in large quantities under pressure. Considerable time was spent in endeavouring to overcome the inrush by large steam pumps, but the operations were suspended on May 26 until arrangements could be made for carrying on the work in safety by means of compressed air. The remainder of the year has been occupied in fitting up the temporary plant necessary to carry out the work of tunnelling under compressed air. In the Torry shaft two steel floors have been built, fitted with all the necessary arrangements to form an air-lock. An air-compressing plant, consisting of two 40 horse-power Ingersoll-Sergeant air compressors, each capable of supplying 38,000 cubic feet of free air an hour to the tunnel, has been laid down in Sinclair Place (200 yards west of the tunnel), adjoining the engine and boiler-house of the old Torry brickworks, which has been altered and adapted for supplying steam to the air compressors. The whole of the temporary plant has now been completed; a medical air-lock has also been provided at the top of the Torry shaft as a precautionary measure for use in the event of any of the workmen suffering from compressed air illness. This, however, may not be required, as a low air pressure may be sufficient to carry through the work successfully. The tunnel was put under air pressure recently, and it will now be maintained night and day until it has been driven from Torry to Point Law. A small tunnel heading has been driven 26 feet from the shaft under the river, and operations will now be pushed on vigorously to allow of the hydraulic shield being placed in position as early as possible. The total value of the work executed in the whole contract up to the present date is 50,200l.

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EDITORIAL NOTICES.

In view of the many difficulties which are certain to arise in connection with the law, practice rules and procedure under the Workmen's Compensation Act, we have added to our staff A VERY EMINENT BARRISTER, who has made the subject a special study, and will be glad to answer in the columns of this paper any questions relating to the complicated matters arising from the provisions of this difficult Act. Our LEGAL ADVISER will further answer any legal question that may be of interest to our readers. All letters must be addressed "LEGAL ADVISER," Office of "The Architect," Imperial Buildings, Ludgate Circus, London, E.C.

The Editor will be glad to receive from Architects in London and the Provinces results of Competitions and Tenders and other particulars of Works in progress in which they may be interested.

The authors of signed articles and papers read in public must necessarily be held responsible for their contents.

No communication can be inserted unless authenticated by the name and address of the writer—not in every case for publication, but as a guarantee of good faith.

Correspondents are requested to make their communications as brief as possible. The space we can devote to Correspondence will not usually permit our inserting lengthy communications.

TENDERS, ETC.

*** As great disappointment is frequently expressed at the non-appearance of Contracts Open, Tenders, &c., it is particularly requested that information of this description be forwarded to the Office, Imperial Buildings, Ludgate Circus, London, E.C., not later than 2 P.M. on Thursdays.*

COMPETITIONS OPEN.

AYLESBURY.—Feb. 28.—For public elementary school for 750 children. Premiums 50*l.* and 25*l.* Conditions and plan of site obtainable from Mr. C. G. Watkins, Education Secretary, Aylesbury, on payment of 1*l.* 1*s.*

LAMBETH.—March 30.—For municipal buildings at Brixton Hill. Particulars from Mr. H. J. Smith, Town Hall, Kennington, S.E.

NELSON.—March 4.—Designs for a free public library. Premiums of 50*l.*, 25*l.* and 15*l.* Mr. J. H. Baldwick, town clerk, Town Hall, Nelson.

PRESTON.—Feb. 28.—Designs and plans for new elementary school. Premiums of £50, £30 and £20. Plan and conditions from Director of Education, Education Offices, Preston.

WOLVERTON.—Feb. 28.—For public elementary school for 400 girls and 400 infants. Premiums 50*l.* and 25*l.* Also for secondary school to accommodate about 120 boys and girls. No premiums offered. Conditions to be obtained on payment of 1*l.* 1*s.* in each case from Mr. C. G. Watkins, Education Office, Aylesbury.

CONTRACTS OPEN.

ABERGAVENNY.—Feb. 16.—For internal repairs to eleven cottages and external repairs to fifteen cottages, and other works. The Gas Manager, Gasworks, Abergavenny.

ABERYSTWYTH.—Feb. 4.—For completing the nave and building new tower, &c., to St. Michael's Church, Aberystwyth. Messrs. Nicholson & Hartree, architects, Hereford.

ATCHAM.—Feb. 17.—For the erection of an additional storey to the bath-room in the infirmary. Mr. A. B. Deakin, architect to the Guardians, Pride Hill, Shrewsbury.

BARNSELY.—Feb. 7.—For the erection near the small-pox hospital of a temporary ward, kitchen and outbuildings. Mr. J. Henry Taylor, borough surveyor, Manor House Offices, Barnsley.

BEAMINSTER.—Feb. 16.—For the erection of school and alterations to the school buildings in Hoghill Street, Beaminster, Dorset. Mr. Robert Leigh, clerk to Governors, Beaminster.

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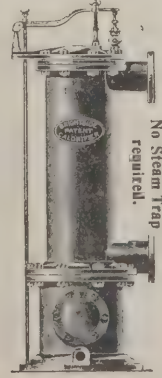
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BELGRAVE.—Feb. 23.—For the erection of a manager's house and boundary wall in connection with the new pumping station at Belgrave, Leicester. Mr. E. George Mawbey, borough engineer, Town Hall, Leicester.

BOLTON PERCY AND COPMANTHORPE.—Feb. 8.—For the erection of four cottages at Bolton Percy and the conversion of station buildings into dwelling-houses at Bolton Percy and Copmanthorpe, for the North-Eastern Railway Co. Mr. William Bell, architect to the Company, at York.

BRADFORD.—Feb. 6.—For the erection of a casualty department, boiler-house and two boilers at the Royal Infirmary, Bradford. Mr. Fred Holland, engineer and architect, 11 Parkinson's Chambers, Bradford.

BRIGHTON.—Feb. 9.—For the erection of three artisans' dwellings, for the Town Council. Mr. Francis J. C. May, Town Hall, Brighton.

BRISTOL.—Feb. 6.—For the construction and maintenance for twelve months after completion of offices and dwelling-house, for the docks committee. Mr. W. W. Squire, engineer, Cumberland Road, Bristol.

BROADSTAIRS.—Feb. 11.—For erection of steps from the parade to the sands at Louisa Gap, Broadstairs. Mr. Howard Hurd, town surveyor, Council Offices, Broadstairs.

BURY.—Feb. 18.—For the construction of a storage reservoir on the Scout Moor brook. Mr. J. Cartwright, engineer to Bury Water Board, Peel Chambers, Bury.

CARLISLE.—Feb. 4.—For certain alterations and additions to property in Fisher Street. Mr. Henry C. Marks, city engineer and surveyor, 36 Fisher Street, Carlisle.

CHESLYN HAY.—Feb. 9.—For the erection of a new girls' school and extensions to existing buildings at Cheslyn Hay. Education Committee Office, Stafford.

CONONLEY.—For the erection of ten houses at Cononley, Keighley. Messrs. John Haggas & Sons, architects, North Street, Keighley.

CONSETT.—Feb. 8.—For the erection of self-contained house in Medomsley Road, Consett. Mr. Thomas H. Murray, architect and surveyor, Front Street, Consett, Durham.

CORK.—Feb. 10.—For erecting offices for the city analyst and weights and measures departments, for the

Cork Town Council. City Engineer's Office, Municipal Buildings, Cork.

CORK.—Feb. 10.—For the erection of fifty houses for the working classes, for the Corporation. City Engineer's Office, Municipal Buildings, Cork.

DARTFORD.—Feb. 22.—For the erection of additional buildings at Joyce Green hospital, near Dartford, Kent, for the Metropolitan Asylums Board. Messrs. A. & C. Harston, 15 Leadenhall Street, E.C.

ELGIN.—Feb. 15.—For various works and ironwork of buildings in connection with purification works; also for chimney-stack, cast-iron piping from distilleries to works and water supply and concrete reservoir. Mr. Charles C. Doig, architect, Elgin.

FARNHAM.—Feb. 7.—For the erection of a new grammar school at Farnham, Surrey. Messrs. Jarvis & Richards, 36 Victoria Street, Westminster, S.W.

FARNHAM.—Feb. 9.—For certain alterations and rebuilding portions of Frensham Mill bridge. Mr. Arthur J. Stedman, surveyor, South Street Chambers, Farnham.

GALLEYWOOD.—Feb. 11.—For supply of materials and construction of foundations and chimneys for an isolation hospital, Galleywood, Essex. Mr. Arthur S. Duffield, clerk, 98 High Street, Chelmsford.

GLASGOW.—Feb. 8.—For various works required in the erection of baths and wash-houses at Parkhead. Mr. A. B. McDonald, city engineer, City Chambers, 64 Cochrane Street, Glasgow.

GORING-ON-THAMES.—Feb. 9.—For the construction, delivery and erection complete of retort-house roof and annular-condenser at the gasworks, Goring-on-Thames, for the Thames Valley and Goring Water and Gas Company, Ltd. Mr. George H. Robus, 20 Bucklersbury, London, E.C.

GREAT HORTON.—Feb. 15.—For the erection of warehouse at the central stores, Great Horton, Bradford. Messrs. John Drake & Son, architects, Queensbury.

HEADS NOOK.—Feb. 10.—For the erection of dwelling-house and offices near Stockdale Hall, Heads Nook, Carlisle. Mr. Peter Lockhart, land agent, Corby Castle.

HESSENFORD.—Feb. 11.—For erection of schoolroom, classrooms, &c., in connection with the Wesleyan chapel

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at Hessenford, near St. Germans. Mr. S. P. Hosking, architect, Landrake, St. Germans.

HOLYWELL.—Feb. 8.—For the erection of two cottages at Holywell on the Blyth and Tyne section, Northumberland, for the North-Eastern Railway Co. Mr. William Bell, company's architect, Central Station, Newcastle-on-Tyne.

HOO.—Feb. 20.—For the enlargement, alterations and other works at the Council schools, Hoo (St. Werburgh), for the Kent education committee. Mr. Geo. E. Bond, architect, Pier Chambers, Chatham.

HULL.—Feb. 8.—For the erection of warehouse, offices, &c., at Seward Street, Hull, for the North-Eastern Railway Co. Mr. William Bell, company's architect, York.

IRELAND.—Feb. 9.—For building labourers' cottages and out-offices, &c., for the Kilkenny Rural District Council. The Clerk of the Council.

IRELAND.—Feb. 8.—For the erection of a pair of labourers' cottages at Monastery, and a pair of labourers' cottages at Killegar, for the Rathdown No. 2 Rural District Council. Mr. Patrick Cuniam, clerk, Loughlinstown.

IRELAND.—Feb. 14.—For rebuilding business premises, &c., at Ferryquay Street, Londonderry. Mr. J. P. M'Grath, architect, Commercial Buildings, Foyle Street, Londonderry.

IRELAND.—Feb. 17.—For the construction of breakwaters, wharf, booms, slip and other works at Cape Clear, co. Cork. Secretary, Office of Public Works, Dublin.

KIRTON.—Feb. 9.—For the erection of a science laboratory at the Sir Thomas Middlecot's endowed school, Kirton, Lincs. Mr. James Rowell, architect, Church Lane, Boston.

LANCHESTER.—Feb. 11.—For building house and workshop in Ford Lane, Lanchester. Mr. Thos. E. Taylor, architect, Prospect House, Lanchester.

LEAVESDEN.—Feb. 8.—For taking-out old iron sashes and supplying and fixing double-hung sashes to certain windows at Leavesden asylum, near Watford, Herts, for the Metropolitan Asylums Board. Mr. W. T. Hatch, engineer-in-chief, the Office of the Board, Embankment, E.C.

LEEDS.—Feb. 6.—For repairs to schools in separate trades as follows, for the Leeds education committee:—Bricklayer and mason, carpenter and joiner, plumber and

glazier, slater, plasterer, smith and founder. Architect's Department, Education Offices, Leeds.

LEEDS.—Feb. 7.—For erection of a sorting-office at Leeds. H.M. Office of Works, Head Post Office, Leeds.

LIPHOOK.—For the erection of a block of four cottages at Wheatsheaf Common, near Liphook, Hants. Mr. W. A. T. Carter, architect, 15 Waldemar Road, Wimbledon, S.W.

LONDON.—Feb. 14.—For the erection of a generating station at South Kensington, for the Commissioners of H.M. Works and Public Buildings. Chief Engineer, H.M. Office of Works, &c., Storey's Gate, S.W.

MANCHESTER.—Feb. 16.—For the erection of a large convenience (sanitary fittings excepted) at Heaton Park, City Architect, Town Hall, Manchester.

MIDDLESBROUGH.—Feb. 8.—For the erection of three dwelling-houses at Middlesbrough Docks. Mr. William Bell, architect to the North-Eastern Railway Co., York.

NOTTINGHAM.—For the erection of villa residences in Mapperley Park. Mr. Frank H. Collyer, architect, Woodland Buildings, Long Row, Nottingham.

NOTTINGHAM.—Feb. 20.—For the erection and completion of engine and boiler-houses at the Boughton pumping station. Mr. W. B. Starr, architect, 12 St. Peter's Gate, Nottingham.

OULTON.—March 17.—For the enlargement of the Oulton Council school buildings, near Lowestoft. Mr. F. W. Richards, architect, 14 Stanley Street, Lowestoft.

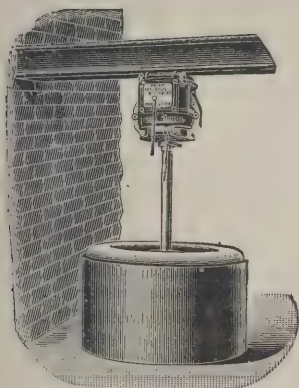
PORTSMOUTH.—Feb. 13.—For the erection of a school in Copnor Road. Mr. G. C. Vernon Inkpen, architect, 40 Commercial Road, Portsmouth.

RAWTENSTALL.—Feb. 9.—For the erection and completion of a market hall and lock-up shops on the market ground, Newchurch Road, Rawtenstall, Lancs. Mr. J. Johnson, borough surveyor, Municipal Offices, Rawtenstall.

SCOTLAND.—Feb. 4.—For the extension of about 500 feet in length of the east pier, Kirkcaldy. Messrs. Rendel & Robertson, engineers, 8 Great George Street, Westminster.

SCOTLAND.—Feb. 4.—For the construction of a separating weir, collecting tank, composite brick and concrete reservoir, and other works connected with the Auchtermuchty Waterworks. Mr. H. Bruce, engineer, 67 Crossgate, Cupar.

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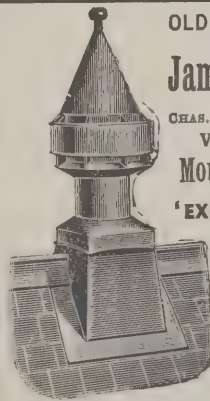
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SCOTLAND.—Feb. 6.—For the mason, carpenter and slater's work of the following, and for the plasterwork of No. 1:—(1) Alterations on cottar house, Mains of Glascoforest; (2) men's room and colts' house, Netherton. Mr. William Ogg, ground officer, Glascoforest.

SHEFFIELD.—Feb. 17.—For widening the masonry bridge over the river Loxley at Langsett Road, Hillsborough. Mr. Chas. F. Wike, city surveyor, Town Hall, Sheffield.

SOUTHEND-ON-SEA.—Feb. 10.—For extension of the boiler-house at the electricity works, London Road, for the Corporation. Mr. E. J. Elford, borough engineer, Southend-on-Sea.

TIBTHORPE.—Feb. 8.—For new school and alterations to Wesleyan chapel at Tibthorpe. Rev. A. E. Hutchinson, 13 Alma Villas, Driffield.

TWICKENHAM.—Feb. 9.—For the erection of a pumping station, boiler-house, destructor-house, chimney-shaft, &c., at the sewage disposal works. Mr. F. W. Pearce, surveyor to the Council, Town Hall, Twickenham.

WALES.—Feb. 6.—For the construction of the Carno reservoir, for the Ebbw Vale Rural District Council. Mr. G. F. Deacon, engineer, 16 Great George Street, Westminster, S.W.

WALES.—Feb. 7.—For the construction of a new engine shed and other works at Carmarthen, for the Great Western Railway Company. The Engineer, Neath Station.

WALES.—Feb. 7.—For the rebuilding of the Labour in Vain inn, Pontypool. Mr. D. J. Lougher, architect, Bank Chambers, Pontypool.

WALES.—Feb. 7.—For the erection of thirty-five houses, built at Bargoed, for the Aberdare Bargoed Building Club, Mr. E. G. Henton, architect, 22 Cardiff Street, Aberdare.

WALES.—Feb. 7.—For the following works, for the Glamorgan County Council, viz. (1) Removing galleries, &c., and other repairs at the Brithdir County schools; (2) constructing and fixing folding partitions at the Senghenydd Council school; (3) alterations and minor repairs at the Llantwit Major Council school. Mr. T. Mansel Franken, the Glamorgan County Offices, Westgate Street, Cardiff.

WALES.—Feb. 11.—For the erection of a chapel and schoolroom at Maesycwmmer. Mr. R. L. Roberts, architect, Abercarn.

WALES.—Feb. 11.—For the erection of an excise bonded warehouse at Narberth. Mr. James Williams, Narberth.

WALES.—Feb. 13.—For the erection of a boys' school and the execution of works connected therewith at Caegaw, Mountain Ash. Mr. W. G. Thomas, architect, Public Offices, Mountain Ash.

WOKING.—Feb. 11.—For supply and erection of a retort-house constructed of steel stanchions, roof and girders, and covered with corrugated iron, for the Woking District Gas Company. Messrs. W. A. Valon & Son, 140 Temple Chambers, E.C.

YORK.—Feb. 6.—For additions and alterations to the school of science and art, Exhibition Buildings. Mr. A. Creer, architect, Guildhall, York.

PROFESSOR HENRY ADAMS, M.I.C.E., who recently retired from the City of London College, has been appointed a chief examiner in building construction under the Board of Education, South Kensington.

THE harbour of Cuxhaven, built comparatively recently at a cost of 7,750,000 marks, is at the present moment the subject of a controversy in Hamburg shipping circles. The Hamburg-American Company, for whose boats this harbour was mainly built, is much dissatisfied with the accommodation, and is preparing to transfer its harbour business entirely to Hamburg. It is alleged of the harbour that both entrance and exit are rendered difficult by the existence of strong currents, the entrance being even described as actually dangerous. The currents are so strong that a heavy deposit is being continually formed. Very much irritated at these statements, the town of Cuxhaven appointed a commission to inquire into the alleged defects. After a lengthy hearing of experts and other witnesses and an independent examination of the harbour roads, the commission reported that there was no justification at all for the attitude of the Hamburg-American Company. It was also stated that before the harbour was built the details of the scheme were fully discussed with this company and received its approval.

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Rendell	4,986	0 0
Thomas & Co.	4,938	0 0
W. BRITTON, Barry (accepted)	4,865	10 0
Bevan	4,848	0 0
Davies	4,798	0 0
Architect's estimate	4,932	0 0

BELFAST.

For fencing, draining and making walks and avenue, and for building and completing entrance walls, piers and gate lodge at new burial-ground, Carnmoney.

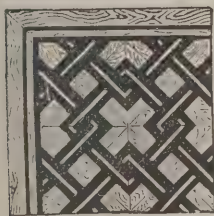
H. Laverty & Sons, Ltd.	£1,250	0 0
Calwell	1,225	0 0
Ewing	1,214	17 0
Courtney & Co.	1,136	0 0
McFaul	1,120	0 0
Walker	1,117	0 0
Caulfield & Pollock	1,116	6 4
J. Kidd	1,079	0 0
Geddis	1,047	2 3
Corry, Ltd.	1,025	0 0
J. Ross & Sons	968	4 11
McRoberts & Armstrong	960	0 0
Tyrell	940	8 8
Agnew	899	15 6
Green	881	11 0
J. K. BARTON, Bloomfield (accepted)	865	13 9

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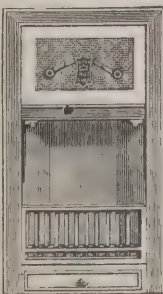
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£27,000,000.

BEMBRIDGE (ISLE OF WIGHT).

For extension of waterworks, &c. Mr. H. B. CULLIN, surveyor.

Contract A.—Supplying 980 yards 4-inch cast-iron pipes, 3,173 yards 3-inch cast-iron pipes, with necessary bends, branches, &c.

Dean & Co., Ltd.	£608	4	6
Watson & Co.	547	0	0
Clay Cross Co.	517	7	8
Cochrane & Co.	514	1	7
Stanton Ironworks Co.	497	10	10
Stewart & Co.	489	18	1
McFarlane & Co.	475	12	6
Cantillo	470	11	10
McFarlane & Co.	460	8	3
Oakes & Co.	454	2	5
Laidlaw & Son	452	3	11
Hair & Son	450	0	0
Birtley Ironworks Co.	441	6	6
Watson, Gow & Co.	439	14	6
Cloke & Co.	434	17	0
J. & R. Ritchie	433	8	10
McEwan & Co.	434	0	0
ORMESBY IRONWORKS (accepted conditionally)	416	18	10

Contract B.—Laying 913 yards 4-inch and 3,030 yards 3-inch, providing and fixing sluice valves, &c.

Weaver	892	17	6
Osman	650	11	0
Dean	608	4	6
Watton	552	17	9
Arthur	515	19	3
Cantillo	497	10	0
Smith & Co.	489	0	11

*H. STREETER & Co., Freshwater (accepted conditionally)**Contract C.—Providing and laying 727 yards 9-inch glazed socketed pipes, with necessary manholes, &c., in Lock's Lane.*

Watton	420	0	0
Osman	320	0	0
Streeter & Co.	306	0	0
Smith & Co.	269	13	0
Couldrey	265	0	0
Arthur	252	6	2

CARDIFF.

For erecting a Sunday school at St. Catherine's, Canton.

Mr. G. E. HALLIDAY, architect, Cardiff. Quantities by Mr. J. W. RODGER, Cardiff.

Cox & Bardo	£933	7	0
Shepton & Sons	890	0	0
Gibson & Sons	858	0	0
Blacker Bros.	853	13	9
Andrews & Sons	852	1	3
Sims	845	18	0
Bevan	835	0	0
Morgan	820	0	0
Symonds & Co.	819	0	0
Knox & Wells	810	9	0
C. C. DUNN, Cardiff (accepted)	800	0	0
Small	750	0	0

EXHALL.

For the erection of infectious diseases hospital in the parish of Exhall, for the Foleshill Rural District Council.

Mr. T. F. TICKNER, architect, Coventry.

S. Butterworth & Sons, Ltd.	£7,115	15	0
Hopkins	7,000	0	0
Worwood	6,940	18	4
Wincott	6,650	0	0
E. Giles & Son	6,591	0	0
Burton & Crease	6,541	0	0
J. Isaac & Sons	6,539	6	6
Hope	6,500	0	0
Bailey	6,434	0	0
Garlick	6,355	0	0
Mobbs	6,320	0	0
Orr Bros.	6,288	0	0
Bowles & Son	6,292	12	6
Goode	6,230	0	0
KELLEY & SON, Foleshill (accepted provisionally)	6,185	15	0
Sharratt & Hartlett	6,180	12	9
Hill	6,156	0	0
Lord	5,543	0	0

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THE HAM HILL AND DOULTING STONE CO.

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Kent.**ALFRED WALKER & SON,**7 Upper James St., Golden Sq., London, W.
14 King Street, Leeds.Postal
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322 Fawcett Road, SOUTHSEA.**BRISTOL:****C. Bradshaw & Son,**
Chapel Street, St. Philips Marsh.

ERDINGTON.

For the erection of a council house. Mr. J. P. OSBORNE, architect, 95 Colmore Row, Birmingham.
BARNLEY & SONS, Birmingham (accepted). £13,888 0 0

EXETER.

For the erection of shops and dwellings at 29 and 30 Bridge Street. Mr. R. M. CHALLICE, architect, Exeter.

Ham & Passmore	£2,041	0	0
Smale	2,022	0	0
Coles	1,996	0	0
WESTCOTT, AUSTIN & WHITE, Exeter (accepted)	1,740	0	0
Setter	1,700	0	0
Heath	1,698	0	0

KIDDERMINSTER.

For the erection of engines and boiler-houses and other works in connection with the water-supply, for the Corporation. Messrs. WILCOX & RAIKES, engineers, Birmingham.
T. VALE & SONS, Stourport (accepted). £9,295 0 0

KIRKBY-IN-ASHFIELD.

For the erection of a police station at Sutton-in-Ashfield.
COOPER & SON, Nottingham (accepted). £1,490 0 0

LEIGH-ON-SEA.

For extension of engine-house at the waterworks, Essex.
Mr. J. PETCH, surveyor.

A. & H. Holding	£371	10	9
Elvey	348	13	6
Davison	336	5	9
Golding	333	15	5
Matthews & Son	325	10	2
Green	311	15	0
Johnson	306	4	8
J. J. GALER, Leigh-on-Sea (accepted)	298	0	0
F. & E. Davey, Ltd.	295	0	0

LONDON.

The following tenders have been accepted for works to be carried out under the direction of Mr. HERBERT KNIGHT, architect:—

Lower Green Road, Esher, Surrey.

For the erection of twelve pairs of semi-detached villas.
Wheatley & Sons, East Molesey . . . £5,000 0 0

No. 2 Camomile Street, E.C.

For rebuilding, for Messrs. W. Hill & Sons.
Staines & Son 1,472 0 0

Elmfield, Esher, Surrey.

For additions, for Mr. A. Barker.
Nicks & Co., Clapham Junction . . . 2,400 0 0

City Restaurant.

For alterations, for Mr. A. Schrader.
G. Kirby, Hornsey 360 0 0

Cleygate House, Claygate, Surrey.

For alterations, for Mr. A. H. Jones.
C. Higby, Thames Ditton 850 0 0

Nos. 32 & 32a Old Change, E.C.

For rebuilding.
Braid, Pater & Co. 5,500 0 0

Arlington Park Mansions, Turnham Green.

For the erection of new blocks of flats.
Barnes & Son, Chiswick 21,000 0 0

For roadwork and platelaying in connection with the underground conduit system of electrical traction of the tramways from Clerkenwell Road, via Rosebery Avenue and St. John Street Road, to the Angel, Islington.

Muirhead, Greig & Matthews	£31,619	15	6
J. G. White & Co., Ltd.	31,218	7	10
Dick, Kerr & Co., Ltd.	29,924	9	10
Wm. Griffiths & Co., Ltd.	29,704	1	5
R. W. Blackwell & Co., Ltd.	29,149	14	6
JOHN MOWLEM & Co., LTD. (accepted)	27,925	0	0
Engineer's estimate	26,432	16	5

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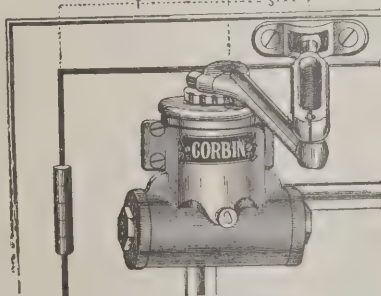
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LOW PRESSURE

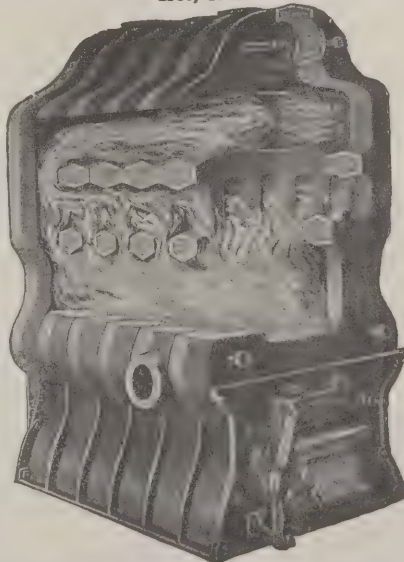
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LONDON—continued.

For the construction of an underground sanitary convenience in Merton Road, Wandsworth.

H. Dakin & Co.	£939	10	0
Jewell	900	0	0
Vigor & Co.	897	0	0
White & Co.	885	0	0
Martin, Wells & Co., Ltd.	850	0	0
Horton	825	0	0
Triggs	820	0	0
Parsons	783	0	0
W. & C. BROWN, Earlsfield (accepted)	729	0	0

For the supply and erection of a 1,000 kilowatt alternator, for the Fulham Borough Council.

Brush Electric Manufacturing Company	£7,555	0	0
Vickers, Son & Maxim	7,545	0	0
Electrical Company	7,535	0	0
Westinghouse Electric & Manufacturing Company (alternative)	7,357	0	0
Westinghouse Electric & Manufacturing Company	7,197	0	0
Electric Construction Company	7,135	0	0
Dick, Kerr & Co.	7,090	0	0
British Thomson-Houston Company	7,003	0	0
International Electric Company	6,995	0	0
J. Fowler & Co.	6,936	0	0
Bruce, Peebles & Co.	6,935	0	0
Mather & Platt	6,910	0	0
Siemens Electrical Company	6,894	0	0
Witting, Eborall & Co.	6,891	0	0
GENERAL ELECTRIC COMPANY (accepted)	6,718	0	0

LUDLOW.

For sewerage works at Ludlow. Mr. P. H. MAYBURY, engineer.

Boore	£4,933	19	4
Horner & Maud	4,675	17	4
Roberts	3,811	10	0
Meredith	2,887	0	0
Davies	2,818	18	6
H. HOLLOWAY, Wolverhampton (accepted)	2,569	0	0

LUTTERWORTH.

For the erection and completion of a small police court, cottage, &c., at Lutterworth. Mr. S. PERKINS PICK, county architect, Leicester.

Parnell & Son	£3,701	10	0
Henderson	3,590	0	0
Mobbs	3,477	0	0
Herbert	3,442	0	0
Moss & Sons, Ltd.	3,425	0	0
Sawbridge	3,415	0	0
King & Ridley	3,380	0	0
Herbert & Sons	3,377	0	0
Barker & Son	3,375	0	0
Faulks	3,340	0	0
Vickers	3,330	0	0
Bentley & Co.	3,300	0	0
Sleath	3,285	0	0
Rudkin & Son	3,275	0	0
Leicester Builders, Ltd.	3,268	3	3
Haskard, Rudkin & Beck	3,180	0	0
Barlow & Co.	3,128	0	0
Wright	3,100	0	0
Storer Bros.	3,015	6	0

MELROSE.

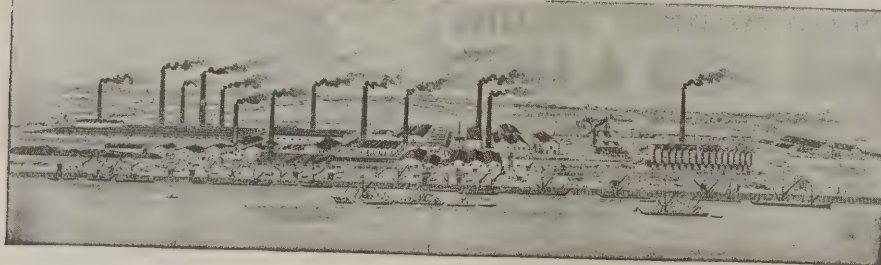
For erecting a wing for female patients at the asylum, Melrose, Scotland. Messrs. SYDNEY MITCHELL & WILSON, architects, Edinburgh.

Meiklejohn	£8,595	0	7
Hall & Co.	8,211	0	0
Adam & Co.	8,111	0	0
Herbertson & Son	8,000	0	0
Spiers	7,985	4	0
Inglis & Sons	7,710	0	0
Linton	7,674	8	3
Scott & Sons	7,595	0	0
Scott	7,592	0	0
H. T. & R. Montgomery	7,428	10	0
Neil, McLeod & Sons	7,363	0	0
J. & F. Forest	7,176	0	0
Scott & Brown	7,058	14	0
A. CALDER, Edinburgh (accepted)	7,050	0	0

C. B. N. SNEWIN & SONS, LTD. MAHOGANY, WAINSCOT, AND TIMBER MERCHANTS. BACKHILL, HATTON GARDEN; & RAY ST., FARRINGTON ROAD. Telegrams, "Snewin, London." LONDON, E.C. Telephone 274 Holborn.

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NOTTINGHAM.

For alterations at the shire hall.
W. CRANE, Ltd., Nottingham (accepted) . £8,696 0 0

OXFORD.

For additions to premises at St. Aldates, Oxford. Mr. E. G. HEARNES, surveyor, Oxford.
Simms & Sons £450 0 0
Tucker 353 0 0
WARD BROS., Oxford (accepted) 348 0 0

OVER.

For alterations and additions to the school buildings, High Street, Over, Cheshire.
Williams & Sons £4,963 3 7
Exors. of H. Sargeant 4,946 0 0
Meadows 4,754 0 0
Mayers & Son 4,589 14 0
Dickenson 4,338 10 0
Robinson & Sons 4,190 0 0
J. FOWLES & SONS, Winsford (accepted) 3,948 0 0

PORTSMOUTH.

For new rising main from the pumping station at Eastney to tanks at Fort Cumberland.
G. BELL (accepted) £9,430 0 0

READING.

For erection of coachman's cottage, Theale. Mr. E. A. TYLER, architect.
Sisley & Gibbs £530 0 0
Danton 395 0 0
Wigmore 388 10 0
Jenkins & Co. 387 9 0
J. CRONK (accepted) 300 0 0

SCOTLAND.

For works on the East Bay esplanade, Dunoon, from Moir Street to Kern Pier. Mr. J. ANDREW, engineer.
R. MACALPINE & SONS (accepted) £15,281 0 0

SCOTLAND—continued.

For 570 yards of approaches to the new bridge across the river Lossie, Birnie. Mr. A. Hogg, surveyor, Elgin.

Approaches.

Nicholson	£398	9	2
Newlands	271	7	8
Milne & Son	247	19	7
McLean	221	14	9
Gordon	219	17	1
A. FALCONER, Elgin (accepted)	216	3	5

Iron and steelwork.

Redpath, Brown & Co., Ltd.	195	0	0
P. & W. Maclellan & Co., Ltd.	190	6	10
McKinnon & Co.	173	15	0
J. ABERNETHY & Co., Aberdeen (accepted)	169	15	0

SHERINGHAM.

For the erection of new premises, &c., in Church Street, Sheringham, Norfolk.

C. T. Baker, Ltd.	£895	0	0
Catton	745	0	0
Porter	730	0	0
Bullen	700	0	0
Weston	668	0	0
Sadler	649	0	0
Riches	629	0	0
BLYTH & SON (accepted)	571	0	0

For the erection of shops and dwelling-houses adjoining above.

Porter	£1,930	0	0
Weston	1,825	0	0
Riches	1,800	0	0
Catton	1,753	0	0
Sadler	1,430	0	0
BLYTH & SON (accepted)	1,405	0	0

SOUTH SHIELDS.

For the erection of an infants' school in Gilbert Street.
GLEN & MOFFETT, Jarrow-on-Tyne (accepted) £5,516 0 0

BALDWIN'S, LTD.

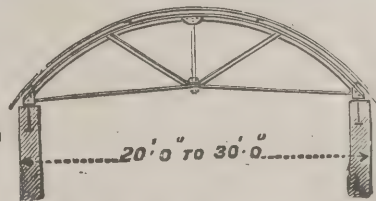
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NEW CATALOGUES.

THE array of medals which Messrs. T. & R. Boote, Ltd., of Burslem, have won in exhibitions may be accepted as a testimony not only to the excellence but the variety of their productions. Jurors have their preferences. In the latest catalogue are examples of glazed dado and wall tiling, printed and coloured tiling, cappings, skirtings, angle beads, slopes, &c. There are also examples of ceramic mosaics, enamels for fireplaces, &c., and an abundance of tiles of geometrical patterns for floors. It will therefore be evident that Messrs. T. & R. Boote are provided for all demands which are likely to arise. All the tiles are numbered, which facilitates ordering. If cases should arise which the tiles will not serve special designs will be prepared. The firm will also supply instructions whenever trained workmen for laying tiles are not available. Everything suggests readiness to meet the desires of customers. Patterns and colours are attractive and the prices reasonable. Unquestionably the firm have attained great perfection in their productions.

ALTHOUGH a month of 1905 has vanished, it is not too late, perhaps, to mention the neat, convenient and ingenious diary issued by Messrs. Charles Winn & Co., of Birmingham. From the peculiarity of the binding it may be said to form a compound but tiny volume, one being a diary with a page to a week, the other made up of sectional paper which will serve for sketching. A few pages are assigned to the "Blount Door Spring and Check" of the firm, which

is used throughout the London Hippodrome and the Coliseum, and in many other important buildings. It is the handiest diary of the year, and any one in the trade can have one on application to Messrs. Charles Winn & Co.

THE Berkefeld Filter Company, Ltd., recently brought on the English market "Winco" semi-rotary wing pumps and a descriptive price list has now appeared. It is claimed for the pumps, which are simple in construction, that they are of the greatest possible efficiency and easily adapted to hand, horse, steam, water or wind-power. There is, for instance, the "Winco" semi-rotary pillar and barrow pump which is adapted for such purposes as garden, street and village use, or for public establishments, while the "Winco" double-acting semi-rotary wing pump is suitable for thick liquids, or in a slightly different form for raising and transferring wine, oil, &c., from casks. The pumps of cast-iron with brass valves are, of course, appreciably cheaper than those all brass. The pumps are capable of lifting the liquid from a depth of 25 feet and forcing it to a height of 100.

It is a peculiarity of a great business like Messrs. Johnson & Phillips's, of Old Charlton, that a very few pages will serve for a catalogue as well as a large volume. Their products are measured by miles rather than by feet and inches. They have supplied and laid 45 miles of electric cables at Weymouth, 55 miles at Horsham, 100 miles at Pembroke and Portsmouth, 22 miles at Birkenhead, &c. Nor is it in Great Britain alone their work is recognised. They have carried out large contracts in Bombay, Calcutta, Kimberley, Malta, and in their list nearly all the letters of the alphabet are utilised. It is not only cables which are manufactured by the firm. They have specialties in junction boxes, disconnecting boxes, feeder boxes, house-service boxes, switch pillars, &c. Messrs. Johnson & Phillips are electrical engineers and contractors, and the words are to be taken in the widest sense.

MR. THOMAS G. JACKSON, R.A., will on Thursdays, March 23 and 30, deliver two lectures at the Royal Institution illustrated by lantern slides, on "The Reasonableness of Architecture," in the place of Sir John Stirling-Maxwell.

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VARIETIES.

A SPECIAL committee of Worcester Chamber of Commerce has prepared a scheme for the formation of a trust for inland waterways in the Severn district.

THE Kensington Borough Council on Tuesday decided to contribute one-third of the net cost of the widening of Church Street and Silver Street, leading from Kensington High Street to Notting Hill Gate.

THE Rugby Town Council have finally adopted a scheme for the extension of the sewage works prepared by Mr. D. G. Macdonald, the town surveyor. A site of about seventy acres was purchased some years ago for this purpose. The outlay is estimated at 17,000*l*.

THE committee on the proposed harbour improvements at Douglas have issued their report. The extension of the berthage for steamers at each side of the Victoria Pier, to a total length of 800 feet on either side, is recommended at an expenditure of 30,000*l*.

THE streets committee of the City Corporation, at a meeting recently held at the Guildhall, resolved to recommend the Court of Common Council to oppose the proposal of the London County Council to run tramways over Blackfriars bridge and along the Victoria Embankment for the purpose of linking up the southern tramway system.

A POLL took place at Wigan last week with reference to the Wigan Corporation Bill, which seeks power to borrow a sum of 165,000*l*. for the purpose of providing a new town hall, new baths, cattle market and other improvements. The result was:—For the Bill, 2,128; against, 1,864; majority for the Bill, 264.

A NEW edition of "English Clubs," a list of over 3,097 clubs frequented by the English in all parts of the world, for 1905, has just been published by Messrs. Spottiswoode & Co., Ltd. It is edited by Mr. E. C. Austen Leigh, M.A. The book, which has been thoroughly revised this year, is handsomely bound in red cloth with gilt lettering and printed in tabular form. It gives much information about each club.

THE Secretary of State for India has sanctioned the proposals for financing the scheme adopted by the Local Government for the improvement of Madras harbour. The scheme provides for the closing of the present exposed harbour entrance, and the opening of another in the north-east wall of the harbour, which will be protected by a breakwater about 1,200 feet long. The cost of the scheme is estimated at 306,666*l*.

THE Finsbury Borough Council are considering the advisability of preparing a scheme for the erection of baths and washhouses in St. John Street. It is proposed to erect a swimming bath 100 feet by 35 feet, and to provide seventy-three men and women's slipper baths and fifty washers. Offices and club-rooms would also be included, and the total cost would be 66,569*l*.

THREE Italian engineers have prepared a project to improve the steamship facilities of Venice. It is proposed that new docks will be built on the left of the railway bridge. The docks will have more than 2½ miles frontage, and the portion in Venice will be connected with the portion on the mainland either by two bridges or by a platform attached to the existing railway bridge. The cost is estimated at a million sterling.

"CORPORATION of Glasgow Municipal Enterprises" is the title of a handbook describing in some detail the work of the various departments of the Corporation. Originally the book was published for the members attending the Sanitary Institute Congress in July last. It has now been reprinted for issue to the public, with an introduction by the Lord Provost and the addition of several pages bringing the information up to date.

MR. W. P. HALE, the surveyor to the Montgomery Town Council, has resigned his position after thirty-one years service, in consequence of the interference of the Council

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in his relations with the workmen. The salary is 7*l.* 10*s.* a year, and a suggestion that he be asked to reconsider the matter was objected to by Mr. Maurice Owen, who remarked that they could get a man to do the work for 2*l.* or 3*l.* a year.

THE New York municipal authorities have just assessed the taxable value of the six principal hotels in the city as follows:—Waldorf-Astoria, 1,837,000*l.*; Hôtel St. Regis, 460,000*l.*; Holland House, 320,000*l.*; Hôtel Belmont, 500,000*l.*; Imperial and Annex, 587,000*l.*; Hôtel Astor, 440,000*l.* Mr. Schwab's residence has been valued at 260,000*l.*, and Mr. W. A. Clark's Fifth Avenue mansion at 420,000*l.*

DR. GORE, the Bishop of Birmingham, in speaking at a meeting on Monday said he understood there had been some correspondence in the papers lately with regard to a new cathedral for Birmingham. He wanted to say this with as much emphasis as possible—that they would dismiss all thoughts of building a great cathedral altogether from their minds for the present, and leave it to another generation. The primary requirement was to erect new churches.

THE Tottenham District Council erected a new fire-station and put up a marble tablet upon which the names of the councillors and officers were duly set forth. The Local Government Board auditor has disallowed the cost of the tablet, intimating that he fails to see how it can be regarded as furniture. He also disallowed the expenses of deputations sent by the Council to the Sanitary Congress and the Congress of the Institute of Public Health.

A MEETING was held at Lahore on January 3 to discuss the question of completing the cathedral by lengthening the nave and raising the two towers. The Bishop explained the plans drawn up by Mr. Bodley, R.A., and showed that the present edifice, which is squat and undignified and foreshortened, owing to financial disabilities at the time of its erection, could be converted into a handsome structure. The cost of the improvements is expected to reach a total of nearly a lac of rupees (6,666*l.*).

A PETITION to the Board of Trade to take steps to prohibit the removal of sand and shingle from the Essex foreshore having been supported by the Harwich Town Council

and by the Urban District Councils at Walton-on-the-Naze, Clacton and Frinton, the Poor Law Guardians in the affected areas are now being asked to endorse the memorial. The general opinion of expert engineers who have been consulted by local authorities on the Essex seaboard is that the continued encroachment of the sea is to a considerable extent assisted by the constant removal of the natural protection of the cliffs.

THE Wolverhampton Board of Guardians have agreed to an expenditure not exceeding 23,253*l.*, in addition to the 177,066*l.* already sanctioned, in connection with the erecting and furnishing of the new workhouse, and for this purpose 25,000*l.* will be borrowed. It was stated the amount incurred up to the present had only been 195,647*l.*, of which the following items had yet to be paid:—Builders, 13,479*l.*; architect, 673*l.*; contractors for pipes, 42*l.*; charges in respect of loan, 50*l.*; due to treasurer, 12,243*l.*

THE Municipality of Vienna will, it is stated, shortly invite tenders for the execution of the following works:—Extension of the tramway system, cost about 256,250*l.*; establishment of a second water system, cost about 120,833*l.*; construction of bridges, cost about 37,500*l.*; extension of electric light system, cost about 250,000*l.*; paving works, cost about 112,375*l.*; construction of a market, cost about 16,666*l.*; of a central abattoir, cost about 20,833*l.*; a museum, cost about 2,083*l.*; works at the central cemetery, cost about 54,152*l.*

THE Hampshire County Council and the rural district councils whose roads have been affected by the extraordinary military traffic caused by the construction of the camps at Bordon and Longmoor, have succeeded in convincing the Secretary for War that their claims for damage—amounting to more than 10,000*l.*—are just, and sums have been received on account. The Army Council at first asked the authorities to recover the amount from the several contractors. The authorities refused to do so, and the Army Council has given way on the point.

A LOCAL Government Board inquiry has been held in Liverpool in regard to an application of the Corporation for sanction to borrow 35,000*l.* for the purchase and demolition of insanitary property under the powers of the Liverpool Sanitary Amendment Act, 1864. The application originally

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was for sanction to borrow 50,000*l.*, but the Local Government Board granted 15,000*l.* to enable the Corporation to get on with work that they had in hand. The 50,000*l.* is part of a sum of 200,000*l.* borrowing powers in respect of which a provisional order was obtained in 1901.

THE Salford Town Council have under consideration a scheme for the erection of salt-water baths. The site of the building will embrace about 2,000 square yards, and the total cost is estimated at 20,000*l.* The building will comprise a second-class swimming bath, a first-class bath with six first-class and twelve second-class slipper baths. A storage reservoir of salt water not less than 100 feet in length by 40 feet in width and 10 feet in depth, the holding capacity being 250,000 gallons of sea water, will be placed close to the embankment of the ship canal at the Salford sewage works.

THE Glasgow Royal Infirmary Board state in their annual report that the subject of reconstruction of the infirmary and the plans affecting interior arrangements in every department have during the past year engaged the constant and anxious consideration of the managers, along with the architect and others, and they are pleased at being able to report that their labours promise to be completed in a short space of time, so that the work of reconstruction may be commenced without delay. The sum required to be subscribed to defray the estimated cost of the entire undertaking is still large, being not less than about 100,000*l.* in addition to what has been already subscribed.

THE streets committee of the Corporation have been considering the London Building Acts (Amendment) Bill about to be introduced into Parliament by the London County Council, and have decided to recommend that the Aldermen of each ward be requested to arrange for wardmotes to discuss the provisions of the measure, and that the Lord Mayor be invited to call a public meeting of citizens and ratepayers in the Guildhall to consider the Bill after the wardmotes have been held. The Kensington Borough Council are inviting the City to send delegates to an early conference of the metropolitan municipal authorities on the subject.

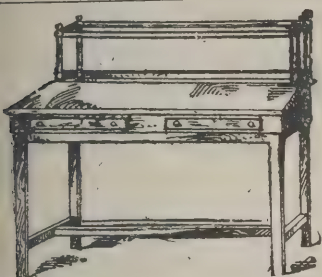
THE Manchester Corporation have made exhaustive experiments concerning the efficiency of destructors dealing with ordinary town refuse. The trials lasted two days, the duration being 16½ hours, and in that period about 40 tons

of refuse were disposed of. The water was fed into the destructors at from 35 to 37 degs. Fahr., and yet each pound of fuel or refuse gave on an average 1.78 lb. of steam. The heat utilised in the production of steam amounted to 36 per cent. The heat carried up the chimney amounted to an average of 19.3 per cent, with an evaporation of 1.8 lb. per lb. of refuse. Such refuse, even when particularly dry, has a steam-raising value equal to five times its weight of Welsh coal.

THE theatres committee of the London County Council have called attention to the non-observance of the Council's rules in regard to scenery, properties, hangings and curtains in places of entertainment being non-flammable, which were adopted on March 1, 1904. Similar regulations were issued by the Lord Chamberlain for the theatres in his jurisdiction on November 1. The theatres committee is informed, however, that the rules are as yet by no means generally complied with, and it has therefore caused a letter to be sent to the managers of theatres calling their attention to the necessity of complying strictly with the rules in question. The Lord Chamberlain has taken similar action with regard to the theatres in his jurisdiction.

THE report made by Mr. James Walker, of Newcastle-on-Tyne, with reference to the damage done to the new Marine Drive sea wall at Scarborough by the recent tidal wave and severe gale indicates that the injury is much greater and more serious than it had appeared. Mr. Walker states that, roughly, 540 feet of the wall has become broken up into lengths by vertical cracks and to have moved slightly forward. At the earliest possible moment measures should be taken to prevent further forward movement and to protect the shale at the toe of the wall from being disturbed and washed away by the action of the sea. The causes of the damage were probably the impact of water against the face and its presence at the back of the wall. Remedial works, however, would not be practicable at this season of the year.

THE Wakefield Town Council contemplate making application to the Local Government Board for sanction to the borrowing of a further sum of 18,000*l.* for the purposes of extensions in connection with the electrical undertaking.



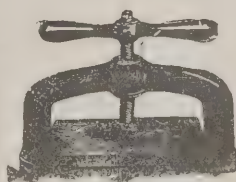
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ELECTRIC NOTES.

THE Macclesfield electricity committee has decided to recommend the Town Council to appoint a consulting electrical engineer to formulate a scheme of electricity supply, the cost of which must not exceed 20,000*l*.

An American firm has secured the contract for the construction of an electric street railway in Montreal. The Americans offered to do the work considerably cheaper than it could be undertaken by local contractors.

THE new refuse-destructor at Preston generates more than sufficient steam to drive the electric trams in the borough and to light the Corporation storeyard, and the scavenging committee are now endeavouring to apply it to the driving of machinery upon their premises.

MR. ROSS HOOPER, a Local Government Board inspector, at the Rochdale town hall inquired into an application made by the Rochdale Town Council to borrow 42,405*l*. to extend the electric works and machinery for the increase of electric lighting, and an extension of the tramways.

THE new electrical and mechanical laboratories at the Preston technical school, which the generosity of the late Mr. John Billington Booth provided, were formally opened on Monday. The trustees contributed 2,500*l*. and Messrs. Dick, Kerr & Co. 500*l*. towards the cost of equipping the laboratories.

IN a report on the subject of halfpenny tram fares in Liverpool Mr. Bellamy, the general manager of the tramways, has reported the opinion that halfpenny stages would seriously jeopardise the commercial stability of the undertaking. As to workmen's fares, he thinks no change should be made, as workmen are rather better off in that respect in Liverpool than elsewhere.

THE Arbroath Town Council were recently informed by the Board of Trade that their provisional order for the introduction of electric light would be revoked owing to the delay. The Board of Trade have since consented to grant a three months' extension in order to enable the Council to bring their negotiations proceeding with a company to a conclusion.

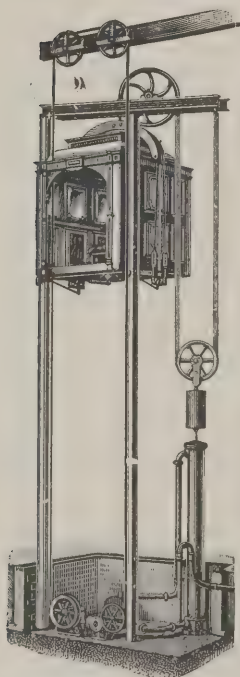
DURING the two days of the exceptionally foggy weather which prevailed during the week preceding Christmas, and when traffic in London was almost paralysed, the takings on the Council's southern tramway lines amounted to over 2,500*l*. The drivers of the electric cars gave most efficient and able service under difficult and trying circumstances, and it was abundantly shown that in weather of that kind electric trams afforded a far superior means of traffic over any other.

THE chairman of the South-Eastern Railway Company stated at the half-yearly meeting on Monday that the decrease in the passenger traffic was mainly due to the falling off where the tram competition was most severe. They could not hope to compete with the electric trams, aided as they were by the rates. They could only meet this competition by taking off a certain number of trains which had been put on for the accommodation of the working classes, and which they were now leaving, and also to a certain extent partially closing some of the stations which were principally affected.

THE organising committee of the electricity section of the International Exhibition of Liège has decided upon introducing a new feature, viz. the reservation of a certain considerable space especially for working electricians. No employer of more than five men will be admitted, and the employer himself must be a working electrician. Small employers will pay a small charge for space, which will be free to workmen exhibitors. The purpose of this reservation is to throw open a field for apparatus and inventions which would otherwise seldom come before the public.

THE Liverpool Corporation electric supply accounts for last year have been issued by the controller and auditor of accounts (Mr. Richard Barrow). These show that the income on revenue account totalled 236,404*l*., of which 135,631*l*. was from electrical energy for lighting and power, 2,371*l*. from public street lighting and 91,674*l*. from tramways. On the expenditure side there is 65,192*l*. for the generation of electricity, 4,752*l*. for distribution, 16,431*l*. for rent, rates and taxes, and 11,455*l*. for management expenses. The net balance amounted to 44,510*l*., of which it has been resolved to transfer 16,285*l*. to the reserve fund, 11,289*l*. to the renewal fund and 16,934*l*. 9*s*. 5*d*. to the general rate.

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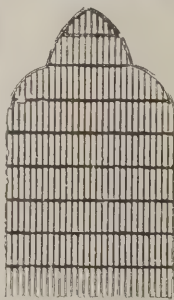
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THE electricity committee of the Manchester City Council recommended the appointment of Mr. S. L. Pearce, electrical engineer, for a period of three years, on the following terms:—Salary for the first year at the rate of £1,000 per annum; for the second and third years £1,000 per annum. Mr. Pearce to enter into an agreement to remain in the employ of the Corporation for three years from February 1, 1905, and to devote the whole of his time to the duties of the position and in carrying out any electrical extensions or works in the future that may be required, the engagement to be subject to any arrangement which the Corporation may from time to time make with consulting engineers.

THE Aberdeen Town Council made an inspection on Friday of the Corporation electricity works and the extension of the subway. The works and machinery, roughly estimated, cost a quarter of a million pounds. For the first half and a half months ending January 19 there has been an increase of 602,418 units of electricity generated, as compared with the corresponding period last year, and the increase in the number of consumers this year compared with last year was 173. The length of the subway is 780 yards. It took thirteen months to build and the cost was £200,000.

THE National Electric Construction Company have given formal notice that an application will be made in March for a provisional order to authorise the construction of tramways from Edinburgh to Queensferry. The starting-point in Edinburgh will be the west end of Princes Street and the termination of the cables at Comely Bank. If the order is obtained from Parliament, satisfactory guarantees will be given that the tramways will be laid and working within the shortest possible time after sanction has been got. In the letter to the town clerk of Edinburgh it is also suggested that the current might be got from Edinburgh Corporation.

THE Edinburgh and Leith gas commission recently sent a letter to the town clerk of Leith in connection with the electric tramways operations, pointing out the disadvantage of leaving gas mains under the tramway tracks, which might necessitate a stoppage of tramway service in order to allow the commissioners to have access to the pipes.

The letter suggested that the Leith Corporation should bear half of the estimated cost of 2,000£ of removing such pipes, the commissioners to bear the other half. A reply has been received from the Leith town clerk declining to undertake the removal of the pipes, with the result that they will have to remain.

THE Lincoln Corporation appear to have got over their difficulty with regard to their scheme for electric tramways. An Act of Parliament was obtained sanctioning the laying of a 3-feet 6-inch gauge, but the electricity works committee later decided to adopt a standard gauge of 4 feet 8½ inches. A communication has been received from the Board of Trade notifying that there will be no need to obtain a new Act. The Act now empowering the Corporation to lay down a gauge is, it is contended, sufficiently elastic to permit the altered scheme to be proceeded with. The main condition is that a space of 9 feet roadway must be allowed between the outer edge of the outer rail and the edge of the kerb, and this can be complied with.

THE Cumberland County Council have been making inquiries into the question of lighting the asylum. Tenders were received for various forms of lighting. From a statement showing the relative cost of the various methods of lighting, along with a comparative statement of upkeep, submitted by the tenderers themselves, the following figures may be given:—Ordinary gas: Initial cost, including repairs of existing asylum, 1,175£; estimated annual upkeep with cost of gas, 666£. Incandescent gas: Initial cost, 1,989£; estimated upkeep, &c., 662£. Acetylene: Initial cost, British Acetylene Company 1,932£, Manchester Acetylene Company 2,219£, Acetylene Corporation of Great Britain 2,835£; estimated annual upkeep, British Acetylene Company 706£, Manchester Acetylene Company 876£, Acetylene Corporation of Great Britain 736£. Electric lighting: Initial cost 6,607£ and annual upkeep 505£.

THE London and North-Western Railway Company propose to alter and enlarge their station at Crewe. This has been rendered necessary by the railway extensions which have been in progress for several years, and have cost more than half a million. The foundations for the new station are being laid. The work is likely to occupy two years.

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TRADE NOTES.

THE additions to the infectious hospital, Bucknall, are being warmed and ventilated by means of Shorland's double-fronted patent Manchester stoves with descending smoke flues, and Manchester grates.

BUILDING AND BUILDERS.

THE War Office have ordered that the work of erecting new quarters at Portsmouth for sub-lieutenants on Whale Island is to be at once proceeded with. The new building is to cost about 50,000*l.*, and will accommodate 100 officers. It is to be completed in seven months.

THE Associated Carpenters and Joiners have selected Glasgow as the "seat of government" for the next three years. At present the headquarters of the Society are in Edinburgh. The voting was:—Glasgow, 1,598; Newcastle, 311; Liverpool, 73; Paisley, 46.

A COMPANY has been formed to acquire the various leasehold interests in the block of property lying between Piccadilly and Regent Street, at present occupied by St. James's Hall, St. James's Restaurant, and other business establishments, and on this magnificent site to erect an hotel and restaurant, with shops on the ground floor. Messrs. Emden & Woodward are joint architects. The outlay is expected to exceed 1,000,000*l.*

A LARGE amount of money has to be expended in the Middlewich and Winsford districts of Cheshire upon the erection of new schools and the enlargement of existing schools. Plans for a new Council school at Middlewich are being considered, and it is estimated that the cost will be about 13,000*l.* A new infant school is required at Winsford. High Street Council school (Winsford) is to be enlarged, and the tender of a local firm at 3,948*l.* has been accepted.

THE Carpenters' Company have arranged a series of lectures to be delivered in their hall in London Wall on Thursdays in February and March, commencing on the 16th inst., when Sir William White, F.R.S., will discourse on "Modern Warships." The other lectures are "Our Old Parish Churches," by Rev. W. Marshall; "The Livery

Companies and their Halls—Ancient and Modern," by C. Welch; "The Origin and Development of the College Plan at Oxford and Cambridge," by Mr. J. Willis C. "The St. Louis Exhibition, 1904," by Mr. H. Ph. Fletcher; and "The Cultivation of Oak, Ash, Beech and other Hardwood Trees in the British Isles."

THE Liverpool Builders, Contractors and Property Owners' Defence Association held their third annual meeting last week. During the past year the question of extending short leaseholds into 999 years lease has been under consideration, and letters had been sent to the Earl of Sefton and the Marquis of Salisbury asking them to give the matter their careful consideration. Several matters of dispute that had arisen between corporate officials and members were effectively dealt with. A letter has been sent to the Corporation recommending them to keep a register of furniture removers and compelling each of them to furnish a list each week of all removals, with particulars as to where from and where to the furniture has been removed. The effect of this, it is hoped, would be a great saving to property owners and the city fund generally.

THE original Parliamentary estimate for the construction of the London County Council of the Greenwich Tunnel was 70,500*l.* only, whereas up to date the cost appears to be 180,117*l.*, and there is more to come. The discrepancy arises from the scant provision made for the acquisition of land. The sum set apart for the purpose was 5,500*l.*, but the disbursements in this direction now stand at 58,000*l.* On this point the finance committee state in their report: "Much of the additional cost is due to clauses which were inserted in the Bill when it was before the committee in Parliament, but we cannot help thinking that it ought to have been possible to frame a more satisfactory estimate of the probable cost of this undertaking than that originally placed before the Council."

THE Surveyors' Institute discussed on Monday the question of building by-laws. Mr. Herbert Smith declared that in country districts the mischievous attempt to amend the building laws of London had been attended with great injury to public interests and in some instances with discredit to the authorities. He advocated the formation of a tribunal to which there should be a right of appeal from

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sions of local authorities. Mr. McMorran, K.C., said by-laws from beginning to end required revision, and vision by experts who knew where the shoe pinched. felt that the time had come when a building code should be prepared which was capable of being understood by everybody, and which should serve for the whole country, never being given to local authorities to make by-laws as matters of detail to meet local requirements.

The committee of Edinburgh plumbers and ironmongers unanimously agreed that the following resolution with reference to the decision of the Gas Commissioners on the subject of municipal trading be sent to the Commissioners:— That the joint committees of plumbers and ironmongers get the decision of the Gas Commissioners on the subject of municipal trading, and also that no reply has been given to the prayer of their memorial, viz. that a committee be appointed to confer with the traders with a view to preparing a working arrangement. The committee feel that it is due to the public that an independent investigation should be made into the working of that department with the view of ascertaining correctly what if any profit is the result of the operations thereon distinct from the manufacture and sale of gas, and also whether the additional gas consumer in consequence of the use of gas-burners has effected the reduction in the price of gas which is claimed for it, more particularly as it is understood that the accounts of the Commissioners for the last financial year showed a considerable adverse balance."

THE WAGE PROBLEM IN LIVERPOOL.

The Liverpool City Council will soon have to decide, says the correspondent of the *Liverpool Courier*, two important questions of principle. Are the wages of the unskilled labourers of the Corporation to be advanced to 24s. a week, irrespective of length of service and the nature of the work upon which they are employed? Should such increase, if granted, be accompanied by any restriction as to age? I should like to make some suggestions in regard to what is involved in the proposal. At its last meeting the Council adopted Mr. Byrne's amendment in favour of paying 24s. a

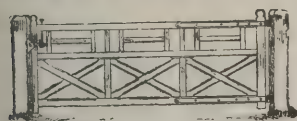
week to able-bodied labourers without any condition regarding age, but when it was sought to be passed as a substantive motion a Liberal alderman announced his intention of moving the restoration of the expunged clause respecting the age limit, whereby it was provided that this higher wage should only be paid to able-bodied workmen above twenty-one and under fifty years of age. At this stage the debate has yet to be resumed.

The attempt to carry the proposal with or without an age limit, it will be realised, places the Council on the horns of a dilemma. If no such limit be imposed the older labourers will no doubt soon have cause to rue the sort of "betterment" in contemplation. Corporation officials have a sufficient sprinkling of human nature in their composition to wish to earn the credit of producing the best results with the means at their disposal. This is my experience of them. If a wage of 4s. per day be compulsory these officials will give preference to the able-bodied man in his prime, and the bitter cry of the Corporation labourer, "too old at fifty" or at forty-five, and even younger, will soon be heard throughout the city. On the other hand, if the increased wages be granted and the age limit enforced, the result must in many instances be prejudicial to the men of younger middle age. The proffered services of the robust labourer a little below twenty-one or just above fifty will always be accepted because he will only be entitled to the lower wage, and the able-bodied man between these ages will have to take his chance of employment. The difficulties of the position need not be accentuated, they are obvious and apparently insurmountable. It is only right that the Council should realise the hardships which it must inevitably inflict upon one or other class of labourers if it should resolve to change the existing order of things.

The problem is further complicated by the present stagnation of trade and commerce in Liverpool, as elsewhere. Those who advocate the proposal to which I refer ought logically at the outset to move that the municipal rates for 1905 be increased by a penny, and perhaps three halfpence in the pound. The adoption of the 4s. a day suggestion would necessitate an immediate increase of at least 13,000*l.* a year in the Corporate expenditure. There are financial authorities who hold that the outlay will be much greater. That sum would undeniably be the

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minimum cost of placing the whole of the able-bodied labourers on a uniform wage of 24s. a week, but, unfortunately, it makes no provision for increased earnings by the labourers who, by reason of experience, superior capabilities and the better class of work with which they are entrusted, already receive 4s. a day. If the lower grade of unskilled labourer be paid better wages the higher ranks must in common fairness be correspondingly increased. This aspect of the matter has not been considered in the estimate of 13,000l. It is, indeed, calculated that the adoption of the proposal will involve the Corporation in an additional outlay of 18,000l. to 20,000l. a year. Is this the right moment to impose such an extra burden upon the ratepayers?

The current rate of wages for this class of labour in Liverpool is 18s. to 21s. a week. Under the prevailing system all unskilled Corporation labourers receive a minimum wage of 21s. a week. Sweepers whose wages are nominally 21s., are actually paid 22s. 9d. on account of a few hours' work performed on Sundays. Other classes of unskilled labourers are now receiving wages ranging up to 24s. a week, their payments being adjusted according to their abilities and the character of their work. Matters are, in fact, so arranged that as a man shows adaptability and opportunities for better work arise, he gradually rises from 21s. to 24s. a week, while other advantages of the Corporate service are regularity of employment, a small compensation in case of injury or death, and also some recompense in case of enforced retirement after long service. The innovation now suggested is that a man coming to Liverpool straight from the plough, with no experience and no talent beyond mere physical strength, should immediately receive 24s. a week. It is not difficult to foresee that when an offer of this kind becomes known in the country districts there will be such an influx into this city as will add materially to the difficulties of our own unemployed problem.

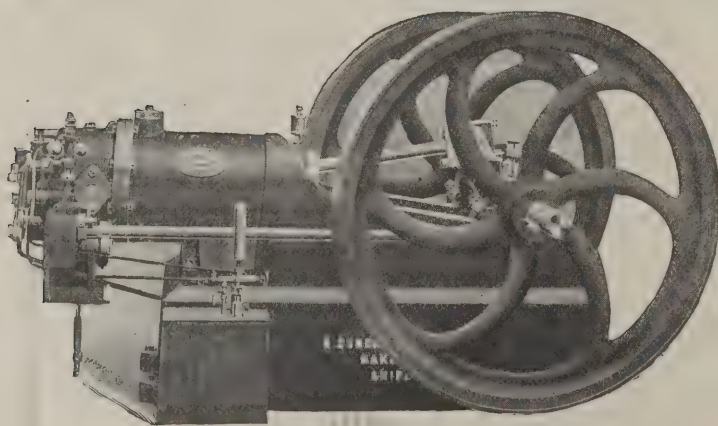
Many struggling business men in Liverpool to-day find it hard enough to pay the current rate of wages for unskilled labourers. It is proposed that these citizens should be still more heavily rated to enable the Corporation to pay increased wages to draw to its service the best labour of the kind in the market. One of the severest reproaches made against the Tammany system is that it uses public money

to pay inflated salaries to public servants. It might be considered a misuse of terms to designate 24s. a week earned by a labourer as an inflated salary; but, after all, these phrases are only comparative. If the standard rate of wages for an unskilled labourer ranges from 18s. to 21s. a week, and the rating authority taxes the community to pay its particular unskilled labourers 24s. a week, one of the most vicious principles underlying Tammany will have been imported into the municipal government of Liverpool. A special committee of the Council has already reported against the proposal, and its investigations were directed mainly to the effect which its adoption would have upon the Corporate service. Have the Council yet considered the influence of such increased wages in tempting the agricultural and other unskilled labourer to gravitate to Liverpool in search of work rather than to Manchester, Leeds, Birmingham or other populous centres? Have they reflected on the position in which they will thereby place the Dock Board, the railway companies and employers of labour generally? If the Corporation pays its labourers 24s. a week these concerns may be driven, in the stress of competition, to follow suit. That is precisely the result at which certain Labour leaders are aiming, and while in some respects it is a consummation devoutly to be wished, it must not be overlooked that heavier burdens will in that event be borne by the ratepayer, while the strain may be too severe for many a private firm.

When a public authority makes its service attractive by paying more than the standard rate of wages, it is well-nigh impossible to keep clear of the cloven hoof of political corruption. Attempts in this direction have not been altogether unknown even under the present system. What the result will be if the Corporate service be made more remunerative than any other it needs no gift of prophecy to foretell. The proposal, I am convinced, would be prejudicial to the workmen themselves, because in the weeding-out process to which it would inevitably give rise many of the present employes would be driven to swell the ranks of the unemployed. The ratepayer may also murmur that the very period when the most rigid economy has been practised in every other department of municipal life, solely out of pity for his pecuniary distress, should be chosen for casting this additional burden upon his shoulders.

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ADVICE TO ART STUDENTS.

THERE was a large attendance at the Birmingham Central Municipal School of Art, Margaret Street, on Saturday evening, says the *Birmingham Daily Post*, when the Government and local certificates won by the students during the past year were distributed.

The Chairman (Mr. C. J. Hart) briefly addressed the students on the advantages of drawing from utilitarian and other points of view. He thought a knowledge of drawing as essential to almost everyone in a great place of industry like Birmingham. It was particularly useful to carpenters, joiners, bricklayers and everyone connected with the building trade, and the stonemason was also one who would find study indispensable. They should not, however, rest content with the commercial value of drawing. There was great pleasure to be derived from the study of art, and it also taught students to observe, so that when they went into the country they understood what was beautiful and could properly appreciate it.

Mr. Edwin Smith opened his address with a reference to the object of the branch classes held in the elementary schools. It was often said that these evening classes met in buildings that were unsuitable for the teaching the students desired to obtain, and that, feeling this, they worked in the classes under a sense of discouragement. That was undoubtedly true to some extent, but not, he thought, to the full extent of the complaint. The school committee knew that the best art teaching could only be given in schools like the Central and those at Moseley Road and Vittoria Street. In those the permanent fittings could be properly adapted to the teaching, and care could be taken that the students were continuously supplied with those necessary examples to their studies which required special preservation from lesson to lesson. The primary object of the classes in the elementary schools was to rightly prepare students for the teaching in the committee's own buildings. The committee did not desire to encourage the higher teaching in these branch evening schools. They knew it could not be efficiently done in them, and they did not therefore attempt to supply the appliances necessary for the most advanced work. They were, however, satisfied that really good work

in the teaching of drawing could be done in these classes, and they were striving to help the head-masters in every way to make the work not only more effective from year to year but also more and more interesting to the students.

Yet, however strongly the committee might be convinced that this part of their work might be useful, they could not disregard the unmistakable evidence they had before them that the feeling or prejudice that the elementary schools were not the right places for the work was not to be completely overcome. At Moseley Road and Vittoria Street there were about 1,000 students in the evening classes between the two schools. At Moseley Road alone the number was from 400 to 450. In the nine branches held in the elementary schools of the city the total number of students did not reach 1,200, and in no one of them did it come up to 200. There could be no more striking lesson than this of the need of suitable buildings for use as branch schools of art. Such buildings need not necessarily be costly. Three or four large plain classrooms with suitable offices were all that was essential. The ornament for the rooms could best be provided in the examples to be placed on the walls. In some such way he hoped they might find the solution of the difficulty that was delaying their progress, for he felt with, he believed, his colleagues on the committee that as long as the Moseley Road school failed to be fully occupied in the day as well as in the evenings the Council would not think it true economy to provide a series of branch schools on the scale of that school. The committee did, however, think that the time was approaching when they might hope that in some less costly form the Council would recognise the demands that were so frequently heard from their students for separate and more suitable buildings for their art teaching. Proceeding, Mr. Smith asked for the active help of the students and their friends in making known as widely as possible the advantages the branch classes offered. He understood that more than 5,000 pupils became qualified every year to leave the elementary schools in the city. As regarded these pupils, the committee of the School of Art had largely adopted the principle of the open door. Free admissions to the branch schools, which might be held for two years, were offered without competition or examination to all the school-leaving pupils whom their teachers would



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recommend. The committee did not expect to get into the branch schools of art all the 5,000, but they would welcome the embarrassment they would temporarily experience if they all came, for that would hasten the day for the provision of the separate buildings they were asking for. The number who came to the branch schools—from 400 to 500 annually—seemed to show either that the offer of the committee was not known to all the pupils until it was too late to ask the head-master of their school for the recommendation, or that too many of the leaving pupils looked upon the end of their elementary school teaching as the completion of their education. These free admissioners became eligible to compete for free places at the central school, and also for scholarships which would enable them to continue their art education there or at Vittoria Street.

Addressing the young students who were present, Mr. Smith said they had shown a desire to take advantage of the privileges offered them, and he advised them to add to the knowledge they obtained by cultivating powers of observation and by serious reading. Many of them were perhaps just ceasing to read books of adventure and fancy. If those books had been well chosen and had brought them into relation with nature, like the tales of Fenimore Cooper or Kipling's jungle stories did, and had not been tales of fancied adventure amongst the criminal classes, their powers of observation would have been properly stimulated. Having finished their books of adventure they would be looking to another type of fiction, and here it was even more important that they should choose wisely, for unless their taste for this fiction was soundly formed at the outset, they would be unable in later life to distinguish between what was good and what was worthless, because it would stifle in them, instead of stimulating, the nobler emotions they had, and which alone could help them to use serviceably and happily the teaching they received. He would advise them to begin this class of fiction with Walter Scott. Let them read "Ivanhoe." There was adventure enough in it and there was also a charming story which maintained its interest throughout. When they had read it they might perhaps be led to visit the beautiful country round Ashby-de-la-Zouch, where the scene of the tournament was laid. Then they should read "Kenilworth," because it

belonged to them. They were not only sons and daughters of Birmingham, but nearly all of them of Warwickshire also, and they should be proud of their county as well as their city. They should learn all they could of its history of the great events which had taken place in it, of the great men who had lived in it, and see all they could of its beautiful scenery. He also advised them to read George Eliot, because she was one of the great writers who were born in Warwickshire, and who knew and described some of its most interesting features. They would also find in her books a way without guidance to the great writers of English prose and poetry, such as Ruskin and Keats, whose knowledge of whose works would certainly be of use to them whether they intended to reach the higher levels of craftsmanship or to follow the professional life.

He recommended that whenever they went into the country they should previously spend half an hour in the library learning something of the history or natural history of the place they were going to visit, and what of especial interest they should look for there. There were few villages or places that could not be connected with some event or some name if they would but take the trouble to learn it. They could not go many miles from Birmingham without feeling the truth of this, and once they acquired the habit of observation they would not only see what they set out for, but would gradually grow to observe all the beautiful things around us. A writer had said that to fully understand the beauty of the dawn one must live in the East. He did not wish to dispute the statement, but a few days after reading it it so chanced that he saw something about the influence of the colder North on the imagination. It was the story of an old Scotchman who was seen standing bareheaded on the seashore at sunrise. Asked why he had removed his hat, he said, "On a morning like this I always salute the glory of the world." In whatever climate we might be born, he believed that this feeling was part of our inheritance, and that it depended very largely on our individual selves whether we hid the talent in a napkin, or whether by using it we made it return to us more than twofold in the added pleasure and joy of our lives.

Mr. Smith then distributed the certificates to the successful students and was afterwards accorded a vote of thanks.

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EDITORIAL NOTICES.

In view of the many difficulties which are certain to arise in connection with the law, practice rules and procedure under the Workmen's Compensation Act, we have added to our staff A VERY EMINENT BARRISTER, who has made the subject a special study, and will be glad to answer in the columns of this paper any questions relating to the complicated matters arising from the provisions of this difficult Act. Our LEGAL ADVISER will further answer any legal question that may be of interest to our readers. All letters must be addressed "LEGAL ADVISER," Office of "The Architect," Imperial Buildings, Ludgate Circus, London, E.C.

The Editor will be glad to receive from Architects in London and the Provinces results of Competitions and Tenders and other particulars of Works in progress in which they may be interested.

The authors of signed articles and papers read in public must necessarily be held responsible for their contents.

No communication can be inserted unless authenticated by the name and address of the writer—not in every case for publication, but as a guarantee of good faith.

Correspondents are requested to make their communications as brief as possible. The space we can devote to Correspondence will not usually permit our inserting lengthy communications.

TENDERS, ETC.

*** As great disappointment is frequently expressed at the non-appearance of Contracts Open, Tenders, &c., it is particularly requested that information of this description be forwarded to the Office, Imperial Buildings, Ludgate Circus, London, E.C., not later than 2 P.M. on Thursdays.*

COMPETITIONS OPEN.

AYLESBURY.—Feb. 28.—For public elementary school for 750 children. Premiums 50*l.* and 25*l.* Conditions and plan of site obtainable from Mr. C. G. Watkins, Education Secretary, Aylesbury, on payment of 1*l.* is.

LAMBETH.—March 30.—For municipal buildings at Brixton Hill. Particulars from Mr. H. J. Smith, Town Hall, Kennington, S.E.

NELSON.—March 4.—Designs for a free public library. Premiums of 50*l.*, 25*l.* and 15*l.* Mr. J. H. Baldwick, town clerk, Town Hall, Nelson.

PRESTON.—Feb. 28.—Designs and plans for new elementary school. Premiums of £50, £30 and £20. Plan and conditions from Director of Education, Education Offices, Preston.

WOLVERTON.—Feb. 28.—For public elementary school for 400 girls and 400 infants. Premiums 50*l.* and 25*l.* Also for secondary school to accommodate about 120 boys and girls. No premiums offered. Conditions to be obtained on payment of 1*l.* is. in each case from Mr. C. G. Watkins, Education Office, Aylesbury.

CONTRACTS OPEN.

ABERGAVENNY.—Feb. 16.—For internal repairs to eleven cottages and external repairs to fifteen cottages, and other works. The Gas Manager, Gasworks, Abergavenny.

ATCHAM.—Feb. 17.—For the erection of an additional storey to the bath-room in the infirmary. Mr. A. B. Deakin, architect to the Guardians, Pride Hill, Shrewsbury.

BANBURY.—Feb. 15.—For repairs in the large hall, town hall. Mr. N. H. Dawson, borough surveyor, Town Hall, Banbury.

BATLEY.—Feb. 14.—For alterations to shop in Market Place—joiners' work. Borough Engineer, Batley.

BEAMINSTER.—Feb. 16.—For the erection of school and alterations to the school buildings in Hogshill Street, Beaminster, Dorset. Mr. Robert Leigh, clerk to Governors, Beaminster.

BELGRAVE.—Feb. 23.—For the erection of a manager's house and boundary wall in connection with the new pumping station at Belgrave, Leicester. Mr. E. George Mawbey, borough engineer, Town Hall, Leicester.



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BORSTAL.—Feb. 17.—For additions to the parish church of St. Matthew, Borstal, near Rochester. Mr. W. T. Margetts, architect, Bankside, Borstal Road, Rochester.

BRADFORD.—Feb. 15.—For providing and fixing new shop-front at 2 Market Buildings, Kirkgate, for the Corporation. Mr. F. E. P. Edwards, city architect, Brewery Street, Bradford.

BROADSTAIRS.—Feb. 11.—For erection of steps from the parade to the sands at Louisa Gap, Broadstairs. Mr. Howard Hurd, town surveyor, Council Offices, Broadstairs.

BURY.—Feb. 18.—For the construction of a storage reservoir on the Scout Moor brook. Mr. J. Cartwright, engineer to Bury Water Board, Peel Chambers, Bury.

CARLISLE.—Feb. 17.—For the rebuilding of Her Majesty's Theatre, Carlisle. Messrs. W. H. Bendle & Wm. Hope, architects, 33 Grainger Street West, Newcastle-on-Tyne.

CHILWELL.—For making alterations and additions to the Co-operative Stores, Chilwell, Nottingham. Mr. E. R. Ridgway, architect, Long Eaton.

CLEATOR MOOR.—Feb. 20.—For the erection of a public library. Mr. R. Robertson, Public Offices, Cleator Moor, Cumberland.

CORFE CASTLE.—Feb. 13.—For building of Corfe Castle Wesleyan church and school. Rev. T. Ivens, Melita, Swanage.

DARTFORD.—Feb. 22.—For the erection of additional buildings at Joyce Green hospital, near Dartford, Kent, for the Metropolitan Asylums Board. Messrs. A. & C. Harston, 15 Leadenhall Street, E.C.

ECCLES.—Feb. 18.—For the fitting of the vestry hall, Liverpool Road, Patricroft, as a free library. Mr. Edwin Parkes, town clerk, Town Hall, Eccles, Lancs.

ELGIN.—Feb. 13.—For the erection of a dwelling-house in extension of the White Horse inn, Elgin. Mr. R. B. Pratt, architect, Town and County Bank Buildings, Elgin.

ELGIN.—Feb. 15.—For various works and ironwork of buildings in connection with purification works; also for chimney-stack, cast-iron piping from distilleries to works and water supply and concrete reservoir. Mr. Charles C. Doig, architect, Elgin.

GALLEYWOOD.—Feb. 11.—For supply of materials and construction of foundations and chimneys for an isolation hospital, Galleywood, Essex. Mr. Arthur S. Duffield, clerk, 98 High Street, Chelmsford.

GATESHEAD.—Feb. 28.—For the erection of a Wesleyan Methodist church in Durham Road, Gateshead. Mr. W. Stanley Ellison, architect, 22 Sir Thomas Street, Liverpool.

GLASGOW.—Feb. 14.—For the execution of the several works required in alterations in certain sheds at the cattle market. Office of Public Works, City Chambers, Glasgow.

GREAT HORTON.—Feb. 15.—For the erection of warehouse at the central stores, Great Horton, Bradford. Messrs. John Drake & Son, architects, Queensbury.

GUISELEY AND MENSTON.—Feb. 15.—For the erection of the following buildings:—A pair of semi-detached villas at Guiseley; additions to Claybanks, Guiseley; a pair of semi-detached villas at Menston. Mr. Harold Chippindale, architect, Guiseley, Yorks.

HARRINGTON.—Feb. 18.—For all the trades (except the mason and brickwork) required in the erection of two houses, Harrington, Cumberland. Messrs. W. G. Scott & Co., architects and surveyors, Victoria Buildings, Workington.

HARROW-ON-THE-HILL.—Feb. 18.—For building a new isolation ward block and enlarging and extending the existing buildings at the hospital field, Pinner Lane, Harrow. Mr. J. Percy Bennetts, engineer and surveyor to the Council, Harrow-on-the-Hill.

HAWKSWORTH.—Feb. 13.—For the extension of the Bradford Golf club-house at Hawksworth, near Guiseley. Messrs. Adkin & Hill, architects, Prudential Buildings, Bradford.

HESSENFORD.—Feb. 11.—For erection of schoolroom, classrooms, &c., in connection with the Wesleyan chapel at Hesseford, near St. Germans. Mr. S. P. Hosking, architect, Landrake, St. Germans.

HOO.—Feb. 20.—For the enlargement, alterations and other works at the Council schools, Hoo (St. Werburgh), for the Kent education committee. Mr. Geo. E. Bond, architect, Pier Chambers, Chatham.

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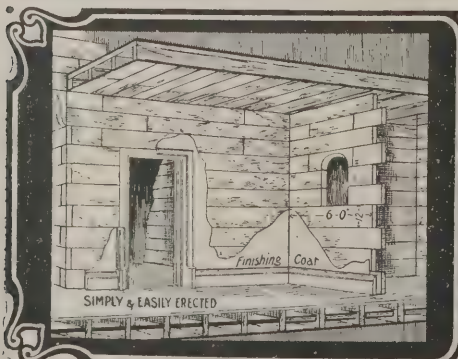
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HUSTHWAITE.—For the erection of a villa (stonefaced) at Husthwaite, near Easingwold, Yorks. Mr. Thomas Stokes, architect, Thirsk.

IRELAND.—Feb. 14.—For rebuilding business premises, &c., at Ferryquay Street, Londonderry. Mr. J. P. M'Grath, architect, Commercial Buildings, Foyle Street, Londonderry.

IRELAND.—Feb. 17.—For the construction of breakwaters, wharf, booms, slip and other works at Cape Clear, co. Cork. Secretary, Office of Public Works, Dublin.

LANCHESTER.—Feb. 11.—For building house and workshop in Ford Lane, Lanchester. Mr. Thos. E. Taylor, architect, Prospect House, Lanchester.

LEIGH.—Feb. 22.—For the construction of a new bridge at Nel-Pan Lane, Westleigh, Lancs. Mr. Tom Hunter, borough engineer and surveyor.

LIVERSEDGE (YORKS).—Feb. 16.—For the erection of a bungalow at Liversedge. Messrs. John Kirk & Sons, architects, Huddersfield and Dewsbury.

LONDON.—Feb. 14.—For the erection of a generating station at South Kensington, for the Commissioners of H.M. Works and Public Buildings. Chief Engineer, H.M. Office of Works, &c., Storey's Gate, S.W.

LONDON.—Feb. 17.—For the enlargement of sorting office at Willesden, N.W. Mr. J. Wager, H.M. Office of Works, Storey's Gate, S.W.

LONG EATON.—Feb. 20.—For the erection of a free library in Sawley Road, Long Eaton. Messrs. Gorman & Ross, architects, York Chambers, Long Eaton.

MANCHESTER.—Feb. 16.—For reconstruction of Minshall Street bridge, over the Rochdale Canal. City Surveyor's Office, Town Hall, Manchester.

MANCHESTER.—Feb. 16.—For the erection of a large convenience (sanitary fittings excepted) at Heaton Park, City Architect, Town Hall, Manchester.

MIDDLETON.—Feb. 13.—For the erection of refuse destructor buildings and boiler-house on the electricity works site, for the Corporation. Mr. S. Pauls, borough electrical engineer, Town Hall, Middleton, Lancs.

MIDDLETON.—Feb. 14.—For the extension and alteration of the Council school at Rhodes. Mr. Welburn, borough surveyor, Town Hall, Middleton, Lancs.

MONKTON.—Feb. 15.—For alterations and repairs at Court Hall, Monkton, Devon. Messrs. E. H. Harbottle & Son, architects, County Chambers, Exeter.

NORLAND.—Feb. 13.—For the erection of three houses and outbuildings at Scar Head, Norland, Yorks. Mr. S. Wilkinson, architect, Sowerby Bridge.

NOTTINGHAM.—Feb. 20.—For the erection of engine and boiler-houses at the Boughton pumping station. Mr. W. B. Starr, architect, 12 St. Peter's Gate, Nottingham.

OULTON.—March 17.—For the enlargement of the Oulton Council school buildings, near Lowestoft. Mr. F. W. Richards, architect, 14 Stanley Street, Lowestoft.

PORTSMOUTH.—Feb. 13.—For the erection of a school in Copnor Road. Mr. G. C. Vernon Inkpen, architect, 40 Commercial Road, Portsmouth.

ROTHERHAM.—Feb. 17.—For the erection of stabling, tower-waggon shed and coachhouse in Rawmarsh Road, Rotherham. Mr. J. Platts, architect, High Street, Rotherham.

RUGBY.—Feb. 13.—For building brick graves and vaults at the cemetery, Clifton Road. Mr. D. G. Macdonald, superintendent.

SCOTLAND.—Feb. 15.—For the various works of proposed alterations on Kingask Cottage, near Cupar-Fife. Mr. David Storrar, architect, Cupar-Fife.

SHEFFIELD.—Feb. 17.—For widening the masonry bridge over the river Loxley at Langsett Road, Hillsborough. Mr. Chas. F. Wike, city surveyor, Town Hall, Sheffield.

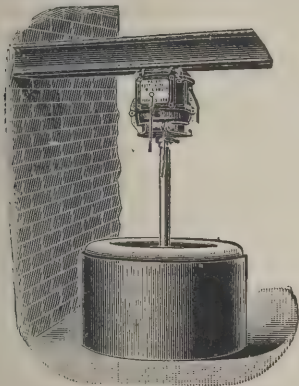
SOUTH SHIELDS.—March 18.—For the erection of municipal buildings in Westoe Road. Mr. Ernest E. Fetch, architect, 26 John Street, Adelphi, London, W.C.

THURLSTONE.—Feb. 20.—For building new Church school for seventy children. The School Managers, Thurlstone Rectory, Kingsbridge, South Devon.

WALES.—Feb. 11.—For the erection of a chapel and schoolroom at Maesycwmmmer. Mr. R. L. Roberts, architect, Abercarn.

WALES.—Feb. 11.—For the erection of an excise bonded warehouse at Narberth. Mr. James Williams, Narberth.

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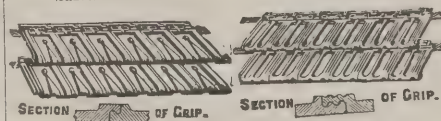
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WALES.—Feb. 13.—For the erection of a boys' school and the execution of works connected therewith at Caegarw, Mountain Ash. Mr. W. G. Thomas, architect, Public Offices, Mountain Ash.

WALES.—Feb. 13.—For the erection of 37 cottages at Mountain Ash, also for the construction of streets and surface-water drains, for the Aberffwrdd Building Club. Messrs. Morgan & Elford, architects, Mountain Ash.

WALES.—Feb. 13.—For the erection of a workmen's institute at Llansamlet. The Rev. J. Martin Griffiths, the Vicarage.

WALES.—Feb. 17.—For alterations to the Red Cow inn, Glebeland Street, Merthyr. Mr. C. M. Davies, High Street, Merthyr.

WALES.—Feb. 20.—For the erection of twenty houses at Crumlin, Mon, for the Mill Brook Building Club. Mr. A. J. Bowen, architect, Glen View, Crumlin.

WALES.—Feb. 20.—For erection of fifty houses at Wattsville, North Risca, Mon, for the Risca Urban District Council. Mr. A. J. Dardis, surveyor, Council Office, Risca.

WALES.—Feb. 24.—For the erection of a Congregational church at Penydarren, Merthyr Tydfil. Rev. T. B. Mathews, 60 Brynhyfryd, Penydarren.

WALES.—Feb. 27.—For alterations and additions to the National schools, Raglan, Mon. Mr. W. H. D. Caple, architect, Church Street Chambers, Cardiff.

WHEATLEY HILL.—Feb. 16.—For the erection of club premises and caretaker's house at Wheatley Hill, Durham. Mr. H. T. Graddon, architect, 22 Market Place, Durham.

WOKING.—Feb. 11.—For supply and erection of a retort-house constructed of steel stanchions, roof and girders, and covered with corrugated iron, for the Woking District Gas Company. Messrs. W. A. Valon & Son, 140 Temple Chambers, E.C.

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Fasey	4,201	13	2
Jackson	4,170	19	4
Turner	4,095	7	5
Somervail & Co.	4,054	2	11
Wilkinson Bros.	3,968	0	0
Cunningham, Forbes & Co.	3,905	4	8
Pethick & Co.	3,749	0	0
S. W. Harrison & Co.	3,692	0	0
Thorne	3,688	3	5
Herring & Sons	3,637	16	8
Horsell	3,576	7	11
Catley	3,393	0	0
P. P. Gilbert Thompson & Co.	3,365	5	10
Muirhead, Greig & Matthews	3,352	2	8
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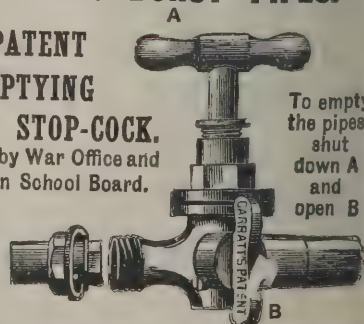
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Holloway	13,185 0 0
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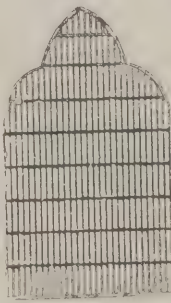
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ENFIELD.

For erecting a day-room at the workhouse. Mr. T. E. KNIGHTLEY, architect.			
L. & W. H. Patman	£388	0	0
Almond & Son	385	0	0
Pearce	375	0	0
Fairhead & Son	350	0	0
Sands & Burley	344	0	0
Kind	318	0	0
Thomas	292	0	0

GUILDFORD.

For the erection of a new scarlet-fever pavilion, as well as certain small additions to the administration block and outbuildings at the Woodbridge hospital. Mr. E. L. LUNN, architect.

Holden	£3,816	0	0
Smith	3,656	0	0
Swayne & Sons	3,585	0	0
Kingerlee & Sons	3,581	0	0
Higgs & Outhwaite	3,537	0	0
Crosby & Co.	3,531	0	0
Jenkins & Sons	3,524	0	0
Higlett & Hammond	3,504	0	0
Drowley & Co.	3,494	0	0
Martin, Wells & Co.	3,475	0	0
McCarthy & Frith	3,446	0	0
Ellis	3,445	0	0
Smith & Sons	3,350	0	0
Tribe & Robinson	3,345	0	0
Hughes	3,330	0	0
MITCHELL BROS. (accepted)	3,320	0	0
Oak Building Co.	3,316	0	0

LONDON.

For the supply of heating apparatus at Sydenham Hill Road school.

Kite & Co.	£600	0	0
Brightside Foundry and Engineering Co.	560	0	0
Haden & Sons	557	0	0
Wippell Bros. & Row	540	0	0
Haden & Sons (alternative estimate)	538	0	0
Defries & Sons, Ltd.*	522	5	0

* Recommended for acceptance.

LONDON—continued.

For the erection of proposed block of working-class dwellings in Lower Cross Road, Hampstead.

Mattock & Parsons	£13,356	0	0
Hudson & Co.	12,589	0	0
Martin, Wells & Co.	12,560	0	0
Wallis & Son	12,273	0	0
Perry & Co.	12,100	0	0
Nightingale	11,936	0	0
Johnson & Co.	11,900	0	0
Knight & Son	11,895	0	0
Patrick	11,889	0	0
Applebee & Sons	11,800	0	0
Cowley & Drake	11,644	0	0
C. Wall, Ltd.	11,568	0	0
Saunders	11,489	0	0
Lawrence & Sons	11,484	0	0
Gutteridge	11,480	0	0
Davy & Jones	11,356	0	0
J. Parsons	11,355	0	0

For the execution of sanitary works at the Kilburn Lane school.

Neal	£398	0	0
Durbin & Katesmark	359	0	0
Davis & Bennett	353	0	0
J. & M. Patrick	329	0	0
Cowley & Drake	320	0	0
Godson & Son	315	0	0
Bull	299	0	0
R. P. Beattie*	286	8	0

For the execution of sanitary works at the Hackford Road school, Brixton.

Lathey Bros.	£609	0	0
Parker	589	0	0
Durbin & Katesmark	558	10	0
Goad	555	0	0
Davis & Bennett	543	10	0
W. J. Mitchell & Son	525	0	0
L. Whitehead & Co., Ltd.	506	0	0
J. & C. Bowyer	500	0	0
R. P. Beattie*	481	10	0

* Recommended for acceptance.

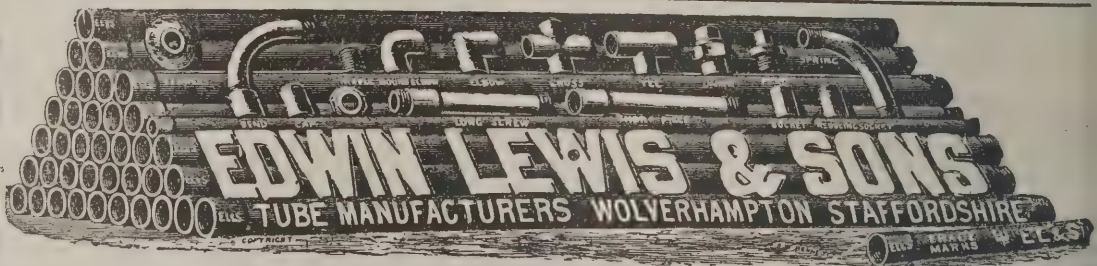
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LONDON—continued.

For new post office at Chelsea, for H.M. Office of Works, &c.

Colborne	£13,900	£13,790
Christie	13,645	13,528
Gibson	13,585	13,500
Ansell	13,499	13,431
Triggs	13,188	13,188
Renshaw	12,971	12,871
Ferguson & Co.	12,898	12,873
Bulled & Co.	12,756	12,704
Lole & Co.	12,724	12,694
Williams, Ltd.	12,647	12,567
Stimpson & Co.	12,460	12,442
Mowlem & Co., Ltd.	12,448	12,326
Foster Bros.	12,438	12,438
Appleby & Sons	12,327	12,227
Cropley Bros., Ltd.	12,293	12,310
Leslie & Co., Ltd.	12,223	12,100
Lawrence & Sons	12,158	12,043
Johnson & Co., Ltd.	12,138	12,013
Willett	12,134	12,022
Martin, Wells & Co., Ltd.	12,000	12,015
Banyard & Son	12,000	11,875
Smith & Sons, Ltd.	11,989	11,960
Perry Bros.	11,800	11,700
Whitehead & Co., Ltd.	11,778	11,678
Lorden & Son	11,749	11,630
Mattock & Parsons	11,650	11,550
Norton	11,514	11,814
Wisdom Bros.	11,500	11,380
C. Wall, Ltd.	11,400	11,292
Shelborne & Co.	11,275	11,165
Nightingale	11,105	11,117
GALBRAITH BROS. (accepted)	10,990	10,985

For enlargement of town hall in Harrow Road, for the Paddington Borough Council.

B. E. NIGHTINGALE (accepted) £12,342 0 0

For construction of footbridge over canal, for Camberwell Borough Council.

WOODHAM & SONS, Catford (accepted) £3,969 0 0

LONDON—continued.

For the construction of underground conveniences in Great Dover Street. Mr. A. HARRISON, borough surveyor.

Shelbourne & Co.	£3,532	0	0
Finch & Co.	3,327	0	0
Jennings, Ltd.	3,080	0	0
Doulton & Co.	2,790	0	0
Parsons	2,764	0	0
Thomas & Edge	2,683	0	0
R. & E. Evans	2,595	0	0
Foster Bros.	2,516	0	0
Chambers Bros.	2,434	0	0
WISDOM BROS., Isleworth (accepted)	2,375	0	0

For the construction of boiler-house and seating boiler at the infirmary, for the Chelsea Board of Guardians.

Wiver & Co.	£876	0	0
Harding & Son	815	0	0
Feltham	807	0	0
Cruise & Son	759	0	0
Brown	720	0	0
Faulkner & Sons	697	0	0
Mollett & Co.	694	15	0
G. WADE (accepted) *	689	0	0
Pearce	669	0	0

* Extra £50 for vertical damp-course.

LANCHESTER.

For laying of 300 yards of 9-inch sewers, with manholes, &c., construction of settling and septic tanks, and contact bacterial and streaming filters. Mr. J. R. LUPTON, surveyor.

Lant	£1,959	0	0
Armstrong	1,475	0	0
Champney	1,319	0	0
Manners	1,248	0	0
Birtley	1,161	17	11
Browell	1,159	0	0
Walker	1,150	0	0
Taylor	1,148	0	0
Frater	1,084	12	3
Routledge	1,075	0	0
W. JOHNSON, Stanley R.S.O., Durham (accepted)	1,060	0	0

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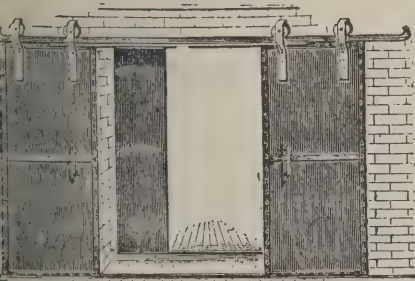
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WRITE FOR ILLUSTRATED LIST.

For Index of Advertisers, see page x.

MERTHYR.

For the erection of stabling, lofts, &c., with boundary walls and outbuildings. Mr. ARTHUR MARKS, architect, Merthyr Tydfil.

Watts	£1,435	10	0
Jenkins	1,420	0	0
Williams	1,375	0	0
Sullivan	1,259	0	0
R. LLOYD, Georgetown (accepted)	1,180	0	0

NEWCASTLE-UPON-TYNE.

For new school buildings at the Newcastle-upon-Tyne Royal Grammar school.

Fenwick & Co.	£30,472	0	0
D. & J. Ranken	27,111	0	0
Miller	26,503	5	0
Mauchlen	26,201	1	6
Howe & Co.	25,814	8	0
Weatheritt	25,664	0	0
Easten	25,351	0	0
Weir	25,302	0	0
Sheriff & Sons	25,277	3	11
Davidson	25,251	17	1
J. & W. Lowry	25,228	15	7
Weatherley	25,108	0	0
Lumsden	25,085	10	0
Worley	24,922	0	0
Bewley	24,752	1	11
Elliott Bros.	24,502	8	2
Watt Bros.	24,349	15	10
Pringle	24,318	18	8
Smith Bros., Ltd.	24,307	0	0
Ferguson	24,275	0	0
Armitage & Hodgson	24,205	3	8
Nicholls & Co.	24,146	0	0
Foster	24,072	15	0
Braithwaite & Co.	23,980	0	0
Hunter	23,496	3	8
Middlemiss Bros.	23,450	14	2
Riley	23,256	12	9
Parkinson & Sons, Ltd.	22,959	15	1
Arnold & Son	22,912	2	4
	21,871	13	5

OXFORD.

For the erection of a cricket pavilion, Cowley Road, for Jesus College. Mr. R. ENGLAND, surveyor.

Hutchins & Sons	£1,375	0	0
T. H. KINGERLEE & SONS, Oxford (accepted)	1,263	0	0

SCOTLAND.

For alterations and additions to Luthriebank, Fife. Messrs THOMS & WILKIE, architects, Dundee.

Accepted tenders.

J. & D. Ross, Newburgh, mason	£345	0	0
W. Bird, Wormit, joiner	329	17	0
D. Brown, Dundee, plumber	117	0	0
G. Kilgour, Dundee, plasterer	68	3	5
T. Black, St. Andrews, slater	50	5	8

For new public hall at Taynult. Mr. G. WOULFE BRENNAN, architect, Oban.

Accepted tenders.

J. Rowan, Appin, joiner	£289	10	0
J. Rowan, Appin, mason and bricklayer	214	15	0
D. MacG. Jamieson, Oban, slater	86	0	9
A. MacDougall, Oban, plumber	57	14	0
D. Peat, Fort William, plasterer	43	3	0
A. Robertson, Oban, painter	25	6	9

SHORNCIFFE.

For post office at camp, for H.M. Office of Works, &c.

Wise	£2,296	0	0
Gosby	2,221	13	9
Nicholls	2,200	0	0
Fearon	1,990	6	0
Logan	1,949	0	0
Grayling	1,920	0	0
Denne	1,893	0	0
East & Hyde	1,852	0	0
Denne & Son	1,850	0	0
Gann & Co.	1,774	0	0
Newton White	1,745	0	0
Castle & Son	1,699	16	0
Wallis & Sons, Ltd.	1,694	0	0
Browning	1,669	0	0
R. Webster	1,450	0	0

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15 HOURS ACCORDING TO
WEATHER.**

SKIRCOAT.

For the completion of a street. Mr. LISTER COATES, architect, Halifax.

Staves	£217	5	8
Hanson	186	10	6
Allott & Spencer	186	1	0
Bullough	159	8	8
Brook	139	0	2
Brook	138	0	0
Longbottom	131	13	0
Spencer Bros.	98	12	1
S. BEDFORD & SON, Halifax (accepted)	93	7	1

STAMFORD.

For the erection of a residence, cottage, stables, &c., at Wothorpe. Messrs. J. G. STALLEBRASS & SONS, architects, Peterborough.

Bowman & Sons	£2,999	0	0
Peasgood	2,993	12	6
Eastwood	2,979	0	0
Woolston	2,955	0	0
Hinson & Co.	2,872	10	0
Roberts Bros.	2,835	0	0
Henson	2,815	0	0
Thurley Bros.	2,802	8	2
Lucas	2,785	0	0
Kettering Co-operative Builders, Ltd.	2,744	0	0
Storer Bros.	2,705	0	0
Bridgefoot & Son	2,704	1	2
Shanks	2,685	0	0
Parker	2,683	16	6
Nichols Bros.	2,674	19	0
Hipwell & Co.	2,672	0	0
Guttridge	2,621	3	5
Watson	2,600	0	0
Gray	2,578	9	0
SIDDON & FREEMAN, Oundle (accepted)	2,550	0	0
Lindsay	2,472	0	0

SUTTON-IN-ASHFIELD.

For erection of the New Market hotel in Market Place. Mr. FRED. C. MARTIN, architect, Nottingham.

Keeling	£2,811	0	0
Eastwood & Co.	2,600	0	0
Vallance	2,280	0	0
Messom	2,180	0	0
Vickers	2,175	0	0
Percival	2,170	0	0
Greenwood	2,149	0	0
Evan Bros.	2,070	0	0
MAULE & Co., Nottingham (accepted)	2,030	0	0

For the erection of Congregational church. Messrs. GEORGE BAINES & R. PALMER BAINES, architects, 5 Clement's Inn, Strand, W.C.

Kingerlee & Sons	£4,261	0	0
Vallance & Blythe	4,223	0	0
Messom	4,179	0	0
Coulson & Lofts	4,060	0	0
North	3,958	0	0
Kerridge & Shaw	3,926	0	0
Mawle & Co.	3,612	10	0
Barlow & Co.	3,500	0	0
Earnshaw	3,356	0	0
J. GREENWOOD, Wood Street, Mansfield (accepted)	3,320	0	0

WALES.

For the erection of thirty-two houses at Deri, for the No. 2 Building Club. Mr. P. VIVIAN JONES, architect, Hengoed.

Tudor	£8,832	10	0
R. Lloyd	8,240	0	0
E. P. Davies	7,648	0	0
Morris & Co.	7,616	0	0
Williams	7,552	0	0
Jewell & Davies	7,452	8	0
W. W. DAVIES, Cardiff (accepted)	7,200	0	0
Bowen & Co.	7,200	0	0
Ruddiford Bros.	7,068	0	0
Gibbon	7,050	0	0
Vodden & Lee	6,912	0	0
J. Lloyd	6,800	0	0

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WALES.

For paving, kerbing, channelling, sewerage, forming and metalling Lewis Terrace, Oak Terrace and De Winton Terrace, Llanbradach. Mr. ALFRED O. HARPUR, surveyor.

Sims	£734	0	0
Howells	724	0	0
Rutter	724	0	0
Brock	697	0	0
Shapcott	695	0	0
Osmond & Sons	682	0	0
T. EDWARDS, Taffswell (accepted)	642	0	0

Received too late for classification.

BRENTWOOD.

For the rebuilding of the Queen inn, Brentwood, Essex. Mr. HERBERT RICHES, architect, 3 Crooked Lane, King William Street, London, E.C.

Dowsing & Davis	£1,010	0	0
Clemens Bros.	1,005	10	0
T. Osborn & Sons	925	0	0
F. W. BURTWELL (accepted)	903	0	0

DUBLIN.

For extension of the refuse destructor works in Stanley Street. Mr. HARTY, engineer.

MELDRUM BROS., Ltd. (accepted)	£7,401	0	0
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FINCHLEY.

For the erection of three pairs of semi-detached houses for the Birkbeck Bank, on the Regent's Park Road Estate, Finchley. Mr. MERRISON GARROOD, F.S.I., architect, Birkbeck Bank Chambers, W.C.

Henry Line	£4,680	0	0
Johnson & Sons	4,538	0	0
Read & Wilkinson	4,480	0	0
Chas. Wall, Ltd.	4,250	0	0
King	3,798	0	0
Roberts	3,150	0	0
JAGGERS & Co., Albert Works, Deptford, and Bromley-by-Bow (accepted)*	3,240	0	0

* Including extras.

TRADE NOTES.

HIS MAJESTY'S War Department are using Watson & Co.'s "Reliance" lead and bitumen damp-course for powder magazines, &c., on Plumstead Marshes, an extension of Woolwich Arsenal; the material is easily laid, and is not affected by intense heat or by damp, and is economical. It can be used for vertical as well as horizontal work.

With reference to our illustration in last week's issue of *The Architect* of the new buildings in Great Smith Street Westminster, the electric-power lifts were supplied by Messrs. Archibald Smith & Stevens, of Queen's Road, Battersea. The same firm supplied the two large electric passenger lifts in the vestibule of the Coliseum theatre.

THE War Office are advertising their annual notice inviting those who desire to be placed on the list of firms entitled to tender for army contracts to send in applications to the secretary, stating the particular articles which they manufacture, and the names of at least two well-known firms or public bodies who have purchased from them and are prepared to certify as to the quality of their productions.

THE Brightside Foundry and Engineering Company, Sheffield, have just secured from the Government the order for heating the new War Office buildings in Whitehall. The system to be adopted is low-pressure steam heating, with radiators. The Brightside Company have been Government contractors for many years, and have carried out many important contracts. The work they have at present in hand includes the provision of heating arrangements for Wadsley asylum, Firvale workhouse, Bolton (Lancashire) workhouse, while they have just completed a large water-softening plant and heating apparatus at the Frimley sanatorium, Surrey.

EXPERIMENTS are about to be made with the view of increasing the efficiency of the Bell Rock light. It is understood that a system of incandescent lighting by means of colza oil sprayed on to incandescent burners is to be tried. It is believed that this will greatly increase the power of the flash, and effect a large saving in the amount of oil consumed.

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ILLUSTRATIONS.

MOUNT STUART, ISLE OF BUTE, N.B.

WESTMINSTER CATHEDRAL: TOWER FROM SOUTH-EAST.

THE CROFT, BURY ST. EDMUNDS.

LYMPHAM RECTORY, SOMERSET.

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MESSRS. PATMAN & FOTHERINGHAM, LTD., builders, announce that "Mr. A. E. Parker has not had any connection with, or interest in, this firm for some considerable time."

It is proposed to erect new baths in Kingstown, co. Dublin, which will cost 11,000*l.* Other schemes of public improvement are also contemplated, including technical schools at a cost of 5,000*l.*

The students of the second, third and honours stages in building construction at the Birmingham Municipal School of Art last week paid a visit to Sir Alfred Hickman's steel works at Bilston, under the leadership of their lecturer, Mr. Francis B. Andrews, and they were taken round the works and shown the various processes in the production of steel.

The Chairman of the Dublin City and County Permanent Building Society, speaking at the annual meeting, drew attention to the demand for the erection of a larger number of houses worth from 24*l.* to 32*l.* a year. In January the company had out more money than during 1904, which is a fair indication that the building trade was looking up. He recommended builders to turn their attention to that class of house, saying they would have no difficulty in letting or selling them, so long as they did not ask too big a profit.

The President of the Local Government Board has consented to receive a deputation from the Workmen's

National Council and some of the rural district councils on the question of building by-laws. The deputation, which will wait on the President at noon on the 23rd inst., will submit the case for new by-laws, their chief request being that nothing shall be contained in the by-laws to hinder the construction of good cottages. Suggestions will also be made as to the width of roads and on the question of plans.

A SPECIAL committee of the London Chamber of Commerce has examined the County Councils Building Act Amendment Bill with the object of formulating amendments to its provisions, which seriously affect the interests of owners and occupiers of business premises in the county of London. The report of the committee was submitted at the meeting of the Council of the Chamber for approval, the London County Council having invited the Chamber to express an opinion with reference to the Bill. A report on the City of London (Means of Escape from Fire) Bill promoted by the City Corporation, will also be presented.

THE cottages built on the Blackley estate by the Manchester Corporation do not let well. They are a long distance from the city, and the rents, although they have been reduced, are, when coupled with the cost of tram fares, prohibitive to many workers. Very many of the houses are empty, and the present loss is computed at the rate of about 1,500*l.* a year. The sanitary committee have considered various plans for popularising the houses, and they are negotiating with the tramways committee to obtain a reduction of the tram fares between the city and the main road to the estate.

A DEPUTATION, representing the Leeds Trade and Labour Council and the Leeds Labour Representation committee, waited on the Leeds City Council last week to urge that the Corporation should themselves carry out the construction of the new Colsterdale reservoir, instead of giving the work to a contractor. This course was declared to be cheaper, and would to a large extent solve the unemployment problem in the city. When the matter came before the Council the proposal was dismissed. It was declared that municipal officers were not as capable of managing workmen as the contractor who had continual experience, and if the Corporation undertook the work it would be necessary to create a new department of new men unfamiliar with each other.

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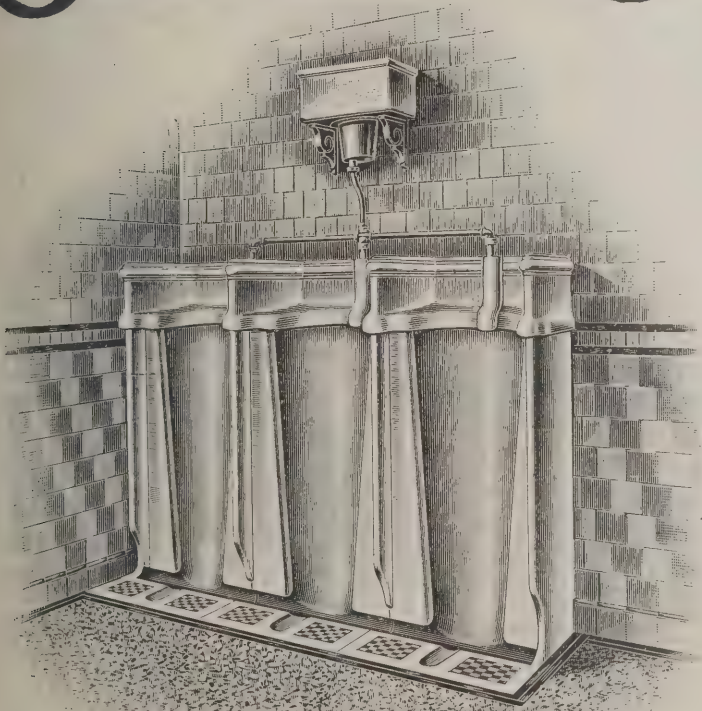
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ELECTRIC NOTES.

A PRIVATE syndicate has been formed with the object of building two 500 horse-power Momentum engines for lighting the Alexandra Palace and grounds. The engine, it may be added, has taken a number of first-class certificates during the past four years that it has been running at the Alexandra Palace, and it has, moreover, been lately patented in Germany.

THE Leith Corporation commenced on Monday the work in connection with the extension of Leith tramway system and the conversion of the system to one of electricity. There is at present sufficient plant at the electric station to provide power during the summer load for the propulsion of a number of cars. It is expected that the extension of the electric station and the additions to the plant will be completed before the next winter load is required.

THE promoters of the West Cumberland Tramways Bill have been informed by a conference of local authorities that they will refrain from giving assent to the Bill unless the extension of two years for the commencement of work specified in clause 3 of the Bill be altered to one year. Sir Douglas Fox & Partners, the engineers to the scheme, have completed detailed specifications and bills of quantities, and tenders have been received for carrying out the work.

THE Blackburn Town Council vigorously discussed last week a proposal by the electricity and tramways committee to make members of the Council wishing to look over the electricity works obtain the consent of the chairman or vice-chairman of the committee, or the town clerk. The proposal was regarded by several members as a blow at the rights of members; but in the end it was approved by a majority of the Council.

THE Light Railway Commissioners, after an inquiry at Grimsby on the 6th inst., approved a scheme for the construction of a light railway from the site of the proposed new dock at Immingham to Grimsby, a distance of about six miles. The estimate for the construction of the line was 74,000*l.* The company have applied for permission to use either steam or horse-power on the line, but it is certain that at the sections beyond docks 5 and 6 steam will be necessary.

THE installation of electricity for the lighting of Bo'ness was inaugurated on Monday. The works, which are estimated to cost about 25,000*l.*, have been constructed by the National Electric Construction Co., Ltd., which have already fitted installations in Oban, Musselburgh and other towns. The power-station is situated about the centre of the burgh, and cables have been laid throughout the town. The light has been running for some months by means of a temporary engine for the lighting of the new library, town hall and infectious diseases hospital.

IN connection with the electrical exhibition at the Battersea town hall a demonstration was given on Saturday last of the Kearney-Thom electric mono-rail system. By this method the carriages are each supported on bogies with wheels placed centrally, and running on one ground rail only, balance being maintained by guide-wheels travelling in a slotted rail held in supports over the vehicles. This slotted rail supplies the current to the dynamos driving the car in the usual way. The merit claimed for the system is its simplicity and its safety, and it is asserted that the highest speeds may be attained. It is proposed to introduce into Parliament next year a Bill to secure powers for constructing a line on this system from London to the Sussex coast.

PROCEEDINGS were commenced at the Surveyors' Institution, Westminster, on Monday, before Mr. L. L. Macassey, sitting as sole arbitrator between the Belfast Tramways Company and the Corporation of that city, arising out of the purchase by the authority of the company's undertaking. The transfer has already taken place, the system having passed over to the Corporation on December 31, 1904. The claim, which amounted to nearly 400,000*l.*, includes an item of 345,971*l.* for the company's undertaking, about 20,000*l.* for two other undertakings, 74,216*l.* three years' unexpired profits and 7,500*l.* compensation to directors, manager and secretary. The full figure was 452,395*l.*, but deducting the amount of the principal moneys secured by the company's outstanding debentures (60,000*l.*) the total claim was 392,395*l.*

THE London, Brighton and South Coast Railway Company's shareholders were informed at the recent general meeting that, after exhaustive and careful inquiry, the



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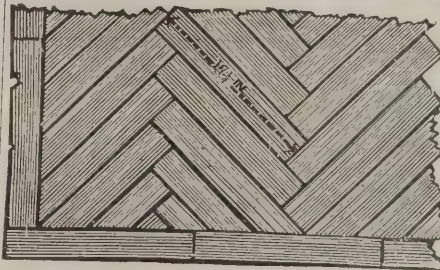
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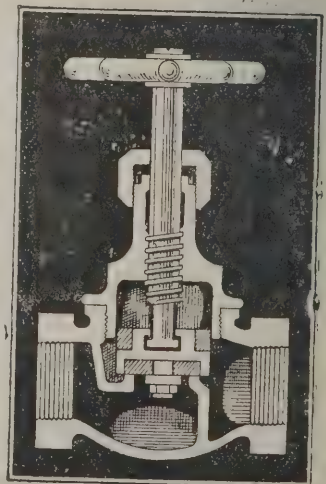
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ection of the South London Railway between Battersea Park and Peckham Rye stations had been selected as a convenient piece of line upon which to make an initial trial of electrical working. Mr. Philip Dawson, the electrical engineer advising the Board, with the aid of Major Cardew, one of the directors, had recommended that the overhead conductor system should be used, thus avoiding the dangers which had been experienced with the third-rail system since it had been established. The overhead system involved the introduction of other novel features. If it is proved to be successful the Board will consider and advise the proprietors upon the desirability of extending it on other parts of the Company's suburban system.

VARIETIES.

THE Bury Town Council have sanctioned the erection of filters in connection with the plunge baths at the Corporation baths. The cost will be about 600*l.*, and it is estimated that 54*l.* a year will be saved in the cost of water.

THE Liverpool City Council have been informed that the costs of appeal against the award given in the Rivington arbitration case would be not less than 1,000*l.* instead of 500*l.*, the figure previously stated.

PLANS prepared by Messrs. R. E. W. Berrington & Son, Westminster and Wolverhampton, have been accepted in connection with the sewage schemes for Broadway and Wellington (Salop).

THE Lower House of the Prussian Diet on Tuesday passed the second reading of Paragraph I. of the General Canal Bill, empowering the Government to expend the sum of 334,575,000 marks (16,728,750*l.*) for the construction of waterways.

THE Surveyors' Institution will on Monday resume the discussion on the papers by Mr. A. R. Stenning and Mr. William Menzies, entitled respectively "Urban and Rural By-Laws and suggested Amendments" and "Building By-Laws in Rural Districts."

THE Corporation of London have sealed an agreement with the Ecclesiastical Commissioners for the removal by the latter body, on consideration of the payment to them of

500*l.*, of the two archways at the ends of Duke's Head Passage in the City.

THE Staffordshire County Council have come to an agreement with the Post Office in regard to the question of the erection of telegraph poles along the roads of the county. The terms of the Council that the poles should only be erected subject to the approval of the sites by the county main roads surveyor have been adopted.

THE Local Government Board have urged the Willesden Board of Guardians to obviate the overcrowded state of the workhouse infirmary at Willesden, and the Guardians are accordingly submitting a scheme for an initial expenditure of 20,000*l.* on workhouse blocks and dining-hall for 200 inmates, to form part of an ultimate scheme for 1,000 inmates.

THE Royal Commission on London Traffic and Locomotion held its first sitting after the Christmas recess at the Westminster Palace Hotel on the 2nd inst., and had under consideration the draft report. The Commissioners will sit on several days a week in future until their work is completed.

An action which came before the Lancashire Chancery Court, in which rights of light were involved, has been settled. The arrangement is that the defendant should pay to the plaintiff the sum of 575*l.* and costs between solicitor and client, and that the plaintiff should give the defendant the right to build according to certain plans and sections signed by the architects of the respective parties.

THE Italian Minister of Public Works has published a draft of the proposed scheme for a direct line of railway between Rome and Naples. Hitherto the distance by rail from the capital to the largest city in Italy has been 156 miles; the new railway would reduce it to 131 miles. Only 93½ miles of entirely new line will require to be made, and the total cost of construction is estimated at 2,800,000*l.* The railway will not be electric as was at one time intended.

THE Boston Waterworks Co., Lincolnshire, recently invited tenders for the supply of iron pipes for the duplication of the mains. English firms were easily able to beat their foreign competitors out of the market. The tenders worked out much lower than had been anticipated, but the selected tender, from one of the best of English makers, quoted the pipes at 12*s.* per ton less than the foreign manufacturers offered to supply them for.

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At the Manchester town hall Colonel A. G. Durnford, inspector of the Local Government Board, held an inquiry on Friday into the application of the Corporation for sanction to borrow a sum of 100,000*l.* in connection with the erection and equipment of the Municipal School of Technology. Up to January 31, 1905, the total payments made in connection with the equipment and building amounted to 337,564*l.*, and there remained an excess of payments over receipts of 99,021*l.* Of this excess 8,032*l.* was expended in the purchase of land for additional buildings, 38,086*l.* for equipment and 52,902*l.* for building.

AIREDALE WORKS, SHIPLEY.

MANY of our readers will doubtless remember that in July 1903 Messrs. Cundall's Airedale Ironworks at Shipley, Yorks, were completely gutted by fire. This calamity elicited much sympathy, for the substantial and well-equipped stone-built structures then destroyed had replaced buildings which had likewise been burnt down only three years previously. Messrs. Cundall were, however, not to be daunted by this second catastrophe, for on August 12, 1903, a little over a month from the fire, the first sod was turned on a 23-acre estate which they had purchased for the erection of new works. These were put up with commendable promptitude, for in the following January they were in a sufficiently advanced state for occupancy by the firm's workmen. These new works are situated amidst picturesque surroundings on the outskirts of Shipley, bounded on one side by the Leeds and Liverpool Canal and adjacent to the Midland and Great Northern railways, a siding into the works from the former line being in course of construction. The offices are separate from the works, though not many yards intervene. On entering the engineering shop one is at once struck with its dimensions and the activity which prevails. Its length is 400 feet, its width 120 feet and its height 45 feet, the glass roof affording plenty of light in every part of the building. A Vaughan 10-ton electric travelling crane traverses the entire length of the shop, and works with the utmost smoothness and satisfaction. The whole of the workshop plant is also driven by electricity derived from the Shipley Town Council mains, ten motors being employed for driving as many different groups of machines.

The firm, however, will soon be independent of the town supply, for they intend shortly to generate current on their own premises. The building is entirely devoid of galleries and the whole of the tools are therefore on the ground floor. There are over 200 machines employed in the production of component parts of the "Cundall" oil-engine, the "Cundall" folding machine and the "Cundall" patent suction gas-engine and improved suction gas-production plant, the great care taken in the production of even the smallest details and the careful supervision exercised being noticeable in all departments. Crank-turning machines, boring, drilling and planing machines of various sizes and patterns, lathes, keyway cutters, cam-cutting machines, shaping and slotting machines, wheel-cutting machines, milling machines and other costly modern tools cover a very large proportion of the floor space. Many of these tools have been built to Messrs. Cundall's own designs and have cost several hundreds of pounds apiece. The firm have three flywheel turning machines in operation, the face plate of the largest weighing 8 tons. Each engine is tested much above its constant working load before it is passed, and nothing is allowed to leave the works unless it gives complete satisfaction under trial. On the left-hand side of the shop, separated by an expanded-metal screen, is a store for finished parts and workshop requisites, in which there are 2,000 numbered lockers, from which any article desired can be instantly secured after the necessary signed order for its delivery has been obtained from the foreman. A record of the contents of each locker is kept right up to date, and this at a glance shows exactly what stores are in stock. Three Rochester time recorders are employed for registering the time of the 300 men employed in the works, and all water required by the firm is drawn from their own well by a pump just inside the shop door. The foundry is situated at the end of the building, being suitably screened off from the remainder of the shop. This department is also well equipped, its two furnaces being of 5 tons and 20 tons capacity respectively, the necessary blast being furnished by an electrically-operated fan. Casting takes place at least once a day and sometimes twice. The blacksmith's department is located in one corner of the foundry. Leaving the main building you enter the pattern

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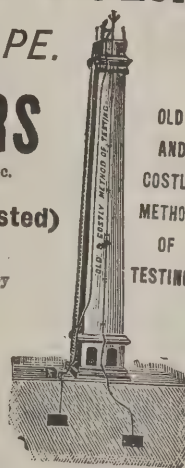
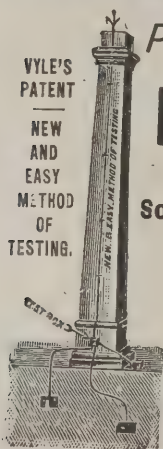
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which is a separate building 90 feet square. This has been wholly equipped with new plant, and affords employment for several men, whilst at one side of it, partitioned off, is the comfortable and quiet drawing room. Running alongside of this building is the Leeds and Liverpool Canal.

Messrs. R. Cundall & Sons have devoted great attention to the perfecting of an engine of the suction gas type, with the result that they have been able to place on the market the "Cundall" patent suction gas-engine of improved suction gas-producer plant, the success of which has surpassed their most sanguine expectations, and they anticipated that when users of power become cognizant of the vast economy in the production of power which is effected by their use, the demand will become enormous. These engines important valuable patents have been secured, and so successful have they proved that in this branch of business tenders have been accepted for engines amounting to some thousands of horse-power. They have an engine and plant of 175 b.h.p. which can be seen running their works, and they will be only too pleased to intending purchasers to visit Airedale Ironworks, where they will be able to see engines of all sizes in the course of manufacture. Amongst the large number of orders this firm have in hand we understand they have secured the contract for the East Cowes Urban District Council for an engine and plant of 50 b.h.p.

THE BURNING OF "THE GLEN."

A fire at "The Glen," Sir Charles Tennant's residence in Leicestershire, has reduced one of the finest mansions in Scotland to practically a roofless ruin. The western wing, which did not form part of the original plan, has been spared by the flames, but the damage there by water and smoke could hardly have been greater had the fire been allowed to complete its work of destruction. With this exception, and possibly a small portion of the eastern wing, where the roof remains, the mansion is in ruins. Little is left, says the *Scotsman*, but the charred walls and gaunt gables.

Built in 1855, "The Glen" is a fine specimen of the work of the late David Bryce, who acquired a high reputa-

tion in the domain of Domestic architecture. Scottish Baronial in style, the house lies east and west, and is flanked by wings of loftier elevation. The eastern wing is surmounted by a high tower and soaring flagstaff. The flagstaff, although it is situated right above the spot where the fire was hottest, remains curiously in its place unharmed. The main building consists of three storeys and a semi-sunk flat, while the wings are four storeys in height, and are diversified by the numerous quaint turrets, crow-foot gables and gargoyles which are a feature of that style of architecture. The main entrance to the house is situated in the north of the eastern wing, which is of a castellated character. Above the doorway, raised a few steps above the level of the ground, there is a panel containing a coat-of-arms and the motto, "Deus Dabit Vela." Below the coat-of-arms are two smaller panels, one bearing the words, "Blissit be God in all His giftis," and the other, "They are welcome here what the Lord do feir." The doorway, with its ivy still clustering at one side, leads into a small hall, to the left of which is the service portion of the house; while on the right there is the main hall, a spacious oak-lined apartment, which also serves as a billiard-room and reception-room. This hall and the grand staircase leading to the guest bedrooms, and to the servants' bedrooms above, are in the main building. The latter is surmounted by four dormer windows, from one of which, lighting a servant's bedroom, the fire was first discovered. From the south side of the main entrance hall, access is obtained to the library, the dining-room, the drawing-room and the business-room, or smoke-room, as it was sometimes called. The drawing-room was a magnificent apartment with a lovely prospect to the south, and occupying all the length of the west wing and a portion of the main building. It was splendidly appointed. The roof was richly moulded in heavily gilded plaster-work, while the walls were upholstered in silk, with gilded panelling at intervals. Although the flames have broken through only a portion of the roof, the remainder is hopelessly ruined by water, which on Saturday continued to drip in a melancholy monotonous fashion on to the sodden carpet below. It was in this room and in the library that the finest pictures were hung. Above the fireplace of the drawing-room there was a very valuable Etty. The other

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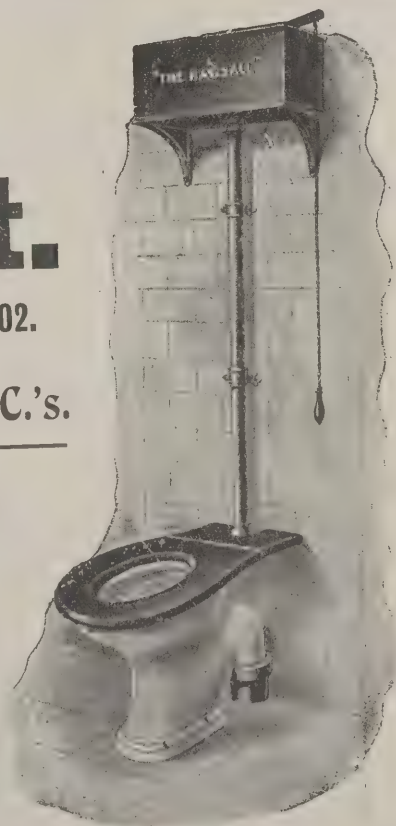
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pictures included examples of Gainsborough, Erskine Nicol, Newbank, Linnell, Roberts, Fred Walker and David Cox. In the library there were hung Colvin Smith's picture of Sir Walter Scott, a Morland landscape and a very valuable set of illustrations by Sam Bough. A fine collection of Worcester china also formed part of the furnishing of the drawing-room, and this, like the pictures and the beautiful French furniture, was all saved.

The southern part of the house being to the leeward, it has suffered most from the fire. The library, which was also a handsome and notable room, apart even from its contents, is now filled with debris and charred beams. It was fortunate in some respects, that the fire occurred in the upper portion of the house, because there was thus time for the employees to clear out the contents of the lower flats, which contained the most of the valuables. The south front, which faces the Fethan Wood, possesses a fine double staircase leading from the house to the lawn. A large portion of the balustrade has been destroyed.

SOCIETY OF ENGINEERS.

The first ordinary meeting of the Society of Engineers for the present year was held on Monday evening, February 6, at the Royal United Service Institution, Whitehall. Mr. D. B. Butler, the president for 1904, first occupied the chair and presented the premiums awarded for papers read during that year, viz. The President's gold medal to Mr. William Edward Storey for his paper on "Condensing Machinery," the Bessemer premium of books to Mr. R. G. Allanson-Winn for his paper on "Deep-Sea Erosion and Foreshore Protection," a Society's premium of books to Mr. A. S. E. Ackermann for his paper on "British and American Coal-cutting Machines," and a Society's premium of books to Mr. Frank Latham for his paper on "Some Recent Works of Water Supply at Penzance."

The thanks of the Society were also accorded to Mr. H. C. H. Shenton for his paper on "The Latest Practice in Sewage Disposal," to Mr. Percy G. Scott for his paper on "Railway Surveys and Design in New Countries," to Mr. James Thame for his paper on "Recent Developments in Crushing and Concentrating Machines," and to Mr. Perry F.

Nursey, past-president and secretary, for his "Ju Retrospect," being a brief history of the Society from inception to date.

Mr. Butler then introduced the President for the present year, Mr. Nicholas James West, to the meeting, and received from the chair, receiving a hearty and unanimous vote of thanks for his services during the past year.

The President, in his inaugural address, commenced by thanking the members for placing him in the presidential chair; and he expressed the hope that when his term of office was concluded it would be felt that he had discharged the duties of his office with honesty of purpose, and furthered the interests of the Society as far as his ability and time allowed him. He then referred to the circumstance that the Society held its jubilee last year, observed that having been in existence so long (over half a century), pursuing its successful and beneficial work year by year, clearly showed the close application and watchful attention to its interests of its past Presidents, members of Council and officers, and accounted for its present satisfactory position, both numerically and financially.

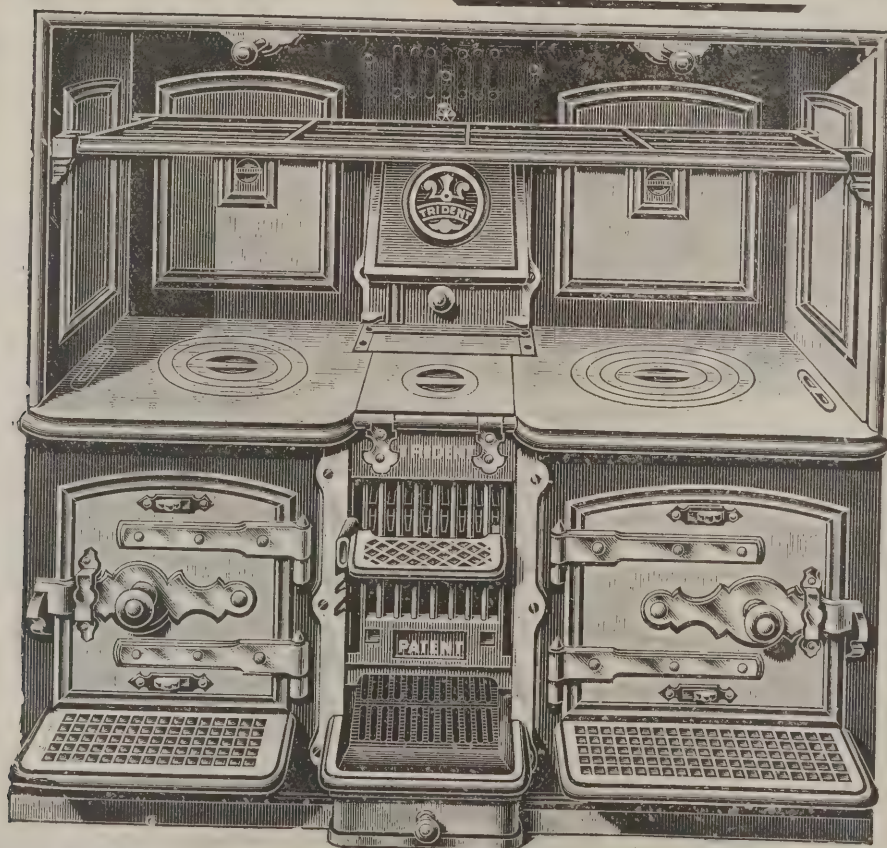
In his address the President dealt mainly with the mechanical side of engineering, with reference to the historical use and improvement of, pumping and marine engines, and the application of the latter at various periods to vessels of different kinds, and he included a reference to the latest phase of turbine propulsion.

The address was listened to with marked attention by a large and appreciative audience, and at its close a hearty vote of thanks was accorded to the President.

AMERICAN WOOD-WORKING MACHINERY.

In his report on iron and steel exhibits at the St. Louis Exhibition, Mr. E. Seymour Bell, British commercial agent in the United States, when describing machinery says that one American company show some thirty-five modern wood-working machines of latest design and embodying improvements. The special features of the exhibit are fast-feed flooring machine, fast running and leaving a good finish; a 10-inch outside moulder with an extra heating table; a triple sandpapering machine. This last machine

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of interest. The drums are placed on the top, which imitates the changing of papers and the carrying off of articles. It has an endless bed instead of roller feed, which is designed to be novel and advantageous. The bed is furnished with rubber slips to increase the friction. There is also a double end tenoner for furniture and general work with special attachment for tenoning thin stock. There is another attachment for cutting moulding on table tops. There is also a complete exhibit of thirty-two wood-working machines, including planers, surfacers, moulders, saws, mortisers and shaping machines. The most notable are a two-piece dimension planer, double ender and matching machine with adjustments and facilities for working on small as well as large material. It will take in material up to 30 inches wide and 8 inches thick. It is furnished with four changes of feed, 45, 60, 70 and 80 lineal feet per minute. It is a heavy and serviceable machine. A double surfacer 30 inches wide, 8 inches thick. A strong and powerful machine suitable for heavy work. A four roll surfacer and matcher, 18 inches wide by 6 inches thick. A 15-inch inside moulder by 6 inches thick. Taken altogether, the iron and steel exhibits are decidedly interesting, and, from an American point of view, an excellent advertisement. That British manufacturers have not availed themselves to a greater extent of this great opportunity of advertising their goods must be a matter of regret to those who have their interests at heart. If French and German manufacturers are satisfied that it is worth their while to send their products, it ought to have been much more so for those from the United Kingdom. The fact that the high tariff is prohibitive, though true to a certain extent, does not apply in all cases. Taking one instance, cutlery. The importation of knives in 1903 showed an increase of 13 per cent. over that of 1902, though the average duty paid was 78.19 per cent. *ad valorem*. Razors increased 21 per cent., the duty averaging 54.76 per cent. *ad valorem*. Scissors increased 27 per cent., the duty averaging 51.50 per cent. *ad valorem*. Other cases might be cited, but cutlery has been taken because the imports from some other countries of certain articles have increased at a more rapid rate than those from the United Kingdom. It must be remembered, again, that in sending exhibits to an exhibition like that of St. Louis it is an advertisement to

the whole world. Visitors from South America and other countries, of which there are immense numbers, look for articles they require; and not only for new ideas. When they see what they want made in America, Germany, France and others, they naturally buy from them in preference to the United Kingdom, whose manufactures they cannot see. It appears too much to the visitors as though British manufacturers had given up the fight in favour of other countries. The uninformed look upon it as a sign of weakness, while other countries make the most of their opportunities and encourage buyers in their belief.

That orders are not always looked after by British manufacturers as they might be is instanced by a conversation the writer had with a representative of an American concern working under British patents. This representative declared that he had received personal inquiries from visitors from Europe for some of their manufactures. He had to refer them to the British house, who are unrepresented at the exhibition, as his company is prohibited from selling in Europe. This is merely quoted to show how easily orders may be lost when a comparatively small outlay would show the goods to the world.

STEEL STRUCTURES IN BERLIN.

The United States Consul-General at Berlin, Mr. Frank H. Mason, in his report says:—

Some weeks ago the Central Association of German Industrials addressed to the ministry of the interior a respectful and exceedingly well written memorial urging that the present building laws, which do not permit the construction in Berlin of dwellings or business buildings with a greater height from pavement to cornice than 22 metres (72.18 feet), be so far relaxed as to allow steel-framed buildings of higher altitude to be erected, if not generally, at least in exceptional cases when good reason for such variation could be adduced.

The reasons for the proposed innovation, as set forth in the memorial, were that the rapid growth of Berlin in population and business interests required more room to be provided, particularly in the central districts, without increase of cost to tenants; that the restriction to a limit of

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four storeys compelled excessive lateral expansion that had already spread the city over an immense area, and thus lengthened the distance between the homes of many people and their work; and that experience in other countries had shown high steel-framed buildings, when properly constructed, to be safe, comfortable, uniformly better lighted and ventilated, and therefore more sanitary for dwellers and working people than those of ordinary height. Furthermore, it was urged that such a relaxation of building regulations would bring into use great quantities of structural steel and iron which are now largely produced in Germany, and for which an increased market would be highly appreciated by the steel and iron-masters, who are making such a brave fight for a share in the world's trade.

Thus plausibly stated, the appeal of the industrial association was submitted during the summer vacation to the ministers of commerce, the interior and public works, who, after due consideration, made a joint reply, dated September 20, in which the petition was flatly refused, for reasons which were stated at length, but may be condensed as follows:—

1. The ministries are opposed to any system of building which will lead to an increase in the number of "renting barracks" (Miethscaserne), large buildings divided into a great number of small apartments or tenements, which are leased to families of working people, with the result that a great number of persons of both sexes and all ages are huddled together under conditions which are necessarily subversive of normal family life and prejudicial to public morals.

2. Buildings so high as to be beyond the level of the present water supply could not be made clean and sanitary.

3. Any important increase in height beyond the present limit would put the upper storeys of the buildings beyond the protection of the fire department, as at present equipped and organised. Whatever might be the material interests involved, the ministries held themselves bound to consider and protect not only the architectural unity and beauty of the city, but the health and the moral and physical safety of the people, all of which would, in their opinion, be compromised by the proposed innovation.

With this result the authors of the petition are by no means satisfied, and have replied that they had not proposed

to carry buildings in Berlin to the excessive heights which are common in the United States, and that had the desired permission been granted, it would have been provided with careful and competent engineering that all the requirements of fire protection, water supply and every sanitary necessity should be carefully and completely met. Moreover, regard to resistance to conflagration, at Baltimore the steel-framed buildings, which offer least food for a fire, have vindicated their superior safety and were left standing monuments amid the wide waste of the ruins of the old and five-storey blocks built of stone and brick in the ordinary way.

Thus the discussion stands at present, and it does not appear likely that the ministries, fortified as they are by considerations of municipal beauty and public health and safety, will recede from their present position. It is difficult to persuade German conservatism, in so important a matter as the architectural construction of cities, with arguments drawn from experience in a country which, like our own, has paid during the past twenty-five years an average annual tribute of 125,000,000 dols. to the scourge of fire, and which for the losses of the current year 1904 must pay nearly or quite double that sum. However little of our annual holocaust the "skyscraper" may be responsible for, the fact that it is a distinctively American type of construction will not recommend it to European municipalities.

IMPROVEMENT OF ROADS.

A PAPER was read by the Lord Justice-Clerk before the Royal Scottish Society of Arts on "Roads: what they are and what they should be." He said the truth was only now being recognised that roads should be made good for traffic, and not by it. There was no doubt that the road of to-day was a way of luxury compared to what that of bygone times was. Even in the middle of the eighteenth century the use of wheeled vehicles for long distances was very meagre and it was only in 1820 that the cabriolet, now shortened into "cab," was introduced from France. Just as now France was the country which introduced the power carriage to us. Of these cabriolets it was written at the time "They rush about the streets as rapid as fireflies," and the

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After added words which might well be held prophetic of the days of the autocar:—"They lame few, they kill fewer, they sometimes overrun us, but their serious damage is not such." As the improved vehicles of the latter half of the 19th century made their way, there was an awakening in the national mind, and the thought arose that it would be well to provide good roads so as to obtain the best benefits from the progress of the genius of Macadam and his carriages. Accordingly the contemporaries abroad, led to a complete transformation of the road, by which its value for passengers and goods traffic was increased in manifold degree, and an incalculable contribution was made to the national prosperity. Then came the day of the railroad, an invention which brought increased social and commercial advantages, but had one great effect for evil, for it checked, and indeed practically killed, the progress of good road making. There were signs now that the public mind was awakening once more to the fact that there was a great future for road traffic, and that good roads were a most valuable national asset. The rapid development of power traction, consequent on the invention of the explosion motor, had made it plain that in the immediate future the distances which could be traversed conveniently and economically by road would be trebled or even quadrupled, that cheap and rapid access to markets by the highway would be greatly increased, and that pleasure driving would open up roads and put a smiling face on desolate country sides and revive the prosperity of the roadside inns, which the abolition of coaching was believed to have permanently ruined. A good road should be smooth, easily kept clean, free from railway lines, durable, having a surface contributing as little as possible to noisiness, free from dust and mud, and last but not least, it should be of such a make that it could be repaired piecemeal, so as to be kept in good repair at all times, and not as at present only to be repaired either by blocking the traffic for weeks at a time, or by compelling the vehicles to go over a bed of sharp stones. Dealing with wood pavement, he said that quietness was its only recommendation, and he thought it must be condemned as decidedly insanitary, and, further, not capable of any repair otherwise than by breaking it all up, which meant, of course, that it must get to its worst before it was

dealt with. To use a material which must fray and take a brush face, which face was liable to rot when soaked in water, and to use it in circumstances in which it must always have spread over it a film of insanitary filth, could not be a sound device for making the roads which passed through places densely crowded with human beings. If anyone would go on a day in dry weather and look carefully at the roadway in Princes Street, he would see that the filth of the traffic was caked down and holding to the perishing surface, so that no sweeping would remove it. And of course when the surface became depressed every here and there into saucer-like dimples, ultimately exhibiting large patches where the surface, rotted by moisture, had scaled off, the evil must become much greater from water lodging in these hollows and causing increased decomposition. If asked what he would substitute for wood, he unhesitatingly said Val de Travers asphalt. With it an absolutely smooth surface was got, capable of being kept free from all insanitary filth, and possessing the great advantage that repairs could be made bit by bit, and that it was impervious to moisture, that insidious enemy of roads. As regarded the laying of streets with stone setts, two conditions should be satisfied—(1) that the stones rested on an absolutely dry bed, and (2) that they should be set and packed so that no moisture, however slight, would penetrate the bed in wet weather. Finally, he came to the ordinary road of the country, which was identified with the name of Macadam. But the macadam road, great improvement as it was, had shown itself to be by no means a perfect device. In moderate weather, neither too wet nor too dry, it gave a really good road, of which no one could reasonably complain. But whenever the weather became decidedly dry or decidedly wet, deterioration set in, making the traveller a sufferer and causing the haulage animals to suffer also, and as a consequence causing commercial loss by the slow rate of transit, and further loss by the deterioration of horse-flesh and of vehicles. He thought the credit must be credited to Mr. Hooley, the road surveyor of Nottinghamshire, of having succeeded in finding in his tar macadam what, if not a final solution of the difficulties, was a present solution of great value, and which, though it might be improved upon, would have a permanent in-

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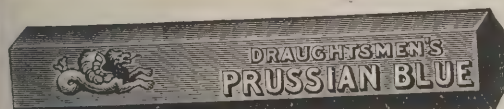
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fluence for the future. Good main roads were a matter of national concern for universal accommodation, for commercial prosperity and for national defence, and some general system and general authority were the only true solution of the road problem. And he made bold to say that it would be a very wise policy for the Government to establish a Commission to examine the roads and determine what improvements were called for, and to find the money liberally for making the road system more efficient, thus enabling the great work to be done promptly, and spreading the expense over a period of years. It would add greatly to the prosperity of the country if a sum of five or six millions sterling was given out in loan for systematic road improvement; and he said of all road improvement, both in engineering and in laying streets and roads with the best road bottom and road surface that the circumstances in each case made advantageous, it would be found to be true that what seemed expensive was the cheapest in the end. The national mind had slumbered on the road question for two generations, foolishly believing that the establishment of railways made roads of little importance. But there was now an awakening. The road was once more to resume its place as one of the great factors in the national welfare. Every month that passed would see the road traffic both for commerce and for pleasure steadily increasing, and that road improvement might develop in corresponding proportion should be the wish of every good citizen both for his own comfort and for the national prosperity.

LONDON BUILDING ACTS (AMENDMENT) BILL.

A CONFERENCE of representatives of the City Corporation and of the metropolitan borough councils was held at the Westminster Palace Hotel on Monday to consider the London Building Acts (Amendment) Bill. The only Council which declined to take any part in the conference was that of the borough of Chelsea. Mr. P. G. Gates, mayor of Kensington, was appointed chairman, and Mr. W. Chambers Leete, town clerk of Kensington, hon. secretary.

Major L. H. Isaacs (Kensington), in the course of an explanation of the Bill, said it proposed to increase quite unnecessarily, he thought, in a great number of cases, the

minimum width of new streets from 40 feet to 50 feet, and to require an even greater width than 50 feet in certain cases. By clause 17 lanes and ways were to be widened when required, to 50 feet without any compensation being paid for the extra land so taken. It was proposed also to give the private rights in forecourts and spaces not separated from the roadway by fences or walls and not dedicated to the public should be acquired for the public benefit without payment. Other provisions to enable the County Council to require streets, to be widened from 40 feet to 70 feet, the surrender of land by the owners on each side who might desire to build upon frontages not already occupied, and cases where they considered any street likely to become an important highway to define a general line of building, and to set such line as far back as 75 feet from the existing centre of the highway. He moved a resolution, which was unanimously adopted, to the effect that the provisions of the Bill were of such a drastic and complex character, and passed into law would be found so unintelligible and unworkable, that it was desirable that the Bill should be withdrawn or opposed.

It was also resolved that a new Building Act, codifying the present Acts, with such amendments as may be found desirable, should be formulated after the matter has been considered by a Royal Commission, and that, before the Bill is drafted, the views of the London County Council, the Corporation of the City of London, the councils of the City of Westminster and the several metropolitan boroughs, and the various professional associations connected with building work should be ascertained and considered. Another resolution was carried declaring that in any new measure the London County Council should be relieved as much as possible by transferring to the City and borough councils all duties that can be efficiently discharged by those bodies in accordance with the views expressed by the Royal Commission in 1894. A number of consequential resolutions were passed, including one authorising copies of the main resolutions to be forwarded to the Prime Minister and the President of the Local Government Board, with a request that the necessary steps might be taken for the appointment of the suggested Royal Commission, and another requesting the County Council not to proceed with their Bill in the ensuing session.

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EDITORIAL NOTICES.

In view of the many difficulties which are certain to arise in connection with the law, practice rules and procedure under the Workmen's Compensation Act, we have added to our staff A VERY EMINENT BARRISTER, who has made the subject a special study, and will be glad to answer in the columns of this paper any questions relating to the complicated matters arising from the provisions of this difficult Act. Our LEGAL ADVISER will further answer any legal question that may be of interest to our readers. All letters must be addressed "LEGAL ADVISER," Office of "The Architect," Imperial Buildings, Ludgate Circus, London, E.C.

The Editor will be glad to receive from Architects in London and the Provinces results of Competitions and Tenders and other particulars of Works in progress in which they may be interested.

The authors of signed articles and papers read in public must necessarily be held responsible for their contents.

No communication can be inserted unless authenticated by the name and address of the writer—not in every case for publication, but as a guarantee of good faith.

Correspondents are requested to make their communications as brief as possible. The space we can devote to Correspondence will not usually permit our inserting lengthy communications.

TENDERS, ETC.

*** As great disappointment is frequently expressed at the non-appearance of Contracts Open, Tenders, &c., it is particularly requested that information of this description be forwarded to the Office, Imperial Buildings, Ludgate Circus, London, E.C., not later than 2 P.M. on Thursdays.*

COMPETITIONS OPEN.

AYLESBURY.—Feb. 28.—For public elementary school for 750 children. Premiums 50*l.* and 25*l.* Conditions and plan of site obtainable from Mr. C. G. Watkins, Education Secretary, Aylesbury, on payment of 1*l.* 1*s.*

LAMBETH.—March 30.—For municipal buildings at Brixton Hill. Particulars from Mr. H. J. Smith, Town Hall, Kennington, S.E.

NELSON.—March 4.—Designs for a free public library. Premiums of 50*l.*, 25*l.* and 15*l.* Mr. J. H. Baldwick, town clerk, Town Hall, Nelson.

PRESTON.—Feb. 28.—Designs and plans for new elementary school. Premiums of £50, £30 and £20. Plan and conditions from Director of Education, Education Offices, Preston.

WOLVERTON.—Feb. 28.—For public elementary school for 400 girls and 400 infants. Premiums 50*l.* and 25*l.* Also for secondary school to accommodate about 120 boys and girls. No premiums offered. Conditions to be obtained on payment of 1*l.* 1*s.* in each case from Mr. C. G. Watkins, Education Office, Aylesbury.

CONTRACTS OPEN.

AINSWORTH.—Feb. 27.—For the erection of new hospital at Ainsworth, for the Bury and District Joint Hospital Board. Mr. Henry Lord, architect, 42 Deansgate, Manchester.

ANNAN.—Feb. 25.—For extensions to cotton mill, Port Street, Annan. Messrs. Johnstone Bros., architects and surveyors, 39 Lowther Street, Carlisle.

AYLSHAM.—Feb. 21.—For the erection of tramps' cells for breaking stones, for the Guardians of Aylsham Union, Norfolk. Mr. Henry J. Gidney, clerk, Aylsham.

BATLEY.—Feb. 28.—For the erection of a new post office at Batley, Yorks. Secretary, H.M. Office of Works, &c., Storey's Gate, London, S.W.

BELGRAVE.—Feb. 23.—For the erection of a manager's house and boundary wall in connection with the new pumping station at Belgrave, Leicester. Mr. E. George Mawbey, borough engineer, Town Hall, Leicester.

BLACKHILL.—Feb. 22.—For proposed alterations and additions to the clerk's house, cemetery, Blackhill, Durham. Mr. J. J. Eltringham, architect, Bishoply House, Blackhill.

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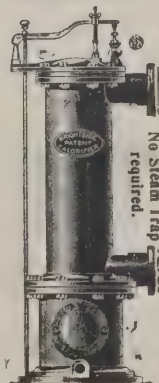
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BRANSTY.—Feb. 22.—For works (except mason's) in building two semi-detached dwelling-houses on Bransty, near Whitehaven. Mr. J. S. Moffat, M.S.A., architect, 53 Church Street, Whitehaven.

BROMLEY.—March 7.—For the erection of a public library in the High Street, Bromley, Kent. Mr. Evelyn Hellicar, architect, 10 Serjeants' Inn, E.C.

BURY.—Feb. 18.—For the construction of a storage reservoir on the Scout Moor brook. Mr. J. Cartwright, engineer to Bury Water Board, Peel Chambers, Bury.

BURY.—Feb. 27.—For the erection of cottage for the Bury and District Joint Hospital Board, Lancs. Mr. Fred Wild, clerk, Cross Street, Bury.

CLEATOR MOOR.—Feb. 20.—For the erection of a public library. Mr. R. Robertson, Public Offices, Cleator Moor, Cumberland.

CONSETT.—Feb. 22.—For the erection of a house in Consett. Mr. T. H. Murray, architect, Front Street, Consett, Durham.

CONSETT.—Feb. 22.—For the erection of a house in George Street, Consett. Mr. T. H. Murray, architect, Front Street, Consett.

CORK.—Feb. 24.—For the erection of 60 three-roomed and 29 two-roomed houses for the working classes on Gurrabraher site. The City Engineer's Office, Municipal Buildings.

DARTFORD.—Feb. 22.—For the erection of additional buildings at Joyce Green hospital, near Dartford, Kent, for the Metropolitan Asylums Board. Messrs. A. & C. Harston, 15 Leadenhall Street, E.C.

DUBLIN.—Feb. 28.—For the supply and erection of temporary buildings to cover about 9,000 square feet, for use as engineering lecture-rooms and workshops, for the Department of Agriculture and Technical Instruction for Ireland. The Department, 4 Upper Merrion Street.

ECCLES.—Feb. 18.—For the fitting of the vestry hall, Liverpool Road, Patricroft, as a free library. Mr. Edwin Parkes, town clerk, Town Hall, Eccles, Lancs.

EDINBURGH.—Feb. 20.—For the erection of a public convenience and weigh-house at Balcarres Street, Morningside. Borough Engineer, City Chambers, Edinburgh.

GATESHEAD.—Feb. 28.—For the erection of a Wesleyan Methodist church in Durham Road, Gateshead. Mr. W. Stanley Ellison, architect, 22 Sir Thomas Street, Liverpool.

GLANTON.—Feb. 28.—For the erection of Presbyterian church hall, Glanton. The Manse, Glanton.

GLASGOW.—Feb. 21.—For the execution of the following works in connection with the alterations on the St. Andrew's halls, viz. (1) digger, mason and brick; (2) wright; (3) tiler and marble; (4) plumber; (5) slater; (6) heating, and (7) plasterer. Office of Public Works, City Chambers, Glasgow.

GLASGOW.—Feb. 23.—For the extension of the workshop of the Cleansing Department at Charles Street, St. Rollox. Mr. D. M'Coll, superintendent of cleansing, 38 Cochran Street, Glasgow.

GLASGOW.—Feb. 25.—For the various works required in the erection of eight tenements of dwelling-houses in Cumbernauld Road, Kennyhill. The City Engineer, 64 Cochran Street, Glasgow.

HARRINGTON.—Feb. 18.—For all the trades (except the mason and brickwork) required in the erection of two houses, Harrington, Cumberland. Messrs. W. G. Scott & Co., architects and surveyors, Victoria Buildings, Workington.

HARROW-ON-THE-HILL.—Feb. 18.—For building a new isolation ward block and enlarging and extending the existing buildings at the hospital field, Pinner Lane, Harrow. Mr. J. Percy Bennetts, engineer and surveyor to the Council, Harrow-on-the-Hill.

HOO.—Feb. 20.—For the enlargement, alterations and other works at the Council schools, Hoo (St. Werburgh), for the Kent education committee. Mr. Geo. E. Bond, architect, Pier Chambers, Chatham.

ILFORD.—Feb. 28.—For the erection of a central fire station in Ley Street, Ilford. Mr. H. Shaw, engineer and surveyor, Town Hall, Ilford.

IRELAND.—Feb. 18.—For additions and alterations to Doagh Mill, co. Antrim. Mr. John Russell, C.E., architect, 22 Waring Street, Belfast.

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KINGSTON-BY-SEA.—For erection of new infirmary, nurses' home and other buildings at Kingston-by-Sea, near Shoreham. Messrs. Clayton & Black, 10 Prince Albert Street, Brighton.

LEIGH.—Feb. 22.—For the construction of a new bridge at Nel-Pan Lane, Westleigh, Lancs. Mr. Tom Hunter, borough engineer and surveyor.

LONDON.—Feb. 22.—For constructing underground sanitary conveniences at Shepherd's Bush Green. Mr. H. Fair, borough surveyor, Town Hall, Broadway, Hammer-smith.

LONDON.—Feb. 24.—For the erection of a new sorting office at Shepherd's Bush, W. Mr. J. Wager, H.M. Office Works, Storey's Gate, S.W.

LONDON.—March 1.—For the erection of stables on their greenmore wharf at Bankside, S.E., for the Southwark Borough Council. Mr. Arthur Harrison, borough engineer, Town Hall, Walworth Road, S.E.

LONG EATON.—Feb. 20.—For the erection of a free library at Sawley Road, Long Eaton. Messrs. Gorman & Ross, architects, York Chambers, Long Eaton.

LYDNEY.—Feb. 28.—For the erection of screen sheds and for other works at Norchard colliery, for the Park Iron Ore and Coal Co., Ltd., Lydney, Gloucestershire. Mr. J. F. Butler, engineer, Old Bank Buildings, Chester.

NEWBURY.—Feb. 27.—For pulling-down and rebuilding premises in Cheap Street, Newbury, for the Governors of St. Bartholomew's hospital and Grammar school. Mr. Walter H. Bell, architect, The Market Place, Newbury.

NEWCHURCH.—Feb. 24.—For restoration of the roof, &c., of Newchurch Church. Mr. W. Milton, Newchurch.

NOTTINGHAM.—Feb. 20.—For the erection of engine and boiler-houses at the Boughton pumping station. Mr. W. B. Farr, architect, 12 St. Peter's Gate, Nottingham.

OULTON.—March 17.—For the enlargement of the Oulton Council school buildings, near Lowestoft. Mr. F. W. Richards, architect, 14 Stanley Street, Lowestoft.

PURTON.—Feb. 22.—For erection of a dwelling-house at the Butts, Purton, Wilts. Messrs. William Drew & Sons, architects, 28 Regent Circus, Swindon.

ST. AUSTELL.—Feb. 27.—For erection of a residence at Watring Hill, St. Austell, Cornwall. Mr. B. C. Andrew architect, Biddick's Court, St. Austell, Cornwall.

SCOTLAND.—Feb. 20.—For repairs at old and new quays, for the Campbeltown Corporation. Mr. James Fullarton, burgh surveyor, Campbeltown.

SCOTLAND.—Feb. 22.—For the mason, carpenter, slater, plasterer, painter and plumberwork of additions to schools at Logie Durno and Fetternear. Mr. R. G. Wilson, architect, 181A Union Street, Aberdeen.

SCOTLAND.—Feb. 24.—For the erection of a number of dwelling-houses in Barns Street, &c., for the Clydebank Town Council. Mr. George Ross, burgh surveyor, Clydebank.

SCOTLAND.—Feb. 28.—For mason, joiner, plumber, plasterer and slater's work of church at Newburgh. Messrs. Thoms & Wilkie, architects, 46 Reform Street, Dundee.

SOUTH SHIELDS.—March 18.—For the erection of municipal buildings on the site in Westoe Road, South Shields. Mr. Ernest E. Fetch, architect, 26 John Street, Adelphi, London, W.C.

THURLSTONE.—Feb. 20.—For building new Church school for seventy children. The School Managers, Thurlstone Rectory, Kingsbridge, South Devon.

WALES.—Feb. 18.—For erecting two lock-up shops, with offices over, at Pontypridd. Messrs. A. O. Evans, Williams & Evans, architects, Post Office Chambers, Pontypridd.

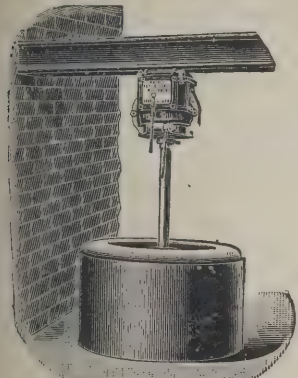
WALES.—Feb. 20.—For the erection of twenty houses at Crumlin, Mon, for the Mill Brook Building Club. Mr. A. J. Bowen, architect, Glen View, Crumlin.

WALES.—Feb. 20.—For erection of fifty houses at Wattsville, North Risca, Mon, for the Risca Urban District Council. Mr. A. J. Dardis, surveyor, Council Office, Risca.

WALES.—Feb. 20.—For matchboarding the ceilings of Bolton Hill Council school, Steynton, Pembrokeshire. Mr. D. Edward Thomas, architect to the Pembrokeshire education authority, 17 Victoria Place, Haverfordwest.

WALES.—Feb. 24.—For the erection of a Congregational church at Penydarren, Merthyr Tydfil. Rev. T. B. Mathews, 60 Brynhyfryd, Penydarren.

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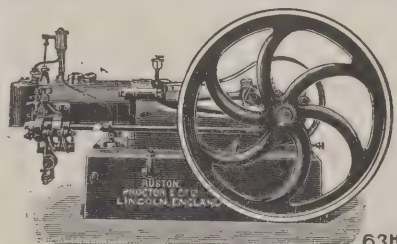
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Buildings, Ludgate Circus, London.

WALES.—Feb. 25.—For the erection of a vicarage at Cwm, Mon. Mr. E. A. Johnson, architect, Merthyr.

WALES.—Feb. 25.—For the erection of two houses at King Edward Street, Blaengarw. Mr. W. Pilgrim Morris, solicitor, Pontycymmer.

WALES.—Feb. 27.—For alterations and additions to the National schools, Raglan, Mon. Mr. W. H. D. Caple, architect, Church Street Chambers, Cardiff.

WALES.—March 1.—For building a new schoolroom, dwelling-house, &c., adjoining Elim chapel, near Carmarthen. Rev. Stephens Thomas, Parkglas, Cemetery Road, Carmarthen.

WALES.—March 14.—For the extension and alteration of Horeb Calvinistic Methodist chapel, Treherbert. Mr. W. D. Morgan, Victoria Chambers, Pentre, Rhondda Valley.

WALSALL.—March 6.—For the erection of a senior mixed department for 300 children, together with a classroom for fifty infants and sundry alterations to the present boys and girls' schools. Messrs. Bailey & McConnal, architects, Bridge Street, Walsall.

WATERLOO.—Feb. 28.—For the erection of a new fire-station in Waterloo, Lancs. Mr. F. Spencer Yates, surveyor to the Council, Town Hall, Waterloo.

WEST HAM.—Feb. 28.—For the following works, for the West Ham Town Council:—(1) Extension of public baths, Balaam Street, Plaistow; (2) alteration to prisoners' cells, quarter-session court, West Ham Lane, Stratford. Borough Engineer, Town Hall, West Ham.

WIDNES.—Feb. 27.—For the enlargement of Simm's Cross Council school. Mr. F. U. Holme, architect, Westminster Chambers, 1 Crosshall Street, Liverpool.

THE Town Council of Clydebank have, after several years of discussion, resolved to utilise about three-quarters of an acre of ground belonging to them for an experiment in municipal cottage dwellings. The intention is to erect twenty-eight cottage dwellings, two storeys high, the houses to be in flats, and one-half to be one room and kitchen and the other two rooms and kitchen, with accessories. Building estimates are to be advertised for.

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E. ILES, Jun. (accepted) 865 8 7

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E. ILES, Jun. (accepted) 497 2 8

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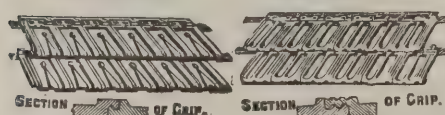
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Burges & Sons	600	0	0
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Stewart & Sons	590	0	0
Dashwood & Sons	577	0	0
Sayers	556	0	0
Pearce	533	0	0
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DARTFORD.

For alterations to North Pole restaurant. Mr. WM. HARSTON, architect.
J. ELLINGHAM & SONS, Dartford (accepted).
For the erection of two houses, Green Street, Green Road. Mr. W. HARSTON, architect.
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For the erection of the Council house and free library. Mr. JOHN P. OSBORNE, architect, Birmingham.
BARNLEY & SONS (accepted) £13,888 0 0

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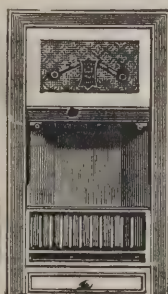
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Lawson	11,517	0	0
Eastwood & Sons	10,648	0	0
Bell	10,159	4	0
Price	9,834	17	6
Moss & Sons, Ltd.	9,700	0	0
H. Ashley	9,450	0	0
Lock, Andrews & Price	9,400	0	0
Cottle	9,160	15	0
Byrom	9,132	10	0
Lane Bros.	9,110	6	0
Firth & Co.	8,900	0	0
Tweltridge & Moore	8,765	0	0
Brigg	8,650	0	0
Parker & Sharp	8,529	8	6
J. & J. Warner	8,437	0	0
Barker Bros.	8,420	0	0
Bower Bros.	8,400	0	0
WARD & TETLEY, Bradford (accepted)	8,368	14	9

NESTON.

For alterations to temporary school.

Whyte & Sons	£149	2	9
J. & I. Evans	104	5	0
Pritchard	101	3	6
Wright & Son	95	0	0
W. FLEMING, Neston (accepted)	70	0	0

NUNEATON.

For construction of storm-water overflow in Bond Gate. Mr. F. C. Cook, engineer.

T. Smith	£273	4	7
J. BROWN, Nuneaton (accepted)	244	6	2

NUNEATON—continued.

For two silt filters and works of underdrainage at Hartshill. Mr. F. C. Cook, engineer.

Johnson Bros.	£2,123	6	5
Ashby	1,998	2	4
Cunliffe	1,916	7	0
T. Smith	1,909	4	4
Jewell	1,734	0	0
Owens	1,588	5	4
Langley, Hardy & Johnson	1,561	18	8
G. HOLLOWAY, Wolverhampton (accepted)	1,300	0	0

RICHMOND.

For the rebuilding of the Black Horse public-house, Richmond, Surrey. Mr. HERBERT RICHES, architect, 3 Crooked Lane, King William Street, London, E.C. Quantities supplied.

W. R. Williams	£4,275	0	0
Adamson & Son	4,273	0	0
Sheffield Bros.	4,242	0	0
Todd & Newman	4,000	0	0
Soole & Sons	3,995	0	0
COURTNEY & FAIRBAIRN (accepted)	3,933	0	0

ST. ALBANS.

For alterations to police station, Tess Road. Mr. U. A. SMITH, county surveyor.

Foot	£788	5	0
Hammond & Son	606	0	0
Miskin & Son	589	0	0
Pearse	578	0	0
G. F. & L. Tennant	559	0	0
Bushell	550	0	0
Skelton	414	10	0
D. WILKINS, Watford (accepted)	360	0	0

SOUTHEND.

For erection of houses, St. Mary's Avenue West. Mr. C. COOKE, architect, Southend.

Tomkins	£1,800	0	0
Whur & Campkin	1,700	0	0
Wilkinson	1,585	0	0
C. WINGRAVE (accepted)	1,575	0	0

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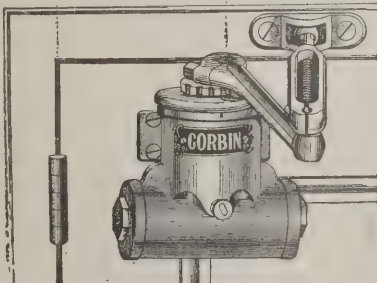
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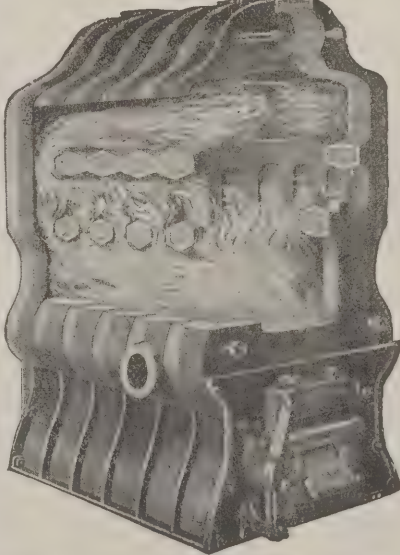
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SELBY.

For completion of a Dutch barn at Chester Court Hall.			
Messrs. THOMPSON & KIRTON, architects, Hull.			
Wright & Son	£171	18	0
W. & J. Oakes	160	0	0
Coonan	119	10	0
Downer	115	0	0
Ward	113	0	0
Dibnak	100	0	0
A. DOUGILL & Co., LTD., Leeds (accepted)	89	10	0

SOUTH SHIELDS.

For rebuilding business premises, 32 Fowler Street. Mr. FRED. RENNOLDSON, architect, South Shields.			
Young	£1,405	0	0
Nichol	1,385	0	0
Ross	1,375	10	0
Thornton & Co.	1,317	8	0
Sheriff & Sons	1,300	0	0
Wilson & Sons	1,295	5	0
Banks	1,268	9	0
Carruthers	1,216	18	6
Harper	1,212	16	6
W. ALLISON (accepted)	1,200	2	1

SWINDON.

For sewerage, levelling, paving, metalling, flagging, channelling, lighting and finishing. Mr. H. J. HAMP, borough surveyor.

Gladstone Street.

Free & Co.	£417	4	5
Winchcombe	353	15	3
FREE BROS., Marlborough (accepted)	337	6	3

Salisbury Street.

Free & Co.	359	8	2
Winchcombe	316	4	6
FREE BROS. (accepted)	305	18	9

STOKE-ON-TRENT.

For alterations and additions to the workhouse.

Tomkinson & Betteley	£16,897	0	0
Ball & Robinson	16,934	0	0
Yoxall	16,750	0	0
Corns	16,400	0	0
Bennion	15,598	0	0
Godwin	15,567	0	0
Heath	15,136	0	0
JOHN BAGNALL, Fenton (accepted)	14,427	0	0

WELLINGBOROUGH.

For erection of Congregational church. Messrs. GEORGE BAINES, F.R.I.B.A., & R. PALMER BAINES, architects, 5 Clement's Inn, Strand, London, W.C.

Kerridge & Shaw	£2,649	0	0
Hawtin	2,460	0	0
Bayes	2,440	0	0
Goodman & Murkitt	2,409	0	0
Green	2,398	0	0
Hacksley Bros.	2,379	0	0
Marriott	2,375	0	0
Drever	2,359	9	0
Henson	2,350	0	0
Stevens	2,343	6	0
E. BROWN & SON, Castle Street, Wellingborough (accepted)	2,325	0	0

WALES.

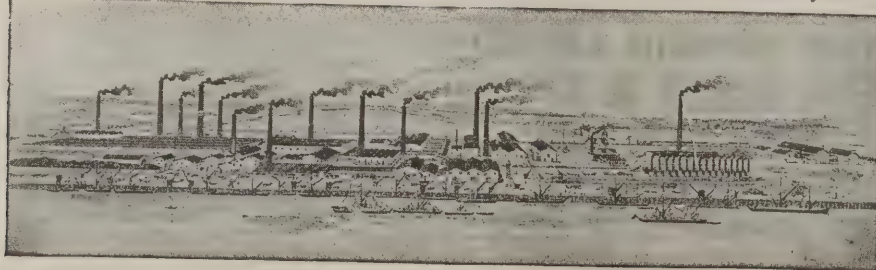
For improvements at Church Street and Church Terrace, Bargoed, including laying of pavements, kerb and channelling, forming footpaths and making-up present roads.

Monks & Co.	£256	16	0
Williams	235	13	10
Love	232	4	8
Price & Smith	229	16	3
Collings & Co.	220	5	10
Winstone	214	1	9
Vodden & Lee	213	17	7
Lewis	210	2	4
Rowlands	200	5	6
J. POWELL, Bargoed (accepted)	200	3	1
Pugh	190	1	11

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WALES—continued.

or the construction of new road and drain at Penprisk, Pencoed. Mr. J. L. LAMBERT, surveyor, Bridgend.			
G. Davey	£610	0	0
J. William	571	10	0
T. Davies & Co.	495	15	0
W. Jenkins	483	0	0
R. Jones, sen.	466	17	6
R. JONES, jun., Coychurch (accepted)	455	10	0

WIGMORE.

or sewerage and sewage-disposal works at Wigmore (Contract No. 1). Messrs. WILLCOX & RAIKES, engineers, Birmingham.			
McCann	£2,250	0	0
Roberts	1,892	4	0
Vale & Sons	1,735	5	0
Rogers & Wood	1,720	0	0
Johnson Bros.	1,717	9	10
T. Broad, Ltd.	1,715	0	0
Meredith	1,701	0	0
Overton & Sons	1,550	0	0
Willetts & Son	1,482	11	8
Jackson	1,409	0	6
Horner & Maud	1,366	12	0
Porter & Co.	1,290	0	0
H. HOLLOWAY, Wolverhampton (accepted)	1,180	7	5

WING.

or sinking a test borehole, depth 250 feet, to obtain a supply of water for the parish of Wing. Messrs. SANDS & WALKER, engineers, Nottingham.			
Price	£566	13	5
Vivian Boring Co.	379	15	4
Chapman & Sons	301	0	0
Timmins	245	10	6
Tilley & Sons.	228	2	2
H. Brown & Co.	223	15	0
J. Thom	211	19	0
Isler & Co.	185	14	0
Le Grand & Sutcliff	182	5	0
Noble	161	13	2
CHEELD & Co., Chesham, Bucks (accepted)	131	14	9

Received too late for classification.

ARBROATH.

For works in connection with a new water supply from Norax to Arbroath. Mr. Hogg, C.E., Glasgow.	
Accepted tenders.	
No. 2 Section—R. C. Crawford, Strathaven	£9,594 13 6
No. 3 Section—Robert Gibson, Glasgow	7,567 4 9

BARNSELEY.

For carrying-out Section 1 of the proposed sewage scheme extensions, namely, the storm-water filters, under drains, &c.	
THORNEYCROFT & NORMAN, Cudworth (accepted)	£2,102 0 0

BRIGHTON.

For the erection of three artisans' dwellings, for the Town Council. Mr. F. J. C. MAY, borough surveyor.	
J. & W. SIMMONDS, Brighton (accepted)	£687 0 0

MAIDSTONE.

For the construction of sheep and pig pens in the Fair Meadow, for the Corporation.	
Weeks & Son, Ltd.	£220 0 0
Jesse Ellis & Co., Ltd.	198 15 6
A. WATERS (accepted)	175 0 0

TRADE NOTES.

The Isolation Hospital, Sedgefield, is being warmed and ventilated by means of Shorland's patent Manchester stoves, with descending smoke flues and Manchester grates.	
MESSRS. ARTHUR L. GIBSON & Co., of Tower Street, Upper St. Martin's Lane, London, have received the order for thirty-four of their Kinnear steel rolling shutters for the car-sheds of the Municipality of Johannesburg, South Africa, and also for eight Kinnear shutters for the new bottling stores, Liverpool, being erected by the Lancashire and Yorkshire Railway for Messrs. Allsopp's, Limited.	

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THE Brightside Foundry and Engineering Company, Ltd., have secured the contract from H.M. Government for heating the new War Offices in Whitehall. The system is to be low-pressure steam heating with radiators. The company have just completed a large contract for water softening plant and for heating apparatus at the Three Counties Asylum, near Hitchin, and also at the new Sanatorium at Frimley, Surrey, which was opened lately by H.R.H. the Prince of Wales. They have erected many heating apparatus for H.M. Office of Works, India Office, Metropolitan Asylums Board, London County Council (education department), and are at present engaged on several similar large works, viz. Wadsley Asylum, near Sheffield, Fir Vale Workhouse, near Sheffield, Bolton, &c.

BUILDING AND BUILDERS.

THE sandhills at Hawthornden, near Edinburgh, extending to over 30 acres, have now been opened up, and the supply of sand for building purposes is practically inexhaustible.

THE Yorkshire Master Painters' Federation held their annual meeting and exhibition at Halifax. The report declared there were signs of a general improvement in business. The next meeting in 1906 will take place at Hull.

THE harbour committee of Kirkcaldy Town Council considered last week the tenders for the extension of the East Pier, being the first portion of the new harbour works. About twenty estimates were received, only one being from a local contractor. The estimates ranged from 24,000*l.* to 50,000*l.* After consideration, it was agreed to submit the whole of the estimates to the engineer, and secure his report before accepting any of the offers.

THE Kroonstad Town Council, South Africa, recently considered a report of the public works committee on plans by Messrs. Leech & Mackay, architects, Johannesburg, which were provisionally accepted. The committee estimated the cost of erection at 14,500*l.* The Council resolved to reject these plans as largely in excess of the amount allowed by the ratepayers. Another firm of architects are to be requested to draw up plans at a lower cost.

THE West Lancashire Rural District Council, which has jurisdiction over seventeen townships, were informed by the chief surveyor that a washhouse at Rufford had been erected without the previous submission of a plan and without proper drainage. The surveyor added that he would have two or three cases of a similar nature for the next meeting. Many of the members having expressed dissatisfaction with the by-laws, it was decided not to take proceedings against the owner of the washhouse.

A LIGHTHOUSE is about to be built in the open sea, at distance of about 22 miles from the mainland, off Cap Hatteras, on the coast of North Carolina. The projected lighthouse will be built entirely of steel. It will contain accommodation for two families of lighthouse keepers, rooms for storing food, the necessary lighting appliances and machinery, and a powerful steam-driven siren. Moreover, the lighthouse will be fitted with wireless telegraphy, and connected by telephone with the land.

MR. GEORGE TYRRELL, Government contractor, died at Yarmouth on the 10th inst. at the age of eighty-four. He constructed the Bembridge forts, the forts between Plymouth and Plympton, and reconstructed the Royal Naval Hospital at Yarmouth. He had also built Tenby and Calder lighthouses and restored the Haisborough lighthouse. Mr. Tyrrell carried out the big works at Hurst Castle, but they led to long and costly arbitration, in which Mr. Tyrrell spent a fortune. Since then he had covered estates with houses at Yarmouth.

VICTORIA public school, Govanhill, Glasgow, which will accommodate 1,236 pupils, has been opened. The exterior is of red sandstone. Besides the usual classrooms, there is a cookery-room and a workshop. On the ground floor there are six classrooms for 396 infants, and there are fourteen classrooms on the upper floor, accommodating 840 children. The workshop and cookery-room form a separate block. The Plenum system of heating has been adopted, and electric lighting has been fitted up throughout. The estimated cost of the school, including equipment, is 20,000*l.* Mr. Andrew Balfour was the architect.

SIR JOHN JACKSON, the contractor for the extension of Devonport dockyard, in supporting an application for a license for a trust public-house on an estate owned by him

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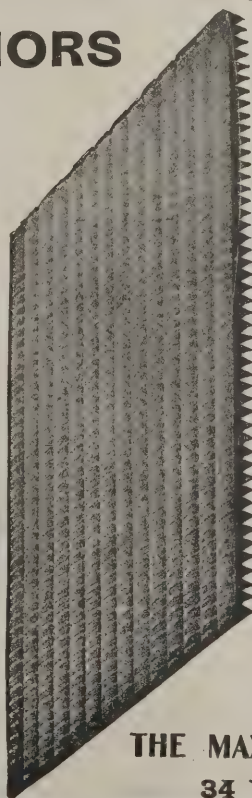
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Dublin.—James A. Campbell & Co., Cuffe Lane, Stephen's Green.
Edinburgh.—A. Cunningham & Co., 18 Leith Street and 60 Home Street.
Glasgow.—C. & J. Malloch, 304 St. Vincent Street.
Gloucester.—Sessions & Sons, Southgate Street.
Halifax.—John Naylor & Son, Cheapside.
Huddersfield.—George Garton & Son, Market Place.
Hull.—James Darby, Mill Street.
Lancaster.—Abbott & Co., Chapel Street.
Leeds.—Kayll & Co., Alfred Street, Boar Lane.
Leicester.—H. C. Snow, 8A Pocklington's Walk.
Liverpool.—J. G. Nicholls, 52 Renshaw Street.
Luton.—Charles Bird, Collingdon Street.
Manchester.—Baxendale & Co., Miller Street Works.
Northampton.—E. Nichols, Abingdon Square.
Nottingham.—T. E. Burnett & Co., 40 Castle Gate.
Newcastle-on-Tyne.—Reed, Millican & Co., Croft St. Works.
Newport (Mon).—Harse, Son & Shepherd, 83 Commercial St.
Sheffield.—John Norton & Son, 122-126 Queen Street.
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ELECTRIC NOTES.

THE experiments made of lighting the South Quays, Antwerp, with electricity have proved so satisfactory that the Chamber of Commerce are urging that electricity should be extended to all sections of the quays and docks.

THE electric railway going completely round the base of Vesuvius has been completed. Tourists in Naples will be able to reach Pompeii by frequent trains for 1s. 3d., compared with the railway fare of 3s. 7d.

THE Wakefield City Council on the 14th inst. resolved to make application to the Local Government Board for sanction to borrow 18,000*l.* for extending the electrical undertaking.

THE fact that special rules have been prepared for the installation and use of electricity in coal mines is significant of the progress which the new form of power and lighting is making in the collieries of this country. A code has been agreed upon and will shortly be proposed for establishment in collieries.

A PETITION has been lodged against the Croydon Corporation Bill for the extension of tramways to Upper Norwood. It is signed by owners and frontagers who object to the proposed expenditure of 130,000*l.* The present debt of Croydon is more than two millions, the rates have risen from 5s. to 7s., and it is contended by the petitioners that the proposed scheme cannot even pay working expenses.

THE electric-lighting committee of the Edinburgh Town Council have received a report by Mr. F. Newington, the engineer, advising the department to undertake the testing of incandescent lamps in use by consumers. Lamps of an inferior make have, it is said, been largely used, the light being below their stated capacity and below the consumpt. It is proposed that lamps should be sent by wiring contractors to the department and tested at a charge of 6*d.* per dozen.

THE Stourbridge Guardians are still unable to settle the question of the lighting of the new workhouse by gas or electricity. Mr. A. Marshall, architect, submitted estimates, and these were 2,700*l.* for electric fittings and 2,139*l.* for gas fittings for the workhouse. The price for electric lighting

and on which his workmen reside, mentioned an experience which influenced him in resolving to allow facilities for obtaining intoxicants. He said that twenty years ago he employed many hundreds of men in constructing the Manchester Ship Canal, and he then absolutely prohibited the sale of drink within his boundaries. A great deal of drunkenness was, however, found in the temporary houses on the works, and for a long time he was at a loss as to the cause of it. Within a few months of the completion of the canal it was discovered that in one of the huts near Runcorn the miners had burrowed down longitudinally for 100 to 150 yards to the high road, and through that tunnel drink was brought during the night in barrels, while the watchmen knew nothing about it.

THE Tramways and Light Railways Association paid a visit last week to the works of the London United Electric Tramways at Chiswick, under the guidance of Mr. Clifton Robinson, the managing director of the company. The power there produced is supplied to the sub-stations at Fulwell, Hounslow and Hanwell, and meets all the requirements of the twenty-seven miles of tramway which are worked by the company. The most noteworthy objects are the eleven Babcock & Wilcox boilers, the steel chimney 260 feet high, the model engine-house with its complete generating plant, which has been described by American and other experts as the best arranged and most economically designed department of the kind that they had seen; the Wheeler condensers and the auxiliary electric plant.

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would be 3d. per Board of Trade unit, and 2s. per 1,000 for gas if a minimum of 3,000,000 feet were consumed yearly. Further information is to be obtained before the matter is settled.

THE Electrical Contractors' Association at a general meeting determined to prevent by every legitimate means the passage of Clauses 63 and 64 of the London County Council General Powers Bill being promoted in Parliament this session. The clauses seek to authorise any metropolitan borough council supplying electrical energy to expend money on "wiring and fitting and supplying with wires, fittings, and apparatus the premises of their consumers or prospective consumers."

THE Cheltenham Corporation recently applied for sanction to a further loan of 2,000l., for the purchase of additional plant to supply motor power for the six miles of tramway extension shortly to be opened for traffic. At the inquiry on the 3rd inst. the town clerk explained that since the application was forwarded to the Board, tenders had been received and provisional contracts entered into under which the required plant would be obtained for 1,482l., and he therefore asked for a reduction in the amount of the proposed loan to 1,500l.

THE Wolverhampton tramways committee have for some time had under consideration the question of laying down an electric tramway from the centre of the town to the Penn district, but they have come to the conclusion that, owing to the narrowness of the roads and the heavy expense, it would be better to place a service of motor omnibuses on the roads. It is recommended that tenders be obtained for three double-deck petrol omnibuses at a cost of about 950l. per 'bus.

THE Dunfermline Town Council have adopted the following motion:—"That the Town Council, as local authority for the burgh under the Electric Lighting Acts, resolve to apply to the Board of Trade for a provisional order authorising them to supply electricity within the burgh for lighting and power purposes, including public lighting, and under which they would become authorised distributors within the meaning of the Fife Electric Power Company's Act of Parliament; and that the town clerk, in conjunction and with the assistance of Messrs. A. & W.

Beveridge, parliamentary agents, London, be instructed to take all necessary steps with that view."

THE Belfast Corporation have succeeded in arranging a loan of 1,000,000l., in connection with the tramway undertaking, with the Union and Smith's Bank, Limited, London. The rate of interest will be 3½ per cent., and the stock is to be issued at 98 per cent., with an underwriting commission of 1 per cent. The issue, it is understood, will be offered very shortly to the public, and any portion not subscribed will be taken up by the Union Bank at the price of 97l. per 100l. These terms are regarded as very favourable considering the state of the money market, and may be taken as an indication of the soundness of Belfast municipal credit.

VARIETIES.

THE Aston Town Council have sanctioned the reconstruction of certain tramways at a cost of 63,270l., inclusive of overhead equipment.

At the annual meeting of the City Offices Co., Ltd., the directors reported that the rebuilding of Baltic House, Leadenhall Street, E.C., by Messrs. Patman & Fotheringham, Ltd., is making good progress.

It is taken as a proof of the improvement of trade at Haslingden that this year, when the renewal of dog licenses was due, not a single dog was sent to the borough lethal chamber to be killed. Usually there are a large number.

A PAPER entitled "The Queen Victoria Memorial as compared with other Royal Memorials Abroad" will be read by Mr. M. H. Spielmann before the Society of Arts on Tuesday, the 21st inst.

A DEPUTATION of the Newcastle-on-Tyne Town Council, accompanied by the city architect, Mr. F. H. Holford, inspected on the 10th inst. the model one-room dwelling at the People's Palace, Glasgow. A similar plan will probably be recommended for adoption in Newcastle.

A SERIOUS drainage difficulty has led to the closing temporarily of Nantwich parish church. In consequence of the stoppage of an old drain a leakage has occurred in the church and a most objectionable nuisance has been caused, which prevented its use for public service on Sunday last.

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THE Lincoln City Council at their last meeting considered designs submitted by Messrs. Doulton & Co., Ltd., for proposed picture tile panels at the hospital, and it was resolved that the design, "The Finding of Moses," be selected, the cost of the panel, 4 feet by 2 feet 6 inches, with a 6-inch margin, being 20*l*.

THE directors of the Vulcan Boiler and General Insurance Company, of King Street, Manchester, are arranging with the authorities of the Manchester University the establishment of a Fellowship for study and research in engineering. This is stated to be the first instance of such a step having been taken by any firm.

THE Kensington Borough Council have decided to remove from the Public Library rate the limitation of a halfpenny in the pound in order that a new central library might be built at an estimated cost of about 17,000*l*. Kensington is the only library authority in London which has been until now limited to a halfpenny rate.

SEVERAL of the valuable sites forming the upper parts of the stations of the Central London Railway have recently been let upon building leases. The superstructures over Chancery Lane and Tottenham Court Road stations are now being constructed from the designs of Mr. Delissa Joseph, who was also the architect of the superstructure over the Post Office station.

THE contracts for the contemplated reconstruction of the Kelso town hall have been let, and the work is to be proceeded with at once. The scheme of renovation includes the refacing of the stonework of the building, and converting the piazza on the street level into a court-room and offices. A loan is to be obtained for 3,000*l*. for the carrying out of the work.

THE report of the Guinness Trust for the past year states that the average weekly rent of each room was 2*s*. 1*½**d*., covering chimney-sweepings and the use of venetian blinds, common room, baths and hot-water supplies. The rent is also inclusive of all rates. The trustees have now provided 2,574 separate dwellings containing 5,339 rooms, besides laundries, club rooms, costers' sheds and perambulator sheds.

THE Compania Fundidora de Fierro y Acero of Monterrey, Mexico, are now building coke ovens at the immense

steel plant of the company in that city. The foundations for sixty of these ovens have already been laid, and it is stated that they will be in operation within four months. In the near future it is proposed to build sixty more ovens, which will enable the company not only to supply its own needs, but also to place its coke on the market.

THE Local Government Board have given their approval to the scheme for rehousing persons who had been displaced in various parts of Sheffield owing to street improvements. They have sanctioned the borrowing of 23,000*l*., which is to cover the cost of land in Clough Road and Edmund Road, and seventy houses to be erected thereon. The city surveyor was instructed to prepare specifications and invite tenders for the work.

THE Belfast public health committee have adopted a scheme of offering prizes for cleanliness to occupiers of small houses, the rent of which does not exceed 4*s*. weekly. The prizes consist of allowances to cover the rent for specified periods, and these will be awarded to the competitors who keep their houses, yards and premises, including furniture, utensils and windows, cleanest and in the most sanitary condition between certain given dates.

A CONFERENCE attended by landowners and farmers of West Wales has been held at Carmarthen, when the afforestation of the waste and unproductive woodlands of Wales was discussed. It was declared that if the general planting of 10,000,000 acres out of 21,000,000 acres of waste and unproductive woodland in the United Kingdom could be promoted a saving of from 8 to 10 millions annually would be effected in the course of years, as we now paid 30 millions sterling to foreign countries for our timber supply.

THE Shakespeare Memorial provisional committee say, in the course of their statement, if the response is adequate, it is hoped that there may be erected in London a Shakespeare house or institute, with a Shakespeare library, a lecture theatre and a central hall to receive a fitting statue of Shakespeare, statues of other famous men being added from time to time. To carry out this suggestion large funds will be necessary.

THE Carmarthen County Council are obtaining the opinion of similar bodies on the following resolution:—"That County Councils endeavour to obtain such legislative

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measure as shall vest in them the right to specify to minor authorities having the supervision of erection of new property what widths shall be reserved for main roads where such property abuts thereon, and at what level in relation to main roads, entrances of such property shall be erected. That property shall comprise such appurtenances as will obviate the (either temporary or permanent) deposit of any matter constituting an obstruction or nuisance."

THREE Bills relating to the Port of London have been prepared for the consideration of Parliament. The first authorises the London County Council to purchase the docks at a cost of about 30,000,000*l.*, to dredge the river at a cost of about 2,500,000*l.*, and to increase the dues and charge any deficits upon the county rates; the second empowers the Thames Conservancy to raise 3,000,000*l.* to be expended in dredging the river, to strengthen the Thames Tunnel, and to make agreements with dock companies for enlarging the docks; and the third sanctions the construction of a barrage at Gravesend at a cost of 4,000,000*l.*

A COMMITTEE of the Privy Council has been appointed to consider the following points in connection with the establishment of a national museum and a national library in Wales:—(1) The place at which each of the two institutions should be established, having special regard to the amount of support which is offered both to the original foundation and to the future maintenance of the institutions by the local authorities and inhabitants of the several places which may be suggested. (2) The probable cost of erecting and of maintaining the institutions. (3) The contributions which may be expected from local sources either in land, money or buildings towards the above-mentioned cost. (4) The constitution of the trust or governing body which should be appointed to manage the institution, if established.

RURAL BY-LAWS.

ON Monday there was a discussion at the Surveyors' Institution of Mr. A. R. Stenning's paper on "Urban and Rural By-Laws and Suggested Amendments" and Mr. W. Menzies's on "Building By-Laws in Rural Districts."

Mr. W. Woodward said things had arrived at such a pass that soon a man might not be able to eat his dinner without

submitting the menu to the medical officer of health. Much mischief had arisen from the attempt to adapt the by-laws of London to the country. By-laws should be elastic. What was required was an Act of Parliament with general clauses as to width of road, lines of frontage, open space about buildings and water supply and sanitation.

Sir William Chance said he was in favour of reform. There had been undoubted evils, but in attempting to reform them the Local Government Board had rushed to the other extreme. There might be a code embodying the broad principles of building and sanitation. The best way to deal with the matter, however, was by Act of Parliament.

Mr. Casson said that for fifteen years he had been in charge of the By-Law Confirmation Department of the Local Government Board, and he agreed that by-laws should be in such a form as to be easily understood by the builders and those interested. They must be fair and uniform in their application, and above all they must be drawn with a view to the health and welfare of the occupiers of buildings. The model by-laws should be adapted to local needs. The rural district councils, notably that of Chailey in a recent case, had been attacked, but the Chailey Council only did its duty when it initiated against an esteemed gentleman proceedings which it would have been bound to take against a jerry-builder. The members were neither insincere nor overbearing; they simply upheld what was the law of the land, and he thought it would have been better if an example of compliance rather than of defiance had been set by the defendant.

Sir William Grantham thanked the great body of surveyors for the interest they had taken in his case, and for the trouble they were taking to obtain some modification of the existing by-laws and of the method in which they were carried out. He had been twitted with having drawn his own plans. Well, one did not take one's pleasures vicariously. He was often drawing plans, and the local builders, who could not draw them themselves, were always able to carry them out. When he was driven to build himself he went on in the way he was accustomed to, and he made a sketch which was sufficient for his own men, and notwithstanding the by-laws he hoped to continue. He thought the question of appeal from the Rural District Council's decision one of

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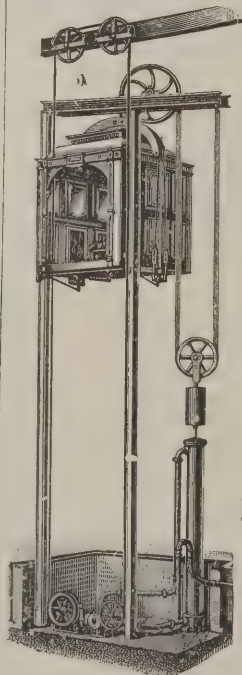


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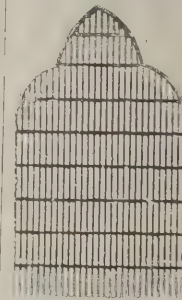
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great importance. He did not, however, believe there was need of a formal tribunal; let the appeal lie to the County Council, as it now did in other matters—say, in respect of roads, on which point he had himself successfully used the machinery against his own District Council. It was evident that Mr. Casson knew nothing of the facts, though he had appeared against him. He had declared it was a pity he (Sir William) had defied the Council. But the point was that the Council were breaking the by-laws, and tried to force on him the urban by-law, which he refused to accept not the rural by-law, with which he had complied, as the historical decision of the magistrates showed, for the finding was in his favour except on the question of ash-pits.

SHEFFIELD SOCIETY OF ARCHITECTS.

At the monthly meeting of the Sheffield Society of Architects and Surveyors, Mr. T. Swaffield Brown read a paper on "The Proper Relation of Design and Handicraft." The lecturer referred at the outset to the lectures and discussions of the Society on what are called practical subjects connected with art, and he wanted to call attention to ethical as well as practical considerations, these being generally neglected to the great detriment of art. He desired to do so because he thought it needed to be done, and that it was one of the few things which had better be done ill, and often, than not done at all. It was necessary, because in these matter-of-fact times such subjects are jostled out of the way, although they might illuminate much which puzzles the so-called practical man, who prefers to attribute to chance or accident much which is really due to spiritual insight—as in discussions on the origin of the Pointed arch and such matters. But there were signs that the efforts of great thinkers had stirred the still waters of apathy and brought to the surface one or two questions whose apparent complexity had diverted attention from their origin and hindered their solution. One of these was that of the proper relations of design and handicraft, about which much had been said and written by those whose trade it was to talk and write, but little by designers and craftsmen, whose

business it was to know and to do. The architect was the arch-type of designers, because the architecture of nations is the petrified symbol of the sum of their art, and of much else of importance in their history. And even now most design and work was in some way dependent upon architecture. Therefore it seemed a fitting opportunity to speak upon the relationship of design and handicraft. He thought these were not in a healthy condition, because of the common use of the two terms as things apart, not merely qualities of the same thing as inseparable for use as soul and body. And they were not only spoken of but treated as things to be practised by separate individuals, separate classes and in separate places. The effort of the last fifty years to popularise art practice had failed because it attempted to teach the unteachable. Art could not be taught. He gave some of the results of last year's examinations in support of the statement of failure. He suggested that the remedy was a system of co-ordinate education, which, beginning in the school, should lead the child through its different stages by selection at each step, eliminating early those whose dispositions were towards mechanical or commercial pursuits, and taking the others by wise advice and guidance along the paths which their experience and taste led them to choose, not putting them through the usual rigid course which so often leads to disgust and abandonment. He thought that this would restore the unity of art practice and elevate the worker, creating a force which would ultimately crush the sordid influences which made our surroundings what they were.

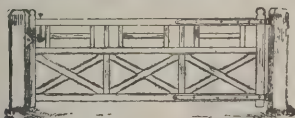
The customary vote of thanks was accorded to the lecturer.

EXHIBITION OF SCHOOL APPLIANCES.

Under the auspices of the Royal Sanitary Institute an interesting exhibition of school building and furnishing appliances was held from the 7th to the 10th inst., in connection with the Conference on School Hygiene, at the University of London, Imperial Institute Road, South Kensington.

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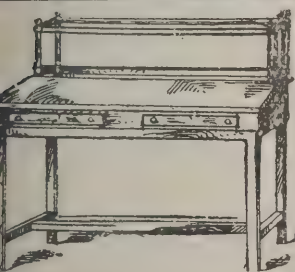


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system of dowelled blocks in pitch pine, besides sample panels of the same system of flooring in various kinds of wood and a number of models showing the method of dowelling. Messrs. Bratt, Colbran & Co., of 10 Mortimer Street, W., made an attractive display of their "Heaped" Fire (Patent), the several advantages appertaining to which were manifest. Messrs. Doulton & Co., Ltd., of Lambeth, were well *en évidence* with their various sanitary specialties for schools, &c., including syphonic trough closets for children, improved closets for infants and children, isolated trough-closets, lavatories in ranges, baths for children, urinals, wall and pedestal fountains. Specimens were also shown of the anti-scalding mixing valve, so arranged as to give either cold, tepid or hot water.

The Berkefeld Filter Co., Ltd., of 121 Oxford Street, showed their well-known patent Berkefeld filter in a variety of patterns suitable for all purposes and adapted to meet all requirements. George Jennings, Ltd., of Lambeth Palace Road, had a good display of their improved sanitary appliances for schools, including lavatories, water-closets, urinals, and their patent warm fresh air ventilating grate made of terra-cotta. The Limmer Asphalte Paving Co., Ltd., of 2 Moorgate Street, E.C., were present with models representing mineral rock mastic roofing, stable and coach-house floors, damp-courses and vertical asphalte plates for damp walls.

An effective display of sanitary fittings and appliances for schools was made by Mr. T. A. Harris, of 56 Blackfriars Road, including the "Infantas," the "College" and the "Averta" pedestal closets, as well as the "seat-action" closet, which gives an efficient flush by means of a slight misplacement of the seat upon the user rising, and is specially adapted for use in schools, asylums, infirmaries, lodging-houses, &c. Well worthy of notice too was the "Ophthalmic" spray lavatory, with upward or downward spray as desired, which is intended principally for schools and institutions where ophthalmia prevails. Mr. T. A. Harris had in addition a good show of London-made brasswork, consisting principally of laboratory fittings. We may also mention that the Ellkay Patent Bath Syndicate, Ltd., of 59 Holborn Viaduct, had on view the "Ellkay" bath with fittings attached, which is designed to occupy a minimum of space.

Not the least attractive part of the exhibition, it may be added, were the several drawings and plans hung on the wall of schools and other buildings by various architects, including the drawings of new buildings for Christ's Hospital by Sir Aston Webb, R.A.

WATERPROOFING CONCRETE STRUCTURES.*

EVER since concrete has entered so largely into the field of construction as a substitute for stone masonry, there has been more or less discussion as to its permeability, and various expedients have been resorted to to prevent the seepage of water through the material. This refers more particularly to the large masses of concrete built for engineering structures. I am aware that there has been more or less success in making concrete impervious to the action of water by various means, but do not think that any of them have given such satisfaction as to become generally used.

It is a question whether the addition of alum, soap and other extraneous material does not affect the lasting qualities of the concrete. If the announcement of the Star-Stettin Portland Cement Works that they are now manufacturing, according to a process invented in Germany, a waterproof cement which will become impervious to water, will resist the action of frost, heat, hot water, sea water and diluted acids, is borne out, the question of waterproofing concrete is settled for all time. However, concrete, as usually built in many engineering structures, is not impermeable to the action of water, and some method of waterproofing the same, I think, is vitally necessary. That this is appreciated by engineers is clearly evidenced by the amount of waterproofing that is now being done on concrete arches, abutments, retaining walls, &c. I have recommended for years the necessity of waterproofing both stone masonry and concrete structures where there was any danger of seepage of water, and believe that such a precaution will extend the life of the structure.

A recent examination of concrete abutments, retaining walls, &c., built in Chicago some years ago, disclosed the

* A paper presented to the American Cement Users' Association by W. H. Finley, C.E.

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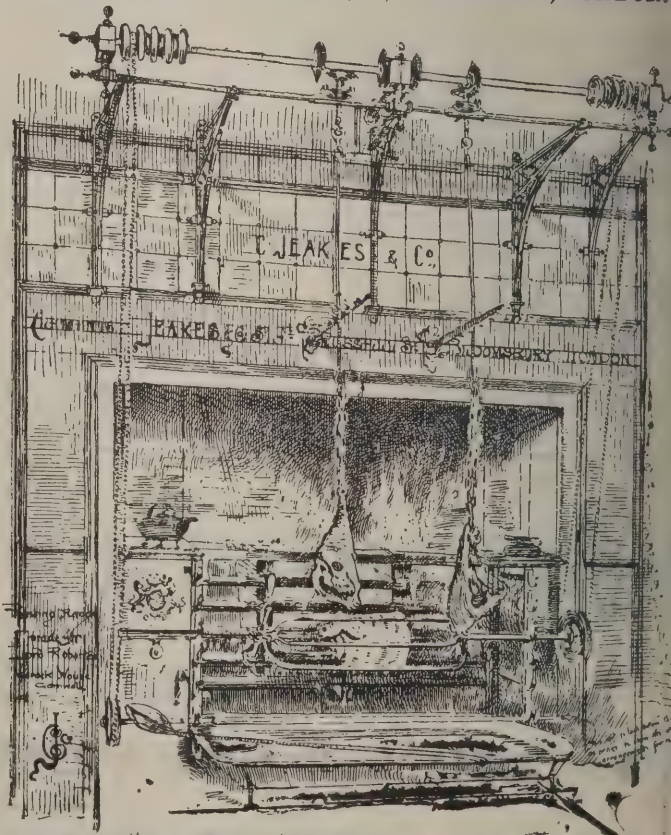
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fact that water was seeping through the mass in several places, particularly along the parting planes where the work was not carried on continuously. This condition is frequently observed in concrete construction, and I think could be entirely prevented if the back of the structure was thoroughly waterproofed with asphalt.

Some years ago I had occasion to repair some masonry arches built in 1862 that were rapidly disintegrating owing to the infiltration of water. These arches were uncovered, the damaged stone replaced, and the extrados of the arch was plastered with cement concrete and then thoroughly waterproofed with asphalt. Time has demonstrated that this work was very successful. I have since uncovered a number of arches that were leaking, and found that the concrete backing did not prevent the entrance of water. These were cleaned off and waterproofed with asphalt in each case. It is now the practice on a number of railroads to thoroughly waterproof all arches, abutments, retaining walls, &c. The method generally employed is to use as a first coat asphalt cut with naphtha, to be applied as a paint to the concrete after the same is perfectly dry, and then cover the surface with an asphaltic mastic composed of one part of asphalt to four of sand; this to be smoothed off with hot smoothing irons and thoroughly tamped and pressed into place. If the filling over the arch is ordinary gravel or dirt no other work will be necessary, but if it is filled with broken stone or stone chips it is better to cover the surface of the asphalt with washed roofing gravel so that the broken stone will not cut or damage the asphalt surface.

There are various other methods employed in waterproofing concrete surfaces with asphalt, such as the use of burlap or other fabric embedded in the asphalt coating. It is very difficult to make hot asphalt adhere to a concrete surface, however dry the same may be, unless it is heated by artificial means. Hot asphalt laid on ordinary dry concrete will not adhere, and can be rolled up like a blanket after it has cooled. I have had some success in applying hot asphalt direct to concrete surfaces after the same had been dried and heated with hot sand, but much prefer the use of the asphalt cut with naphtha applied as painting or swabbing coat. The cost of this work with present prices of first-class asphalt will range from 10 to

20 cents per square foot, depending upon local conditions. It does not require any special expert knowledge for its application. After a brief coaching the forces as usually employed can produce a satisfactory job.

It might be well at this time to say something about the quality of the asphalt to be used for waterproofing purposes. In the past few years there has been a large development of asphalt for this purpose, and it is now possible to get, at a reasonable price, a pure asphalt that will not flow under a temperature of 212 degs. and not become brittle, when spread thin on glass, at 15 degs. below zero. Also it will resist the action of acids and alkalis.

The following specification is one that I have used with good results in waterproofing works:—

"Asphalt shall be used which is of the best grade, free from coal tar or any of its products, and which will not volatilise more than one-half of 1 per cent. under a temperature of 300 degs. Fahr. for ten hours. It must not be affected by a 20 per cent. solution of ammonia, a 35 per cent. solution of hydrochloric acid, a 25 per cent. solution of sulphuric acid, nor by a saturated solution of sodium chloride.

"For metallic structures exposed to the direct rays of the sun the asphalt should not flow under 212 degs. Fahr., and should not become brittle at 15 degs. Fahr. when spread thin on glass. For structures underground, such as masonry arches, abutments, retaining-walls, foundation-walls of buildings, subways, &c., a flow point of 185 degs. Fahr. and a brittle point of 0 deg. Fahr. will be required. The asphalt covering must not perceptibly indent when at a temperature of 130 degs. Fahr. under a load at the rate of 15 lbs. per square inch, and it must remain ductile at a temperature of 15 degs. Fahr. on metal structures and at 0 degs. Fahr. on masonry structures under ground.

"Before applying asphalt to a metal surface it is imperative that the metal be cleaned of all rust, loose scale and dirt, and if previously coated with oil this must be burned off with benzine or by other suitable means. The metal surface must be warm to cause the asphalt to stick to it, and the warming is best accomplished by covering it with heated sand, which should be swept back as the hot asphalt is applied. When waterproofing masonry struc-



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tures, if the surface cannot be made dry and warm it should be first coated with an asphaltic paint made of asphalt reduced with naphtha. This is particularly necessary for vertical surfaces.

"The asphalt should be heated in a suitable kettle to a temperature not exceeding 450 degs. Fahr. If this is exceeded it may result in 'pitching' the asphalt. Before the 'pitching' point is reached the vapour from the kettle is of a bluish tinge, which changes to a yellowish tinge after the danger point is passed. If this occurs the material should be tempered by the addition of fresh asphalt. The asphalt has been cooked sufficiently when a piece of wood can be put in and withdrawn without the asphalt clinging to it.

"The first coat should consist of a thin layer poured from buckets on the prepared surface and thoroughly mopped over. The second coat should consist of a mixture of clean sand or screenings, free from earthy admixtures, previously heated and dried, and asphalt, in the proportion of 1 of asphalt to 3 or 4 of sand or screenings by volume; this is to be thoroughly mixed in the kettle and then spread out on the surface with warm smoothing irons, such as are used in laying asphaltic streets. The finishing coat should consist of pure hot asphalt spread thinly and evenly over the entire surface, and then sprinkled with washed roofing gravel, torpedo sand or stone screenings, to harden the top. The thickness of the coating will depend on the character of the work and may vary from $\frac{3}{4}$ to 2 inches in thickness.

"Where a quantity of asphaltic concrete is required, such as in trough floors on bridges, a concrete should be made in the proportion of one part asphalt, two parts sand and three parts limestone screenings, thoroughly mixed and rammed into place with tamping irons on the first coat of pure asphalt with which the metal was originally covered. At all drainage holes large sized stone should be carefully placed to insure perfect drainage."

It may not be out of place in discussing the question of waterproofing to call attention to the necessity for provisions for drainage in all concrete and masonry structures. This has not been given as much attention as it should receive. Whether waterproofing material is applied or not,

the question of thoroughly draining the structure is of the greatest importance.

In ordinary building construction sufficient attention has not been given by architects and builders to the proper waterproofing of their foundation walls. I have observed recently in this vicinity a number of buildings in process of construction where the excavations for the cellar and lower foundations were made in a clayey material and concrete foundation walls put in without making any attempt to apply a waterproofing or damp-proof coating to the wall, or provide suitable drainage to carry off the ground water.

In this particular we are falling away behind even the early Roman architects and builders. In all the examples of their work it is evident they gave the greatest consideration in their construction to proper methods for keeping their foundation walls dry, and we cannot do better to-day in such matters than follow the advice of the great architect, Vitruvius, who, writing about twenty-five years B.C., described methods of waterproofing and ventilating foundation walls that compare favourably with the best methods used to-day, excepting that we may have better materials for waterproofing than were known at that time.

Asphalt, I believe, makes the best damp-proof or waterproofing material that can be used in foundation walls and for all structures where such provision is necessary. It has been used from the earliest times for the purpose of protecting material from air and water, and we have examples of it in our museums where the mummy cases were sealed with this material more than 3,000 years ago.

AN INDUSTRIAL NAPLES.

In his last report Mr. Consul-General Neville-Rolfe gives the following account of a project by which Naples will be supplemented by a quarter which will be devoted to manufactures under conditions unlike those elsewhere:—

An Act of Parliament, which it is hoped may open up an industrial future for Naples, received the Royal sanction on July 8, 1904. Its scope is purely commercial, and is framed with a view to create an industrial centre where none exists, or in fact ever has existed; to give work to a

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population ever redundant and always in the depth of poverty, but by no means devoid of cleverness, of strong imitative instincts, and above all, extremely intelligent in manual work and teachable in arts and crafts.

When Joseph Bonaparte was king of Naples in 1806 he founded an institution for the encouragement of Naples, having precisely the same aims as the law which has just been passed. King Joseph's institution is still existing, and it is by utilising this existing machinery that it is proposed to give effect to the new legislation. The institution itself is not sufficiently strong to do much on its own account, but it has come out as a strenuous supporter of the new departure, though its spokesman admits that a special Act for the benefit of a single city is a very exceptional incident, and that its provisions are consequently in themselves exceptional also. The object of the Government was to gain a certain simple and definite end, namely, the establishment of an industrial centre in Naples, and in order to do this it became necessary to settle material conditions in such a way as to induce capitalists both from the North of Italy and from abroad, perhaps especially the former, to employ capital at Naples. The text of the law gives all the details with great clearness and precision. It is the result of the labours of a Royal Commission, which has been at work since 1901, and was appointed to "formulate propositions adapted to improve the industrial conditions of Naples."

In order to come to a correct understanding of the case it will be necessary to say a few words on the existing conditions of the problem. In the sixteenth century Naples was the second city of Europe in size and population. Now it is not only the most populous city in Italy, but it is the centre of attraction of all the southern provinces. The nearest port north of it, worthy of the name, is Leghorn, which is some 200 miles from it; to the south, Messina, about 150 miles off, and naturally the conveyance of the inland traffic of the southern provinces is all to Naples. The southern ports of the Adriatic attract goods only in their immediate neighbourhoods. They are small, inconvenient and, for business purposes, on the wrong side of the peninsula. Bari is the only one of them that has any commercial importance.

The population of Naples and suburbs amounts to 800,000 souls; her university, one of the most ancient in

Europe, numbers 6,000 students. The wealthy classes from all the southern provinces live at Naples for a great part of the year, and hence there is no doubt that it is the principal consumer among all the cities of Italy, and should logically take its place as the chief producer. Naples, moreover, has for several centuries, under the old *régime*, been the capital of by far the largest State in the peninsula. All this goes to prove the necessity of the steps which the Government of Italy has taken to make of her an industrial city.

Political men of all the numerous Italian parties have explicitly declared their conviction that from the national point of view it is necessary to transform Naples into a vast industrial centre.

Naples possesses cheap labour, an intelligent population and, above all, a most sober lower class. The surrounding country is of the most fertile description, enabling the industrious working-man to live at the cheapest imaginable rate. Rents are low for the accommodation required by the working-man. Fuel is practically unnecessary, and cotton blankets and quilts are sufficient night covering. There is hardly a day in the year when 10 minutes brisk walk will not warm anyone for the rest of the day, for on the few cold days of the year there is always a bright sun. The dull days are warm, and during winter there is always a southerly wind. The drinking water, the best furnished to any city in the world, is most abundant; the numerous standpipes in the city provide it gratuitously in a continuous flow to the whole population. The death-rate of Naples is lower than that of any city of Italy, and shows steady and continuous diminution; it is, in fact, lower than the average of European cities of its size.

Given these facts, we may now turn to the natural advantages of the site for the inauguration of an enterprise which hopes to attract foreign capital.

To the eastward of Naples lies a vast plain, which is kept in a high state of cultivation, though it is not largely inhabited, having upon it only the cottages of the peasants who cultivate it. It is carefully irrigated, and this gives it the appearance of a marsh, which it scarcely deserves. It is, however, unsuitable for residential purposes, partly from its vicinity to the squalor of the extreme east end of the town, and partly on account of the noisome and noisy trades already established there. For the purpose of erect-

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ing a series of factories there could be no better place. It is intersected by railways, and is in convenient reach of Naples harbour. The large working-class town of Barra is situated on the edge of it, and not more than a couple of miles from any part of it. The land between the plain and the sea is all taken up by factories and shipbuilding yards, and Vesuvius is far enough off not to be a cause of danger.

It is here that the Government propose to create a free zone to attract manufacturing capitalists.

The advantages offered are manifold. First of all they are to have the freehold of the soil at an extremely reasonable, almost nominal, price; secondly, factories established within ten years of the passing of the law are to enjoy for ten years from the date of their establishment complete immunity from direct taxation. They are to be free of income tax (and income tax is at the rate of 20 per cent. in Italy on ordinary incomes and of 10½ per cent. on trade profits), nor will they pay taxes on their buildings and lands taken up for the purposes of their undertakings. They are also to be free from all customs due on plant or machinery, tools and fittings of all kinds imported from abroad, building materials, &c. They are also to be allowed to have salt at cost price, instead of at the monopoly price charged by the State. This in the case of chemical works is a very important concession, the monopoly price of salt in Italy being well-nigh prohibitive, while the mineral itself is extraordinarily plentiful.

One-eighth of the rolling-stock of the Italian railways is to be made at Naples, and the contracts will be divided between the old firms and the new ones. Lastly, the Government undertakes to furnish motive power at the cheapest rate, and in order to do this electric force is to be brought from the source of the river Volturno, which is to be developed to 16,000 hydraulic horse-power, which, when converted into electric energy, will be brought into Naples for the benefit of the industries. It is calculated that the introduction of electricity will be accomplished on wonderfully easy conditions. The capital will be furnished by the State at 3½ per cent., and the energy furnished is calculated to be paid for during the dark hours by the adoption of the light in the villages through which it will pass; and the line will pass through a district populated at the rate of 1,287 inhabitants per square kilom. (3,333 per square mile),

leaving the energy to be sold in the daytime for industrial purposes at the rate of something less than 100 lire (4s.) per annual horse-power for the twelve daylight hours. Taking the average use of the power for business purposes at nine hours a day, the rate anticipated will perhaps be as cheap as any motive power existing anywhere.

As to the particular class of industries likely to be successful in the conditions set forth, it is perhaps a little difficult as well as being somewhat invidious to speak. To sum up the matter, the following advantages are offered to all industries alike:—

(1) A vast inland market; (2) easy conditions of import and export; (3) exemption from taxation which is practically complete; (4) abundance of good labour; (5) salubrity of climate and excellent water; (6) motive power at a cheap rate; (7) abundance of raw material; (8) the easiest conditions possible for exportation to America (North and South) and to Africa and the Far East.

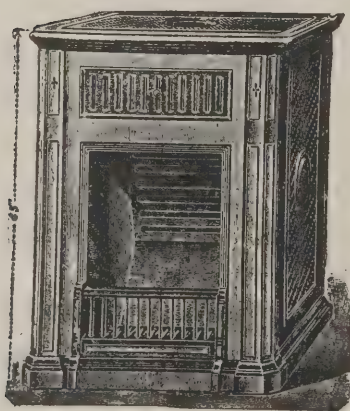
The enormous emigration from the southern provinces causes a movement of shipping to and fro, with exceptionally low freights.

Chemical works producing sulphate of copper, artificial manures, sulphuric and other acids should have a large opening. All industries relating to tinned vegetables, fruits, compressed hay and preserved agricultural products generally should succeed.

Hemp and flax, now exported in the raw state, might be manufactured at a satisfactory profit. In short, all industries requiring labour and motive power should find a profitable home under this exceptional scheme.

The reverse of the medal is the condition of the existing industries. It is obvious that competitors coming in with the newest machinery, and the protective advantages so lavishly offered them, will cause a very serious competition to firms established already whose machinery is out of date, and whose output cannot compare with that of up-to-date concerns. The answer given to that is, that there is no firm at Naples, excluding those which are practically kept going by Government orders, which employs 500 hands, and this is why the new law, while promoting the establishment of a new industrial epoch for the southern provinces of Italy, is in no way likely to disturb the existing balance of trade and commerce.

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EDITORIAL NOTICES.

of the many difficulties which are certain to arise in connection with the law, practice rules and procedure under the Workmen's Compensation Act, we have added to our staff A VERY EMINENT BARRISTER, who has made the subject a special study, and will be glad to answer in the columns of this paper any questions relating to the complicated matters arising from the provisions of this difficult Act. Our LEGAL ADVISER will further answer any legal question that may be of interest to our readers. All letters must be addressed "LEGAL ADVISER," Office of "The Architect," Imperial Buildings, Ludgate Circus, London, E.C.

Editor will be glad to receive from Architects in London and the Provinces results of Competitions and Tenders and other particulars of Works in progress in which they may be interested.

Authors of signed articles and papers read in public must necessarily be held responsible for their contents.

Communication can be inserted unless authenticated by the name and address of the writer—not in every case for publication, but as a guarantee of good faith.

Correspondents are requested to make their communications as brief as possible. The space we can devote to Correspondence will not usually permit our inserting lengthy communications.

TENDERS, ETC.

As great disappointment is frequently expressed at the non-appearance of Contracts Open, Tenders, &c., it is particularly requested that information of this description be forwarded to the Office, Imperial Buildings, Ludgate Circus, London, E.C., not later than 2 P.M. on Thursdays.

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COMPETITIONS OPEN.

AYLESBURY.—Feb. 28.—For public elementary school for 750 children. Premiums 50*l.* and 25*l.* Conditions and plan of site obtainable from Mr. C. G. Watkins, Education Secretary, Aylesbury, on payment of 1*l.* 1*s.*

LAMBETH.—March 30.—For municipal buildings at Brixton Hill. Particulars from Mr. H. J. Smith, Town Hall, Kennington, S.E.

NELSON.—March 4.—Designs for a free public library. Premiums of 50*l.*, 25*l.* and 15*l.* Mr. J. H. Baldwick, town clerk, Town Hall, Nelson.

PRESTON.—Feb. 28.—Designs and plans for new elementary school. Premiums of £50, £30 and £20. Plan and conditions from Director of Education, Education Offices, Preston.

WOLVERTON.—Feb. 28.—For public elementary school for 400 girls and 400 infants. Premiums 50*l.* and 25*l.* Also for secondary school to accommodate about 120 boys and girls. No premiums offered. Conditions to be obtained on payment of 1*l.* 1*s.* in each case from Mr. C. G. Watkins, Education Office, Aylesbury.

CONTRACTS OPEN.

AINSWORTH.—Feb. 27.—For the erection of new hospital at Ainsworth, for the Bury and District Joint Hospital Board. Mr. Henry Lord, architect, 42 Deansgate, Manchester.

ANNAN.—Feb. 25.—For extensions to cotton mill, Port Street, Annan. Messrs. Johnstone Bros., architects and surveyors, 39 Lowther Street, Carlisle.

ASHTON-UNDER-LYNE.—Feb. 28.—For excavating and draining, &c., to nurses' home at Hartshead. Mr. Joseph Lowe, surveyor, Town Hall Chambers.

ASHTON-UNDER-LYNE.—March 6.—For the erection of vicarage for St. James's Church, Ashton-under-Lyne (stone building). Messrs. Thos. George & Son, architects, 7 Warington Street.

BARMING HEATH.—March 14.—For infectious hospital, day-room, bays to additional buildings, alterations and additions to laundry and other works at the Barming Heath asylum, near Maidstone. Mr. W. J. Jennings, architect, 4 St. Margaret's Street, Canterbury.

BATLEY.—Feb. 28.—For the erection of a new post office at Batley, Yorks. Secretary, H.M. Office of Works, &c., Storey's Gate, London, S.W.

BIRDWELL.—Feb. 25.—For the whole or any portion of the works required in erection of two houses. Mr. A. Whitaker, architect, Worsbrough Bridge, Barnsley.

BIRSTALL.—March 10.—For the erection of a small-pox hospital at Birstall, for the Oakwell Joint Hospital Board. Mr. Wm. Middlebrook, clerk, 70 Huddersfield Road, Birstall, near Leeds.

BROMLEY.—March 7.—For the erection of a public library in the High Street, Bromley, Kent. Mr. Evelyn Hellicar, architect, 10 Serjeants' Inn, E.C.

BURY.—Feb. 27.—For the erection of cottage for the Bury and District Joint Hospital Board, Lancs. Mr. Fred Wild, clerk, Cross Street, Bury.

CARDIFF.—For building two workshops at Garth Colliery and excavating foundations for coke ovens. Elders Navigation Collieries, Ltd., Merchants' Exchange, Cardiff.

CARDIFF.—For a railway waggon repairing shed, to be constructed of iron, for the Windsor Steam Coal Company, Ltd., 3 Bute Crescent, Cardiff.

CASTLE DONINGTON.—For Wesleyan church at Castle Donington, Derby, with vestries and lecture hall. Mr. A. E. Lambert, architect, 22 Park Row, Nottingham.

CHEDDLETON.—March 4.—For the erection of infants' school, Cheddleton. Mr. Graham Balfour, director of education, Education Committee, Stafford.

CLIFFE-CUM-LUND.—Feb. 25.—For additions and alterations to the Cliffe-cum-Lund schools, near Selby. Mr. T. S. Ullathorne, architect, Selby.

COBHAM.—March 22.—For the erection of a laundry (fitted with certain appliances for hand-power only) at the isolation hospital, Whitehill Road, Cobham, near Gravesend. Mr. Archibald E. Loach, 8 Northcote Road, Strood.

COCKERMOUTH.—Feb. 25.—For the erection of an entrance lodge at St. Helens, Cockermouth. Estate Office, Cockermouth Castle.

CONNOR DOWNS.—March 3.—For the erection of ten houses and boundary walls at Connor Downs, Cornwall. Mr. Sampson Hill, architect, Green Lane, Redruth.

COUNDON.—March 4.—For the erection of a Roman Catholic elementary school at Coundon, Bishop Auckland. Mr. J. Keenan, architect and surveyor, North Bondgate, Bishop Auckland.

CRIGGLESTONE.—Feb. 28.—For the erection of new classrooms, &c., at the Crigglestone British Provided schools, near Wakefield. Mr. J. Vickers Edwards, county architect, County Hall, Wakefield.

DRAYTON BASSETT.—March 4.—For new school, Drayton Bassett, for the Staffordshire County Council. Mr. Graham Balfour, director of education, Stafford.

DRINGHOUSES AND KINSLEY.—Feb. 28.—For pulling-down temporary school at Dringhouses, near York, and removing and re-erecting on a site at Kinsley, Hemsworth; also for certain alterations in connection therewith. Mr. J. Vickers Edwards, West Riding architect, County Hall, Wakefield.

DRINGHOUSES.—Feb. 28.—For the erection of covered sheds at Dringhouses Without Provided school, near York. Mr. J. Vickers Edwards, West Riding architect, County Hall, Wakefield.

DUBLIN.—Feb. 28.—For the supply and erection of temporary buildings to cover about 9,000 square feet, for use as engineering lecture-rooms and workshops, for the Department of Agriculture and Technical Instruction for Ireland. The Department, 4 Upper Merrion Street.

EASTBOURNE.—Feb. 25.—For additions to the motor omnibus house at Roselands. The Borough Surveyor's office, Town Hall.

ELLAND.—Feb. 28.—For the erection of a new closet and lavatory, &c., at the old Town Hall, Elland, Yorks, for the County Council. Mr. J. Vickers Edwards, West Riding architect, County Hall, Wakefield.

GATESHEAD.—Feb. 28.—For the erection of a Wesleyan Methodist church in Durham Road, Gateshead. Mr. W. Stanley Ellison, architect, 22 Sir Thomas Street, Liverpool.

GLAISDALE.—March 2.—For the erection of a pair of semi-detached villa residences, Glaisdale, near Whitby. Mr. Edward H. Smales, architect, 5 Flowergate, Whitby.

GLANTON.—Feb. 28.—For the erection of a Protestant church hall, Glanton. The Manse, Glanton.

GLASGOW.—Feb. 25.—For the various works required for the erection of eight tenements of dwelling-houses, Cumbernauld Road, Kennyhill. The City Engineer, 64 Cochrane Street, Glasgow.

HANDSWORTH.—March 1.—For alterations and additions required at the Rookery Road Council schools, Handsworth. Messrs. Wood & Kendrick, architects, High Street, West Bromwich.

HEBDEN BRIDGE.—Feb. 28.—For altering premises at Pitt Street, Hebdon Bridge, for temporary secondary school accommodation, Yorks. Mr. J. Vickers Edwards, West Riding architect, County Hall, Wakefield.

HOVE.—March 1.—For constructing an underground lavatory at the south end of Goldstone Villas. Mr. H. Scott, borough surveyor, Town Hall, Hove.

ILFORD.—Feb. 28.—For the erection of a central station in Ley Street, Ilford. Mr. H. Shaw, engineer and surveyor, Town Hall, Ilford.

IRELAND.—March 1.—For the erection of a cloak-room and telegraph office and other alterations at Limekiln station. The District Engineer's Office, Great Southern and Western Railway, Limerick.

IRELAND.—March 1.—For the erection of building for a Quay, Waterford. Mr. P. M. Doyle, 76 Quay, Waterford.

IRELAND.—March 6.—For erection of a goods office and masonry at Londonderry station, for the Great Northern Railway Company (Ireland). Mr. W. H. Mills, engineer and chief, Amiens Street Terminus, Dublin.

KILKENNY.—Feb. 25.—For erecting a building in connection with St. Kieran's College, Kilkenny. Messrs. William H. Byrne & Son, architects, 20 Suffolk Street, Dublin.

LIVERPOOL.—March 1.—For additions and alterations to the lower hospital, Mill Road infirmary. Mr. C. Lancaster, architect, Brougham Terrace, West Derby Road, Liverpool.

LONDON.—March 1.—For the erection of stables on the Greenmore wharf at Bankside, S.E., for the Southwark

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gh Council. Mr. Arthur Harrison, borough engineer, Hall, Walworth Road, S.E.

NDON.—March 8.—For addition to coal store at the Western Fever hospital, Lawn Road, Hampstead, Mr. W. T. Hatch, engineer-in-chief, office of the Embankment, E.C.

DDINGTON.—March 6.—For building a new classroom alterations to master's house, for the Managers of ington school, near Uppingham.

YDNEY.—Feb. 28.—For the erection of screen sheds for other works at Norchard colliery, for the Park Iron and Coal Co., Ltd., Lydney, Gloucestershire. Mr. Butler, engineer, Old Bank Buildings, Chester.

NCHESTER.—Feb. 28.—For the extension of lairages, ighter-houses, &c., at the foreign animals wharf at ord Wharf. City Architect, Town Hall.

YLOR.—March 11.—For the erection of a farmhouse at onguet, Mylor, Cornwall. Estate Office, Carclew, anarworthal.

EWBURY.—Feb. 27.—For pulling-down and rebuilding ouses in Cheap Street, Newbury, for the Governors of Bartholomew's hospital and Grammar school. Mr. er H. Bell, architect, The Market Place, Newbury.

EWCASTLE-ON-TYNE.—For the erection of Methodist church, hall, schools, vestries, &c.; at Sandyford Road, castle. Mr. W. H. Knowles, architect, 37 Grainger et, Newcastle-on-Tyne.

EWCASTLE-ON-TYNE.—March 6.—For works, repairs and erials (unexpired portion of from April 1, 1905, to ch 31, 1906) for the following station in the Newcastle al Engineer Sub-District of the North-Eastern District:— wick, including Alnmouth, Moor Laws rifle range and tice batteries within a radius of 25 miles. The Royal ineer Office, 13 Bell Grove Terrace, Newcastle-on-Tyne.

NEWHALL.—March 9.—For the erection of an extension he Sunday schools, Newhall Wesleyan chapel, Burton- n-Trent. Mr. C. H. Read, Granville Mill, Swadlincote.

OULTON.—March 17.—For the enlargement of the Oulton ouncil school buildings, near Lowestoft. Mr. F. W. ards, architect, 14 Stanley Street, Lowestoft.

PENGREEP.—Feb. 27.—For the erection of farmhouse at Pengreep, Cornwall, and also for additions to existing house. Mr. Sampson Hill, architect, Green Lane, Redruth.

RYE.—March 11.—For building an additional ward to the infirmary of the workhouse. Mr. E. J. Cory, surveyor, High Street, Rye, Sussex.

ST. AUSTELL.—Feb. 27.—For erection of a residence at Watering Hill, St. Austell, Cornwall. Mr. B. C. Andrew, architect, Biddick's Court, St. Austell, Cornwall.

SCOTLAND.—Feb. 28.—For mason, joiner, plumber, plasterer and slater's work of church at Newburgh. Messrs. Thoms & Wilkie, architects, 46 Reform Street, Dundee.

SEATON CAREW.—Feb. 28.—For the erection of two houses in Duke Street, Seaton Carew. Mr. G. Stevenson, Sandville House, Seaton Carew, near West Hartlepool.

SETTLE.—March 7.—For the erection of a detached residence at Settle. Mr. James Hartley, architect, Skipton.

SHEERNESS.—March 8.—For the erection of a wooden pier for unloading of coal at Sheerness; length over 200 feet, width 11 feet. The Secretary, Co-operative Society, Ltd., 94 High Street, Sheerness.

SHIPLEY.—Feb. 25.—For the several works required (cast-iron excepted) in erection of extension of foundry at Wrose Brow Works, Shipley, Yorks. Mr. J. Harper Bakes, architect, Calverley Chambers, Victoria Square, Leeds.

SLEAFORD.—March 13.—For the erection of two pairs of cottages at Rauceby asylum, Sleaford, Lincs. Mr. Jesse Clare, county architect, Sleaford.

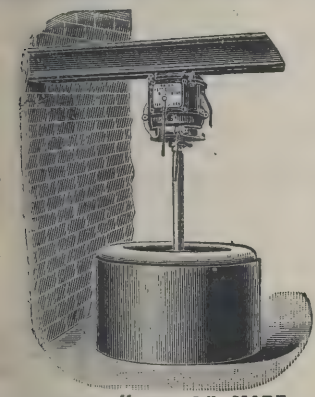
SOUTH SHIELDS.—March 18.—For the erection of municipal buildings on the site in Westoe Road, South Shields. Mr. Ernest E. Fetch, architect, 26 John Street, Adelphi, London, W.C.

SOWERBY BRIDGE.—Feb. 27.—For the erection of new Small Tower brewery, Sowerby Bridge. Mr. T. Lister Patchett, architect and surveyor, George Square, Halifax.

WALES.—Feb. 25.—For the erection of a vicarage at Cwm, Mon. Mr. E. A. Johnson, architect, Merthyr.

WALES.—Feb. 25.—For the erection of two houses at King Edward Street, Blaengarw. Mr. W. Pilgrim Morris, solicitor, Pontycymmer.

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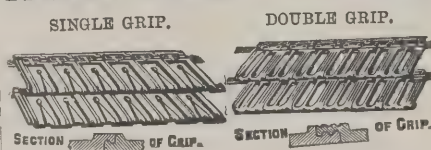
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WALES.—Feb. 27.—For alterations and additions to the National schools, Raglan, Mon. Mr. W. H. D. Caple, architect, Church Street Chambers, Cardiff.

WALES.—Feb. 28.—For building a farmhouse at Ffynon-fawr, near Tal-y-bont, Breconshire. Messrs. A. O. Evans, Williams & Evans, architects, Pontypridd.

WALES.—March 1.—For building a new schoolroom, dwelling-house, &c., adjoining Elim chapel, near Carmarthen. Rev. Stephens Thomas, Parkglas, Cemetery Road, Carmarthen.

WALES.—March 1.—For building six houses at Taylor's Town, Risca. Mr. Hutchings, architect, Risca, Mon.

WALES.—March 4.—For alterations and additions at the Rhos Non-provided schools. Rev. T. Prichard, Rhos Vicarage, Johnstown, Ruabon.

WALES.—March 6.—For the erection of two shops in Dunraven Street, Tonypandy. Mr. R. S. Griffiths, architect and surveyor, Excelsior Buildings, Tonypandy.

WALES.—March 14.—For the extension and alteration of Horeb Calvinistic Methodist chapel, Treherbert. Mr. W. D. Morgan, Victoria Chambers, Pentre, Rhondda Valley.

WALSALL.—March 6.—For the erection of a senior mixed department for 300 children, together with a classroom for fifty infants and sundry alterations to the present boys and girls' schools. Messrs. Bailey & McConnal, architects, Bridge Street, Walsall.

WALTON-ON-NAZE.—March 6.—For the erection of new schools at Walton-on-the-Naze for 200 children. Mr. F. Whitmore, architect, Duke Street, Chelmsford.

WEST HAM.—Feb. 28.—For the following works, for the West Ham Town Council:—(1) Extension of public baths, Balaam Street, Plaistow; (2) alteration to prisoners' cells, quarter-session court, West Ham Lane, Stratford. Borough Engineer, Town Hall, West Ham.

WIDNES.—Feb. 27.—For the enlargement of Simm's Cross Council school. Mr. F. U. Holme, architect, Westminster Chambers, 1 Crosshall Street, Liverpool.

WOODVILLE.—March 1.—For the erection of four villas at Woodville, Burton-on-Trent. Mr. H. W. Cash, Pool Pottery, Church Gresley.

TENDERS.

ABERAVON.

For the erection of a villa residence, Neath Road, Aberavon. Mr. FRANK B. SMITH, surveyor, Port Talbot.

Cox	£1,489
Davey	1,205
ANDERSON & VAUGHAN, Albion Works, Aberavon (accepted).	1,039

BARNOLDSWICK.

For supply and erection of a coal store, for the Barnoldswick Urban District Council. Mr. J. W. THOMAS, architect.

E. Smith, Barnoldswick, mason.
J. R. Broughton, Barnoldswick, joiner.
Pickles Bros., Leeds, slating.
S. Parsons & Co., Bradford, iron roof.

BELFAST.

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Cherry Tree Machine Co., Ltd.	£1,691
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Ravenhill Ironworks, Ltd.	1,421
RIDDELLS, LTD., Donegall Place, Belfast (accepted)	1,290

BRANDON COLLIERY.

For the erection of a new Wesleyan Methodist chapel, Brandon Colliery, near Durham. Mr. H. T. GRADY, architect, Durham.

W. HALL, Bensham, Gateshead (revised and accepted tender) £1,254 10s

BECKENHAM.

For road and drainage works. Mr. J. A. ANGELL, surveyor, Paving Clock House Road.

Fry Bros.	£276
Free & Sons	233
Woodhams & Son	209
Mowlem & Co.	202
Iles, jun.	193
W. PEARCE (accepted)	180

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n & Co.	£1,645	0	0
odhams & Son	1,229	0	0
Bros.	1,221	0	0
ms	1,140	0	0
	1,139	0	0
ymann	1,114	0	0
rc.	1,097	0	0
eele	1,094	0	0
dwia	1,076	0	0
wlem & Co.	1,013	0	0
E & Sons, Maidenhead (recommended).	972	0	0

Making-up Queen's Road.

Bros.	1,072	0	0
rc.	1,010	0	0
wlem & Co.	988	0	0
e & Sons	984	0	0
, jun.	974	0	0
ODHAMS & SON (accepted)	929	0	0

Making-up Cedars Road.

Bros.	1,386	0	0
rc.	1,324	0	0
e & Sons	1,290	0	0
wlem & Co.	1,275	0	0
, jun.	1,244	0	0
ODHAMS & SON (accepted)	1,191	0	0

BRADFORD.

extension of vegetable market, St. James's market, Bradford.

Accepted tenders.

M. Booth & Sons, Bradford, mason, &c.
Greenwood Bros., Bradford, joiner, &c.
S. Parsons & Co., Ltd., Bradford, ironfounder.
S. E. Jackson, Bradford, plumber.
Hillam Bros., Bradford, slater.
E. Briggs & Son, Bradford, painter.

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girder tramrails and 20 tons of fishplates, for electrical
equipment of tramways, for the Corporation.
KOW, VAUGHAN & CO., LTD., Middlesbrough (accepted).

BRADFORD—continued.

For works required in the erection of two hospitals at the
Union workhouse, Horton Lane, Bradford. Mr. FRED
HOLLAND, architect, Bradford.

Accepted tenders.

O. Booth & Sons, Great Horton, Bradford, mason	£7,074	0	0
W. M. Binns, Vaughan Street, joiner	1,738	11	0
C. Howroyd & Sons, Stirling Street, plas- terer and tiler	1,576	15	0
R. Townend, Croft Street, plumber	1,098	0	0
Smith & Croft, Providence Street, elec- trician	272	11	0
Hill & Nelson, Edmund Street, slater	248	0	0
J. Marsland, Wakefield Road, painter	131	10	11

CARMARTHEN.

For the erection of a wood-cutting shed at the workhouse,
and other works. R. DAVIS, 33 St. Catherine Street,
244l. (accepted).

CHISWICK.

For street works adjoining the sewage-disposal works,
Corney Reach, Chiswick. Mr. JOHN BARCLAY, surveyor.

Swaker & Co.	£451	8	8
Neave & Sons	320	0	0
Mowlem & Co.	268	0	0
Wheeler	267	11	0
Greenham & Sons	265	0	0
Woodham & Sons	259	0	0
G. WIMPEY & Co., Hammersmith, W. (accepted)	257	0	0

CONONLEY.

For the erection of ten houses at Cononley (Keighley).
Messrs. JOHN HAGGAS & SONS, architects, North Street,
Keighley.

Accepted Tenders.

E. Turner, Utley, near Keighley, mason.
J. Laycock, Cononley, near Keighley, joiner.
T. Throup, slater.
A. Shuttleworth, Skipton, plasterer.
Midgley & Dinsdale, Keighley, plumber.

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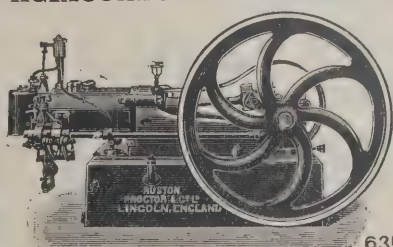
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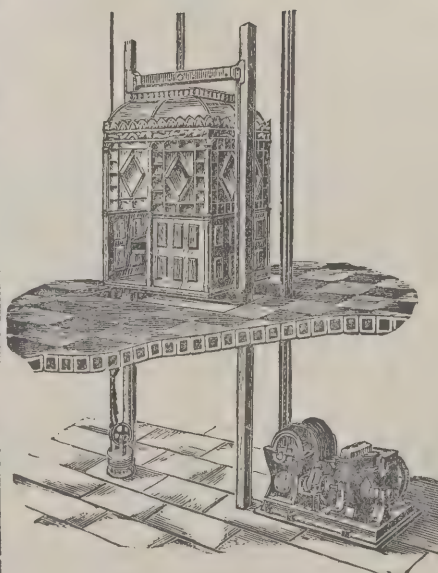
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Walker	198	0	0
Beadle	170	0	0
Richardson	167	10	0
J. T. MITCHELL, Copley, Butterknowle, R.S.O. (accepted)	151	6	0

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For the execution of private street works. Mr. R. M. CHART, surveyor, Croydon.

Park Hill Road, Wallington.

Thacker	£1,022	0	0
Cunningham, Forbes & Co.	900	0	0
Potter	896	0	0
Free & Sons	882	0	0
E. ILES, Mitcham (accepted)	789	0	0

Brambledown Road, Wallington.

Thacker	785	0	0
Potter	690	0	0
Free & Sons	686	0	0
Cunningham, Forbes & Co.	684	0	0
E. ILES (accepted)	612	0	0

Demesne Road, Beddington.

Thacker	662	0	0
Cunningham, Forbes & Co.	583	0	0
Potter	560	0	0
Free & Sons	532	0	0
E. ILES (accepted)	527	0	0

Beacon Road, Merton.

Thacker	674	0	0
Free & Sons	603	0	0
Wheeler	547	0	0
Iles	541	0	0
CUNNINGHAM, FORBES & Co. (accepted)	482	0	0

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Savoy Road, Merton.

Soan	£773
Thacker	610
Free & Sons	577
Iles	566
Wheeler	554
CUNNINGHAM, FORBES & Co. (accepted)	496

Inglemere Road, Mitcham.

Soan	293
Thacker	261
Free & Sons	260
Wheeler	233
Iles	218
CUNNINGHAM, FORBES & Co. (accepted)	215

Chestnut Road, Merton.

Soan	475
Thacker	268
Free & Sons	229
Cunningham, Forbes & Co.	228
E. ILES (accepted)	221
Wheeler	201

DOVER.

For extensions to the premises of the River and District Co-operative Society, Dover. Mr. A. H. STEELE, architect, Dover. Quantities by the architect.

Keeler	£2,351
Stokes	2,344
Paramor	2,328
Munro	2,279
Adcock	2,252
Beafooy	2,217
Lewis	2,213
Grigg	2,207
Morgan	2,199
R. & G. Brisley	2,192
Austen & Lewis	2,184
LEWIS & SONS (accepted)	2,121

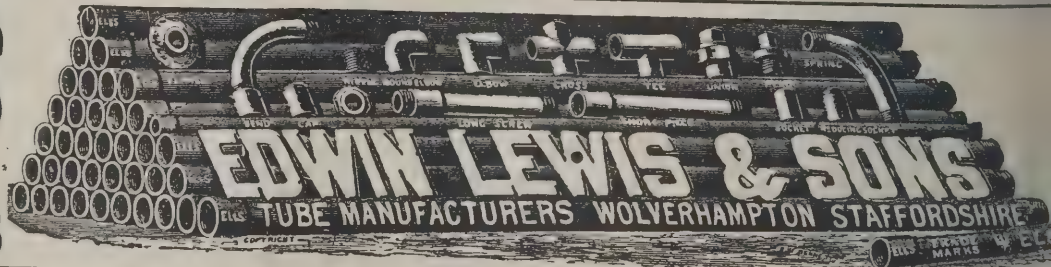
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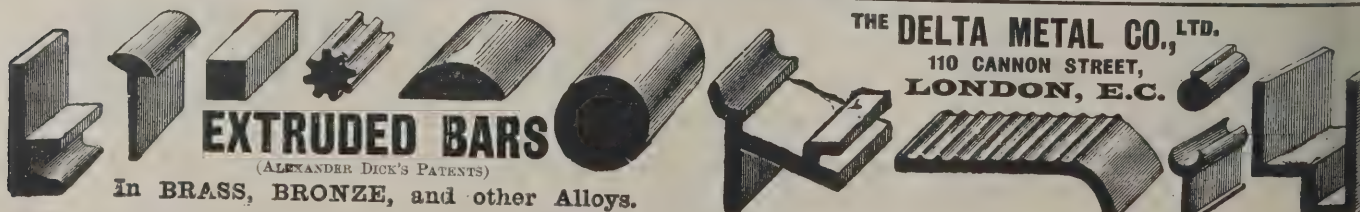
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Osenton	£30,094	0	0
Moran & Son	25,855	18	0
Free & Son	25,346	0	0
Wheeler	25,198	7	0
Adams	23,993	8	9
Jackson	23,346	0	0
Iles, junr.	23,258	4	8
Blomfield	22,700	0	0
Harrison & Co.	22,696	0	0
Bell	22,666	0	0
Coxhead	22,220	0	0
Wimpey & Co.	22,043	0	0
Iles	22,000	0	0
Rutter	21,945	3	2
Trimm	21,937	0	0
Johnson & Langley	21,500	0	0
Edwards & Co.	21,042	18	0
Bentley & Loch	21,026	6	0
Westgate	20,672	0	0
Wilson, Border & Co.	20,200	0	0
Hewett & Sons, Ltd.	19,630	2	3
Arnold & Son	19,190	0	0
Tabor	18,104	5	9
D. T. JACKSON, 106 Ripple Road, Barking (accepted).	17,626	5	5
Engineer's estimate	20,597	0	0

DROGHEDA.

For heating new public library. Mr. F. H. TALLAN, architect, 35B Kildare Street, Dublin.

Kennedy	£160	0	0
Dawson & Co.	160	0	0
Maguire & Catchell	149	10	0
Taylor & Co.	117	0	0
MUSGRAVE & Co., Belfast (accepted)	105	10	0
W. Baird	105	0	0
Roddy & Co. (portion of work)	55	0	0

EAST STONEHOUSE.

For the construction of a 12-inch pipe sewer, with necessary manholes, &c., and a new wood-paved road and asphalt footpaths. Mr. F. A. WIBLIN, surveyor, Town Hall, East Stonehouse, Devon.

Doney	£706	3	6
Pearce Bros.	706	0	0
Lethbridge & Son	613	0	0
Duke	604	11	0
Shaddock	599	6	0
MATCHAM & Co., Ltd. (accepted)	580	0	0

FARNHAM.

For erecting a new grammar school. Messrs. JARVIS & RICHARDS, architects, 36 Victoria Street, Westminster, S.W.

Udall & Co.	£8,387	0	0
Ennes Bros.	8,107	0	0
Halliday	8,037	0	0
Wallis	7,996	0	0
Potter Bros.	7,995	0	0
Mardon	7,992	0	0
Chessum & Son	7,930	0	0
Parnell & Sons	7,878	0	0
Ferguson & Co.	7,858	0	0
Minter	7,773	0	0
Holliday & Greenwood	7,708	0	0
Hawkins & Co.	7,675	0	0
Martin, Wells & Co.	7,666	0	0
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Kirk & Randall	7,575	0	0
W. & D. Wilkins	7,570	0	0
Mussellwhite & Sapp	7,560	0	0
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Lovell	7,490	0	0
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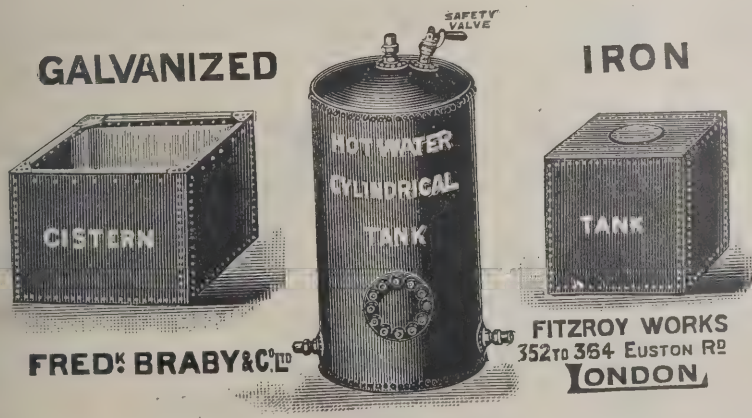
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FARNHAM—continued.

Kemp	£7,309	0	0
Smith & Sons	7,299	0	0
Goddard & Sons	7,283	0	0
Colborne	7,278	0	0
Longley & Co.	7,243	0	0
Watson	7,215	0	0
Harris	7,174	0	0
Oak Building Co.	7,159	0	0
Shelbourne & Co.	7,152	0	0
Peerless, Dennis & Co.	7,120	0	0
Norman & Burt	7,097	0	0
Grimwood & Sons	7,069	0	0
East & Hyde	7,057	0	0
Hughes	6,965	0	0
Kent	6,907	0	0
Wise	6,853	0	0
Annett & Sons	6,850	0	0
Churter	6,603	0	0
Crosby & Co.	6,580	0	0

HEADCORN.

For Headcorn sewerage and sewage-disposal works, for the
Hollingbourne Rural District Council, Kent. Messrs.
FAIRBANK & SON, engineers, Lendal Chambers, York.

Osenton	£4,769	3	0
Ballard, Ltd.	3,973	0	0
Wilson	3,834	12	0
Browning	3,789	4	11
Nunn	3,561	2	10
Kemp Bros.	3,549	16	6
Salmon & Co.	3,544	19	0
Pedrette	3,527	5	0
Iles, jun.	3,481	0	0
Padgham & Hutchinson	3,434	0	0
Dixon & Co.	3,321	14	8
Catley	3,000	0	0
E. T. JEFFERY (accepted)	2,890	19	10
Edwards & Co.	2,809	15	3

HAMPTON.

For the making-up of Acacia Road and Nightingale Road (part of), Hampton. Mr. SIDNEY H. CHAMBERS, surveyor.			
Kavanagh & Co.	£3,152	0	0
Hoffmann	3,107	18	0
Nowell & Co.	2,956	15	0
Shepherd	2,883	5	0
Fry Bros.	2,721	13	0
Mowlem & Co., Ltd.	2,704	0	0
Adams	2,695	4	0
Thacker	2,665	16	0
Free & Sons	2,499	13	0
T. WATSON, JUN., Southall, Middlesex (accepted)	2,215	12	0

HESSENFORD.

For erecting schoolroom, &c., in connection with Wesleyan chapel at Hesseford, near St. Germans. Mr. S. P. Hosking, architect, Landrake, St. Germans, Cornwall.			
Alford	£600	0	0
White & Laundry	540	0	0
Snell & Son	497	12	7
Elliott	469	10	0
Bennett	455	0	0
Stephens	444	10	0
Dawe	403	0	0
R. TURNER, West Looe (accepted)	350	0	6

IPSWICH.

For enclosing the isolation hospital grounds with an
unclimbable iron fence.
J. ORTON & Co., Ipswich (accepted) £380 0 0

KEVESLEY, COVENTRY.

For the erection of a motor-house for Mr. W. Hillman. Messrs. BARRETT & DRIVER, architects, 23 York Place, Baker Street, W.			
A. Beacham, jun.	£126	10	0
Garlick	120	0	0
KELLY & SON, Little Heath, Foleshill, Coventry (accepted)	103	16	0

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HARDENS.

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SIDE, DRIES IN ABOUT
15 HOURS ACCORDING TO
WEATHER.

LEAVESDEN.

replacement of window sashes at Leavesden asylum, Herts, for the Metropolitan Asylums Board.			
Smith & Co.	£562	0	0
Holliday	499	10	0
Ascelles & Co.	489	0	0
Wood & Co.	407	0	0
Gardner & Hazell	369	0	0
Langdon & Clarke	325	0	0
Pearce	323	0	0
Cole	310	0	0
Wiggs	297	0	0
Kind	295	0	0
W. PAYNE & Co., Watford (accepted)	293	0	0
Engineer-in-chief's estimate	346	0	0

LEEK.

for macadamising, &c., in Junction Road. Mr. W. E. BEACHAM, surveyor.			
Sutherland & Thorpe	£1,767	11	10
Grace	1,750	0	0
Zarke	1,666	6	6
Owen	1,647	0	0
Simpson & Son	1,533	19	5
SANDERS & TORRANCE, Hanley (accepted)	1,532	9	4

LIPHOOK.

for the erection of a block of four cottages at Wheatsheaf Common, near Liphook, Hants. Mr. W. A. T. CARTER, architect, Wimbledon, S.W.			
Adams	£1,861	5	0
Chinchen & Co.	1,800	0	0
Holder & Son	1,775	15	7
Lee	1,760	0	0
Sycamore Works, Ltd.	1,688	11	1
Mould	1,688	7	0
Brading	1,683	19	0
Crosby & Co.	1,593	0	0
Chesswas	1,587	13	4
Randall & Sons	1,500	0	0
Cæsar & Son	1,455	0	0

LEITH.

For the erection of boundary wall, preparation of roads and insertion of main drain at Seafield, Leith, in connection with the new poorhouse.
A. WADDELL & SON, Edinburgh (accepted) . £1,639 12 10

LONDON.

For the erection of a new school at Senrab Street, Stepney, for the London County Council education committee.

Rowbotham	£24,575	0	0
Sabey & Son	23,515	0	0
Shelbourne & Co.	22,670	0	0
Symes	22,461	10	4
Johnson & Co., Ltd.	22,417	0	0
Lawrence & Sons	22,185	0	0
Nightingale	21,971	0	0
Higgs & Hill, Ltd.	21,963	0	0
Appleby & Sons	21,744	0	0
Garrett & Son	21,720	0	0
Stimpson & Co.	21,700	0	0
Wisdom Bros.	21,681	0	0
Treasure & Son	21,674	0	0
Martin, Wells & Co., Ltd.	21,346	0	0
F. & T. Thorne	21,273	0	0
Smith & Sons, Ltd.	21,196	0	0
Rowley Bros.	21,172	12	0
Oak Building Co., Ltd.	20,899	0	0
J. & M. Patrick	20,662	0	0

For the supply of heating apparatus at Gordonbrock Road new school, Lewisham.

Davis	£876	0	0
Fraser & Son, Ltd.	870	0	0
Price, Lea & Co.	860	0	0
Strode & Co.	733	0	0
G. & E. Bradley	703	0	0
Comyn Ching & Co., Ltd.	689	0	0
Kite & Co.	679	10	0
Yetton & Co.	673	0	0
Harlow & Son	671	0	0
Brightside Foundry & Engineering Co., Ltd., Victoria Street (recommended)	658	0	0

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LONDON—continued.

For repairs at 7 Commercial Road, Westminster, for the Westminster City Council.

Sims	£338	0	0
Love & Co.	322	0	0
Coulthard	284	0	0
Haylock	273	0	0
W. WRIGHT & SON (accepted)	247	0	0

For alterations at rear of the Cock Tavern, Clapham, for Messrs. Watney, Combe, Reid & Co., Ltd. Messrs. BARRETT & DRIVER, architects, 23 York Place, Baker Street, W.

Somerford & Son	£96	10	0
Triggs	93	0	0
EDWARDS & MEDWAY, Ethelred Street, Kensington (accepted)	89	0	0

For reinstatement of 1, 2, 3 and 4 Rochester Square, Camden Town. Messrs. C. SPARROW & SON, surveyors, North Finchley.

Wilby & Co.	£380	0	0
Peake	330	0	0
Dove	324	0	0
GROVER & SON (accepted)	324	0	0

RUSHDEN.

For the erection of free library and buildings for the Rushden free library committee, Northants. Mr. W. B. MADIN, architect, Vestry Hall, Rushden.

Ketton stone.

Cracknell	£2,718	0	0
Co-operative Builders	2,610	0	0
G. Henson	2,492	0	0
Hacksley Bros.	2,469	0	0
Marriott	2,440	0	0
Willmott	2,425	0	0
Harrison & Winn	2,394	0	0
Sparrow	2,372	2	8
Whittington & Tomlin	2,357	0	0
Brown & Sons	2,354	12	6
Bayes	2,345	0	0
Berri & Green	2,300	0	0
Higgs	2,299	10	0
W. PACKWOOD (accepted)	2,288	19	0

RUSHDEN—continued.

Stamford stone.

Cracknell	£2,698	0	0
Co-operative Builders	2,510	0	0
Henson	2,375	0	0
Hacksley Bros.	2,362	0	0
Marriott	2,417	0	0
Willmott	2,387	0	0
Harrison & Winn	2,356	0	0
Sparrow	2,333	11	8
Whittington & Tomlin	2,272	0	0
Brown & Sons	2,245	12	6
Bayes	2,270	0	0
Berrill & Green	2,260	0	0
Higgs	2,260	19	0
Packwood	2,238	9	0

Corsham Down Bath stone.

Cracknell	2,658	0	0
Co-operative Builders	2,500	0	0
Willmott	2,369	0	0
Marriott	2,365	0	0
Henson	2,363	0	0
Hacksley Bros.	2,350	0	0
Harrison & Winn	2,340	0	0
Sparrow	2,318	2	8
Whittington & Tomlin	2,272	0	0
Bayes	2,260	0	0
Higgs	2,245	10	0
Berrill & Green	2,245	0	0
Brown & Sons	2,238	0	0
Packwood	2,222	12	0

SCOTLAND.

For the works of workmen's houses to be erected at Hill Street, Elgin. Mr. JOHN WITTET, architect.

Accepted tenders.

Garrow, builder, Elgin	£290	0	0
Russell, plumber, Elgin	103	17	0
McIvor, plasterer, Elgin	88	17	11
Bain, slater, Elgin	40	15	0
Gow, painter, Elgin	29	10	0

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ILLUSTRATIONS.

CHURCH OF ST. THOMAS THE APOSTLE, HOVE.

A STREET IN LOCHES, TOURAINE.

MOUNT STUART, ISLE OF BUTE, N.B.: THE CORRIDOR.

THE COTTAGE, BOSCOMBE.

SCOTLAND—continued.

For the construction of waterworks at Auchtermuchty. Mr. H. BRUCE, C.E., engineer, Cupar.

Forgan & Sons	£3,173	17	2
McRuire & Son	3,090	19	1
Stark & Son	2,852	2	0
Beattie & Sons	2,688	16	10
Mitchell & Sons	2,519	5	0
Macdougall & McMillan	2,426	3	3
Gilmour	2,410	11	6
Gray & Sons	2,409	2	10
J. & J. Farmer	2,346	13	8
Brebner & Co.	2,332	1	7
Millar & Sons	2,311	7	6
Stirling & Kinneburgh	2,310	10	10
Henderson & Son	2,287	10	0
Martin	2,273	17	3
Strachan & Son	2,273	5	6
Mackay & Son	2,270	7	11
White & Son	2,259	14	11
MacKay	2,254	0	8
Stewart	2,224	10	4
Suttie	2,224	0	0
Spittal	2,166	11	3
Christie	2,155	9	7
W. JACKSON, Strathyre (accepted provisionally)	2,030	0	0

SEDGEFIELD.

For the erection of two iron verandahs to the existing cottage blocks at Durham County Asylum, Sedgefield. Mr. WILLIAM CROZIER, county architect, Shire Hall, Durham.

Scheme 1.

Draper & Sons	£569	0	0
Manners	449	0	0
Atkinson & Son	422	7	4
Sloan & Davidson	384	15	0
Laidler & Sons	335	0	0

Scheme 2.

Draper & Sons	669	0	0
Manners	499	0	0
Atkinson & Son	498	3	0
Sloan & Davidson	461	10	0
LAIDLER & SONS (accepted)	391	4	0

SHEFFIELD.

For the erection of extensions and alterations to the Blind Institution, West Street. Mr. EDMUND WINDER, architect, Sheffield.

Gray & Son	£5,865	0	0
Fidler, Ltd.	5,820	0	0
Martin & Hughes	5,777	0	0
Moore	5,700	0	0
Winter	5,575	0	0
Pinder, Bro., & Bone	5,445	0	0
Bates	5,300	0	0
Powell & Son	5,300	0	0
Wilson & Kennington	5,177	0	0
Longden & Son, Ltd.	5,123	0	0
Gillam	5,001	10	0
Dawson & Jones & Co.	4,999	15	0
E. & W. Oxley	4,998	0	0
Eshelby & Son	4,998	0	0
Wilkinson & Son	4,995	0	0
J. & H. Wheen	4,965	0	0
Masson	4,913	10	0
Badger & Appleby	4,910	0	0
Watkinson	4,902	0	0
Bradbury	4,880	0	0
O'NEILL & SON, Bower Road (accepted)	4,610	0	0

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SLOUGH.

For the laying of about 756 yards 9-inch and 3-inch stone-ware socket pipe sewers and construction of manholes.
Mr. W. W. COOPER, surveyor.

Watson, jun.	£521	10	8
Free & Son	507	7	3
Burfoot & Son	502	11	1
Soan	447	5	9
Forbes & Co.	436	7	1
Atkins	435	4	4
Porter & Co.	430	0	0
Jackson	423	17	11

LANGLEY, HARDY & JOHNSON, Slough and Leicester (accepted)

374 7 3

For supply of material and labour required in making-up Stoke Gardens, Slough. Mr. W. W. COOPER, surveyor.

Porter & Co.	£553	6	0
Forbes & Co.	495	18	7
Smith	478	18	0
Atkins	471	6	4
Burfoot & Son	469	5	8
Jackson	465	18	8
Free & Son	432	12	3
J. Smith	404	14	10

LANGLEY, HARDY & JOHNSON, Slough and Leicester (accepted)

394 8 6

WOOLWICH.

For reinstatement after fire and alterations and additions to Royal Artillery Theatre, Woolwich (main structure).
Mr. W. G. R. SPRAGUE, architect, Criterion Chambers, 10 and 11 Jermyn Street, S.W. Quantities by Mr. A. R. HENDERSON, surveyor, 47 Pall Mall, S.W.

Patman & Fotheringham	£8,500	0	0
Longden & Son	8,300	0	0
Lovatt	8,000	0	0
Wallis	7,990	0	0
Perry & Co.	7,978	0	0
Harris & Wardrop	7,844	0	0
Kearley	7,594	0	0
Munday & Son	7,381	0	0
Hill	7,350	0	0
Lorden & Son	7,169	0	0

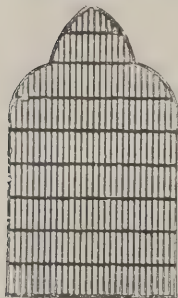
TWICKENHAM.

For the erection of pumping station, boiler-house, destructor house, chimney-shaft, workshops, cottages, &c., at the Council's sewage disposal works. Mr. FRED. W. PEARCE, surveyor, Town Hall, Twickenham. Mr. WILLIAM FAIRLEY, engineer, 69 Victoria St., S.W.

Ferguson & Co.	£15,350	0	0	£650	0	3
Fearon	14,387	0	0	164	0	0
Mowlem & Co., Ltd.	14,290	0	0	31	0	0
Brooking	13,900	0	0	400	0	0
Johnson & Son	13,374	18	5	156	17	11
Speechley & Smith	12,950	0	0	370	0	0
Pethick Bros.	12,813	0	0	400	0	0
Hudson & Co.	12,758	0	0	302	5	0
Lamplough	12,500	0	0	287	0	0
Chambers Bros.	12,494	0	0	566	0	0
Chessum & Sons	12,440	0	0	340	0	0
Soole & Son	12,440	0	0	415	0	0
Perry & Co.	12,320	0	0	350	0	0
Potterton	12,240	0	0	183	0	0
Thomas & Edge	12,149	0	0	330	0	0
Kingerlee & Sons	11,995	0	0	480	0	0
Lawrence & Son	11,988	0	0	294	0	0
Wilkinson Bros.	11,986	0	0	240	0	0
Kirk & Randall	11,977	0	0	300	0	0
Willcock & Co.	11,965	0	0	350	0	0
Watson	11,959	0	0	275	0	0
Foster Bros.	11,898	0	0	284	0	0
Wallis	11,700	0	0	515	0	0
Minter	11,585	0	0	265	0	0
Renshaw	11,397	0	0	349	0	0
Davey, Ltd.	11,387	0	0	700	0	0
Kerridge & Shaw	11,347	0	0	245	0	0
Nightingale	11,300	0	0	250	0	0
Cowley & Drake	11,265	9	7	735	7	10
Johnson & Co.	11,200	0	0	250	0	0
Wimpey & Co.	11,139	0	0	350	0	0
Wall	10,962	0	0	188	0	0
Page & Son	10,649	0	0	387	0	0
Gibson	10,590	0	0	298	0	0
Wisdom Bros.	10,475	0	0	250	0	0
Haycock & Sons	9,930	0	0	227	0	0

A.—Deduction if patent Victoria stone is used.

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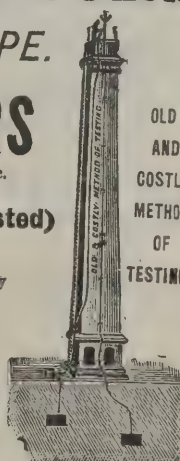
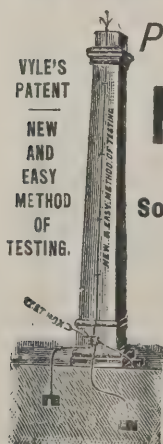
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TENDRING.

For laying about 250 yards of 9-inch outfall sewer and for the construction of sewage purification works, for the workhouse, Tendring, near Colchester.
WILSON, BORDER & Co., Cromer Road, Romford (accepted) £713 15 0

WALES.

For alterations to front elevation of the Red Cow inn, Glebeland Street, Merthyr. Mr. C. M. DAVIES, architect, Merthyr.
Sullivan £364 0 0
Jones 348 16 0
Williams 346 10 0
Hawkins 346 0 0
Jenkins 315 0 0
Jones 310 0 0
M. WARLOW, Warlow Street (accepted) 308 12 0

For the erection of a workmen's institute at Llansamlet.
I. & F. Weaver £900 0 0
Thomas & Jones 889 0 0
Jones, Thomas & Phillips 878 14 6
David 820 0 0
Jones & Owen 742 17 3
D. W. ROSSER, Llansamlet (accepted) 725 0 0

Received too late for classification.

DURHAM.

For the erection of a new Wesleyan Methodist chapel at Brandon Colliery. Mr. H. T. GRADON, architect, Durham.
WM. HALL, Bensham, Gateshead (accepted) £1,254 10 0

LONDON.

For repairs at The Angles, East Sheen. Mr. R. B. ROWELL, architect and surveyor, East Sheen.
Soole & Son £208 0 0
R. T. HUGHES & Co., LTD., Portobello Works, Mortlake (accepted) 179 0 0

RAWTENSTALL.

For the erection and completion of a market hall and lock-up shops on the market ground, Newchurch Road, Rawtenstall, Lancs, for the Corporation. Mr. J. JOHNSON, borough surveyor.
J. TINLINE, Bury (accepted).

TRADE NOTES.

MR. THOS. BROWETT, M.I.M.E., M.I.E.E., has been appointed manager of the Diesel Engine Co., Ltd., 179 Queen Victoria Street, E.C.

THE London office of Mr. William E. Farrer, the sanitary specialist of the Star Works, Birmingham and Cardiff, has been removed from 52 Queen Victoria Street, London, E.C., to 39 Victoria Street, Westminster.

A LARGE clock has just been erected in the tower of the parish church, West Melton, Yorkshire, which shows time on two illuminated dials and strikes hours. It is fitted with all the latest improvements and is generally to the designs of Lord Grimthorpe. Messrs. John Smith & Sons, Midland Clock Works, Derby, have carried out the work.

MESSRS. OETZMANN & Co., 67-79 Hampstead Road, have introduced an ingenious novelty in their "Chameleon" suites of bedroom furniture, which, without departure from artistic lines and without any complicated folding, twisting about, or mechanical movements, or personal effort, can be converted into a suite of a different class, transforming the bedroom during the day into a modern boudoir for a lady or a sitting or smoking-room for a gentleman.

THE advent of an appliance which can lessen the cost of work must be always welcome, and in this class the new pipe-fitter's screwing machine, just brought out by Messrs. Charles Winn & Co., Birmingham, should be included. The features distinguishing it from the same class of machines hitherto procurable are lightness and cheapness, although neither quality has been gained at the expense of strength or durability. The only accessories requisite are a single spanner and a tommy lever for adjusting the dies.

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VARIETIES.

MR. J. HOWARD COLLS was the recipient of a presentation at the annual dinner of the London Master Builders' Association at the Trocadéro Restaurant on Wednesday last.

MESSRS. A. & J. MAIN & CO., LTD., Clydesdale Iron Works, Possilpark, Glasgow, and London, have secured from the Egyptian Railway Administration the extensive contract for steel palisading in open competition.

LEEDS has received an order for 500 steel waggons of considerable capacity for the South American Railway Company, and this will give some stimulus to trade in the locality.

QUARRYING of granite at Eskdale, Cumberland, has been commenced, and a company has been formed to reopen the quarries at Waberthwaite. It is proposed to lay down a line to connect the quarries with the Furness Railway at Eskmeals.

THE Southport Corporation gas committee have approved of plans for the extension of the retort-house, and for the construction of forty retorts and regenerative furnaces capable of making 500,000 cubic feet of gas a day. The cost will be about 7,000/.

THE Scottish banks have formally intimated to the Edinburgh Town Council that in future their rate for short loans will be at the minimum of 4 per cent. and a maximum of 1 per cent. above the Bank of England rates. The Edinburgh Corporation, when they have money to borrow, give the banks each a turn.

A DREDGER is now at work in the German military port of Wilhelmshaven, which is claimed to be the largest in the world. It is about 245 feet long, and at its trial dredged 5,150 cubic yards of sea bottom material in an hour. It daily moves from the harbour and empties into the open sea 27,720 cubic yards of detritus. The port was found to be accumulating sand at a rate with which ordinary dredgers could not cope, and a special vessel had to be built.

THE Medical Faculty of the Catholic University Medical School, Dublin, have passed the following resolution:—"That this Faculty is of opinion that the establishment of a public health museum by the Department of Agriculture and Technical Instruction of Ireland would be of great

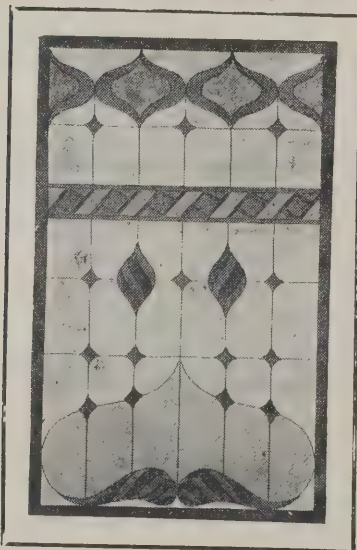
educational advantage to the public and many professions and trades."

SIR WILLIAM WILLCOCKS, who has returned to Cairo from Mesopotamia, believes, according to the *Morning Post*, that the Tigris and Euphrates have water enough to allow of the irrigation of 5,000,000 acres and navigation to the sea. The hydraulic problems involved are easier than those connected with the Nile, but measures against silting will be necessary. The first work needed is an irrigation and navigation canal joining the two rivers at Bagdad. He estimates the water entering Babylonia at 50,000 cubic feet per second by the Tigris, and 25,000 by the Euphrates. He has returned with a hundred samples of soils and building materials, and after they have been analysed he will be able to frame estimates.

THE Italian Government have guaranteed a first instalment of 600,000/ sterling to be expended in the construction of a new harbour at Genoa, the plans of which have been definitely approved. The new coal basin will be an extension of the breakwater in a north-westerly direction for a distance of about 1,500 yards; the Passo-Nuovo on the western side will be widened to double its present space, so forming a huge basin giving a water space of 96 acres, with extensive new quays and a minimum depth of 12 metres. These quays will be amply provided with railway lines capable of receiving about three times the number of railway trucks it is now possible to accommodate in the part of the port assigned to the coal trade.

THE preamble of the Bill to incorporate the Channel Ferry Railway and Quay Co. describes the proposed works as intended "for the purpose of enabling trains to be embarked upon and landed from specially constructed vessels in connection with the trans-Channel traffic between Dover and the Continent." The works are to comprise three short lengths of railway connecting with the South-Eastern and Chatham Railways at one end, and terminating "at a point in the sea" 263 yards from the southern extremity of the South Pier at the entrance to Dover tidal harbour. From the extremity of the South Pier the railway will be constructed on a pier or breakwater terminating with a movable quay or landing stage. The capital proposed is 270,000/ in shares and 90,000/ in debenture stock for

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equipment purposes. The time allowed for the completion of the works is five years from the passing of the Act.

THE throne for the Bishop of Birmingham and archdeacon's and canons' stalls have now been erected in the pro-cathedral of St. Philip's in readiness for the enthronement service on March 2. They are of the later Renaissance period of architecture. The throne and chaplain's seats stand in the first bay of the chancel nearest to the nave. The archdeacon's and canons' seats occupy the eastern bays at the back of the existing choir stalls. The throne is approached by steps and, with the canopy, rises to a height of over 12 feet. On the front of the canopy is a carved pediment with the Bishop's mitre carved in high relief. In front of the throne is an elaborately carved desk with moulded and carved panels of Classic design.

THE committee of the Italian Chamber of Commerce, London, have made the following announcement:—"On behalf of the Italian Minister of Public Works we beg to inform you that a very important tender will be held on May 3, in the offices of the Public Works Department in Rome, for the grant of the construction and carrying on of the Apuleian aqueduct, whose waters are to be drawn from the Sele sources at Caposele (province of Avellino). The grant will last ninety years, to begin from the date of the order confirming the final approbation of the work. The Government will contribute to the cost of the aqueduct the sum of about 5,000,000*l.* Both Italian and foreign firms will be allowed to take part in the competition."

A TWO-STORY brick building, sixty years old and weighing over 200 tons, was removed from its site in a suburb of Pittsburgh, U.S.A., to a distance of four miles by water. The difficulties encountered were many. The ground lying between the house and the river was of such a soft, marshy nature that the building was constantly in danger of collapsing. When the house was placed upon the shore of the river a flood rose, surrounding the building to a depth half-way to the second storey. In order to prevent it from being washed away the blocking and rollers had to be weighed down with beams and steel rails. The house was afterwards lowered upon a large coal barge. This being done it was gradually towed down the Allegheny river, but owing to the four low bridges between it and its

destination the barge had to be scuttled before passing each bridge, the water being pumped out afterward. It had also to be lowered through a lock, and finally three tracks of the Buffalo, Rochester and Pittsburg Railroad had to be crossed within 30 minutes.

ELECTRIC NOTES.

THE Wilmslow Council have decided to adopt electricity for street lighting.

AN electrical exhibition organised by the Bexhill Corporation was opened on the 17th inst. at the Kursaal. It has for object the popularising of the uses of electricity. It will close on the 25th inst.

DURING the past year the total receipts from the electricity undertaking of the Huddersfield Corporation amounted to 26,723*l.* and the expenditure to 13,313*l.*, leaving a surplus balance of 13,410*l.*, from which, however, the following deductions had to be made:—4,715*l.* for interest on loans, 3,492*l.* contribution towards redemption of debt, and 1,327*l.* the amount repaid to the public works board, leaving a balance of 3,875*l.* That amount, along with 2,110*l.* from the depreciation and contingencies account, will be used in relief of the rates by way of refunding money received from the borough rate towards previous deficiencies on revenue account.

THE Secretary of State for the Home Department has stated in answer to an inquiry whether the rules respecting the use of electricity in and about coal mines have now been settled and published, and in that case in what Parliamentary paper can a copy be found, that they have been settled with the Owners' Association and approved by the men's representatives. They are not yet in force, as they have to be proposed by statute to each collieryowner individually; but the notices of the proposal, some thousands in number, will all have been despatched within the next few days, and the rules will in each case come into force if not objected to within twenty days from the receipt of the notice. The rules as settled have not yet been made public.

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NEW CATALOGUE.

THE Armorduct Manufacturing Company, Ltd., have issued a catalogue which has the advantage of also serving as a diary and memorandum book, that can be carried in the pocket. The special conduit system was introduced by the late Mr. Fred. Bathurst. The tubes are of steel, lined with a peculiar enamel, which preserves the metal from rust and oxidation. The first part relates mainly to conduits. There is also an "accessories section," which by illustrations exemplifies all the auxiliaries in the form of fittings for efficient lighting. The bell and telephone section is also complete. Prices are given in all cases. The catalogue will suggest the extent of the business of the Armorduct Company and their readiness to meet promptly all demands of architects, engineers and the public in general.

CEMENT TESTING.

"SALTER" and "springs" are so closely associated in the minds of many classes of business men it is difficult to think of one without recalling the other. From the simple door-spring which can be bought for about a shilling and which is to be found in every room of many large offices in London, to various automatic machines on a large scale, Messrs. G. Salter & Co. have demonstrated the power which is derived from elasticity of metals. Among their late inventions is a cement testing machine, which will be invaluable to borough surveyors, civil engineers, architects, contractors, and to all who are responsible for the efficiency of cement. The briquette is held between two clamps of horseshoe form, which are connected with a pair of compound levers with steel knife edges and carried by a janned column, the whole forming a sensitive balance. From one arm of the upper lever a bucket is hung which can be filled slowly with shot from a reservoir. The effect of the weight is to raise the upper clamp, and under the strain the briquette breaks. The supply is cut off and the bucket of shot descends at the same instant. The weight can be ascertained on the Salter's balance which is part of the apparatus. Loads up to 1,000 lbs. can be applied, which

is much in excess of the usual requirements. The machine is strongly made, and its efficiency and exactitude have been repeatedly proved by daily use.


THE PULSOMETER AND WATER-SUPPLY.

A "MAMMOTH" patent air-lift pump has been fixed by the Pulsometer Engineering Company, Ltd., in order to supply the Midland Hotel, Reading, with water at the rate of 5,000 gallons per hour, and according to specification the steam used per hour was not to exceed 6,000 lbs. weight. When the actual test was made 7,000 gallons per hour were raised under the specified conditions, or 100 lbs. of water delivered for every 1 lb. of steam used, which works out at considerably less than 1d. per 1,000 gallons for fuel. The water is raised from a borehole some 500 feet deep and delivered into a tank on top of the hotel 160 feet above the water-level. Owing to the borehole being under some shops adjacent to the hotel, it was found necessary to divert the rising main by many turns and bends before a straight lead could be found for it to the top tank. The water is raised in one lift, and this is perhaps the first time on record—in England at any rate—where so big a task has been attempted and has come through with such economical results, results entirely due to the use of Borsig's patent "mammoth" pump, which after most successful application on the continent has now been introduced into this country by the Pulsometer Engineering Company.

PORTLAND CEMENT.

It was a happy thought on the part of the Nottingham Master Builders' Association to obtain the services of Mr. G. M. R. Layton, B.A., managing director of the Associated Portland Cement Manufacturers (1900), Ltd., for the delivery of a lecture on the material which is produced under his direction. As it was open to all in Nottingham who are connected with architecture, engineering and building, there was an attendance on last Friday evening in University College which by its numbers surprised those

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who were accustomed to the limited audiences which are usually to be seen at lectures on scientific subjects. It is well that workmen should be made acquainted with the processes of manufacture of cement, of which the employment is continually increasing, for in that way they will be able to take more interest in the constructive operations into which it enters and which they help to carry out. Mr. Layton's explanations were suited to all capacities, and had moreover the great advantage of being inspired by experience, for workmen quickly detect whether a lecturer is speaking from information derived from books or from practical knowledge. If there was any difficulty in realising Mr. Layton's descriptions it was removed by admirable collections of vivid photographs which brought all the operations as it were under the eyes of the audience, and they became spectators as well as listeners.

Mr. Layton claimed for Portland cement the right to be considered as a British invention. The credit for it was given to Aspdin, a bricklayer, but the process he employed differed greatly from that now adopted. In his days it was not easy to obtain a knowledge of chemistry, and there could not fail to be empiricism about the early processes. As a result there was uncertainty about the qualities. When the material was taken up by engineers for use in positions where failure would be disastrous, it was necessary that there should be definite strength, and to meet their requirements more scientific methods of production were employed. A system of testing was devised, and is still applied with a rigour beyond that for other materials used in construction. Besides strength it became necessary to have standards of fineness, and manufacturers can now realise the conditions of architects and engineers in both respects. Recently a standard fineness and standard strength have been recommended by the Engineering Commission, and there can be no doubt both will be attained and kept up. The lecturer described at length the processes adopted for manufacture in this country and America, especially in the great works of the Associated Portland Cement Manufacturers on the Thames, Medway, and elsewhere. Chalk and clay are mixed in definite quantities in a pit partly filled with water by means of special apparatus. The mixture, or "slurry," after undergoing preliminary mixing and grinding, is made to pass into secondary mills, where the semi-fluid

mass is thrown against fine screens, out of which it cannot pass until very finely incorporated. The part which passes through the screens, after other operations, is received in special mixing tanks where, by means of beaters, the mixture at last acquires thorough uniformity. The slurry is burnt to clinker at a temperature of 2,700 degs. Fahrenheit during its passage through rotary kilns. Then a cooling process has to be gone through before the final grinding which leaves the cement ready for use. It is impossible without diagrams to do justice to the lecturer's explanations, but there was a general feeling of surprise that a material which appears so simple requires such a long series of operations before it is a marketable product.

From the lecturer's descriptions it would appear as if there was a due reward for the trouble. The purposes for which Portland cement can be applied are becoming more numerous. The so-called "reinforced concrete" would not be an actuality without it, and as much may be said of many important engineering works. The Associated Portland Cement Manufacturers (1900), Ltd., have a large share in the enormous supply which has become necessary, for about 4,000 tons per day can be turned out from their various works. The lecturer was listened to throughout with interest, and at the close was deservedly applauded.

PRACTICAL SANITARY SCIENCE.

THE following examination questions were proposed at the recent examinations of the Royal Sanitary Institute:—

Newcastle, November 4 and 5, 1904.

1. State Graham's law of the diffusion of gases. Give some illustrations of the operation of this law in the natural ventilation of dwellings.

2. What are convection currents in a liquid, and how are they caused? Is there any corresponding motion in gases; if so, how is it generated, and what is its effect on the atmosphere?

3. State fully the necessary conditions for obtaining a healthy site for a school or college, in relation to—(a) Water

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supply; (b) aspect; (c) position; (d) surrounding objects; (e) subsoil.

4. What do you understand by temporary and permanent hardness of water? Describe how the temporary hardness of water may be removed; also explain a method which would remove the temporary and diminish the permanent hardness.

5. What precautions should be taken in storing rain water for a domestic supply? and give any rule you may know for calculating the size required in a storage tank.

6. Draw a cross-section of a concrete floor, supported by British standard steel beams, to a room 30 feet by 20 feet, with figured dimensions of concrete and beams, and state the proposed composition of the concrete.

7. Describe the best form of w.c. for houses, for factories, for schools and for hospitals. Illustrate by sketches.

8. In planning a system of drains, what gradients are necessary for the following sized pipes to insure a velocity of 2 feet per second:—(a) 9-inch, (b) 6-inch, (c) 4-inch—and give examples of calculations to arrive at your answer?

Manchester, November 18 and 19, 1904.

1. What do you understand by convection, conduction and radiation of heat respectively? Give examples and explain the phenomena of each.

2. Give the various subsoils of sites for dwellings. Which are porous and which are impervious? What other considerations affect the choice of a site for a dwelling?

3. Give the formula for determining the velocity of water under a head of pressure. How is this modified to meet the case of water flowing through an orifice?

4. State various ways in which a cast-iron water main may be coated to prevent corrosive action by the water. Give sketches and describe joints in wrought and cast-iron pipes.

5. Describe the construction of hollow walls, the ties employed, the distances apart. Sketch a vertical section of a hollow wall with damp course and footings.

6. Give a sketch of a hot-water heating scheme for a four-storeyed house of twenty rooms, and show how and in what directions the circulation is maintained.

7. What is meant by natural ventilation, and upon what physical laws does it depend?

8. Describe any method you know of treating sewage from a country house where no sewerage system exists.

London, December 9 and 10, 1904.

1. Describe the action of an ordinary siphon, also that of an inverted siphon carrying sewage under a river.

2. What changes take place in a gas when it is heated? How can such changes be measured? Compare the changes in air and water produced by increasing the temperature of both from 60 degs. F. to 220 degs. F.

3. Contrast from a health point of view dwellings upon (a) well-wooded hills, 500 feet above the sea; (b) fen land; (c) the southern slope of a range of hills. Show how reasonable hygienic conditions can be obtained in each position.

4. It is required to deliver one gallon of water per second through a pipe 150 yards long, with a head of 72 feet, what diameter will be required? Show the working.

5. Give a short description of Portland cement, also blue lias lime. Describe their manufacture and the class of work to which each is applicable.

6. What do you understand by the plenum and the vacuum systems of ventilation? Discuss the pros and cons of each for (a) a large schoolroom; (b) a laundry; (c) a dry-glaze factory.

7. State briefly the steps to be taken to effectively examine and test a system of drainage twenty-five years old.

8. What are the biological processes concerned in the resolution and purification of the organic matters in sewage.

CONSTRUCTION OF TUNNELS.

At the meeting on the 14th inst. of the Institution of Civil Engineers, Sir Guilford L. Molesworth, K.C.I.E., president, in the chair, the papers read were:—"Alfreton Second Tunnel," by Mr. E. F. C. Trench, M.A., and "The Reconstruction of Moncreiffe Tunnel," by Mr. D. McLellan.

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The Alfreton Second Tunnel was undertaken in 1899 as part of the Midland Railway Company's scheme for widening their main line in Derbyshire. The new tunnel is 90 feet from the old, and, like it, is half a mile in length. The tunnel cuts through the coal measures, and several beds of coal were met with, from which fuel for the contractors' engines was obtained.

Owing to the extensive cuttings required at both ends of the tunnel, it was not possible to attack it from the ends; five shafts were therefore sunk on the centre-line, and from these the whole of the tunnelling was done. The tunnel was driven of full size in both directions from each shaft, but when the working-faces had approached to within 2 chains of each other, a small heading was driven through, in order that the alignment and levels might be checked. In no case was there any appreciable error, although the only instrument used for setting out the centre-line was an ordinary 5-inch transit theodolite.

The tunnel is built of red bricks procured in the locality, and is faced internally with best Staffordshire brindle bricks. The thickness of the tunnel-ring is 2 feet 3 inches, except for a few lengths in which it is 2 feet 7½ inches, and the shaft lengths, which are 3 feet thick. Most of the tunnel was worked in lengths of 15 feet, but at one point these had to be reduced to 12 feet, owing to extra pressure on the timbering.

A good deal of water was met with in driving the tunnel, and in order to drain this away from the working-faces, earthenware pipes were laid below the invert. The permanent drainage of the tunnel is effected by means of a 2-foot brick culvert built on the invert. For turning the arch of this culvert, centring mounted on a trolley was used. This effected a considerable saving in time, and rendered it possible to build the culvert at the rate of 44 lineal yards per day. The drainage of the shafts is effected by means of earthenware pipes built in behind the brick lining of the shafts and tunnel, and discharging into the tunnel at rail-level. The water which accumulates around the shaft-lining is collected and led to these pipes by means of brick "garlands" encircling the shaft-linings just below the water-bearing strata.

The brickwork at the intersections of shafts and tunnel

consists wholly of blue bricks in cement, the arris being formed of special bricks made to the proper angles. The permanent way through the tunnel consists of 100 lbs. rails, which, before being laid, were painted with four coats of red-lead paint. The ballast is of slag.

Special care was taken in designing and building the tunnel fronts to avoid the failures which sometimes occur at these places. The face-wall was built to a batter of 1 in 6, and in order that the brick courses of the tunnel-ring might be brought in normally to this batter, the tunnel was given a bell mouth, the vertical axis being increased in length by 2 feet at the face. To increase the longitudinal strength of the tunnel hoop-iron straps were built between the brick courses at each face.

The time occupied in building the tunnel was nearly two years. The works were carried out at the direction of the company's engineer, the late Mr. J. A. McDonald. The contractors were Messrs. Thos. Oliver & Son, and Mr. Trench acted as resident engineer.

Moncreiffe Tunnel, on the Caledonian Railway, near Perth, is 1,218 yards in length, of which, before reconstruction, 842 yards were lined with brickwork and 376 yards were unlined. The reconstruction was necessitated by the deterioration of the brickwork of the lined portions since the tunnel was built in 1848, and the disintegration of the rock at some of the unlined portions resulting in pieces falling on to the rails.

The reconstructed tunnel has 1,083 yards lined with brickwork, the remaining 135 yards being unlined. Advantage has also been taken of the reconstruction to enlarge the internal section of the tunnel and to raise the rails so as to give room for more ballast between the bottom of the sleepers and the rock formation. The new section has vertical side walls and a segmental arch, and admits of the passage of the largest west coast joint stock with open doors. The minimum thickness of the side walls is 9 inches and that of the arch 18 inches, the average thicknesses being 1.66 foot and 2.06 feet respectively. The lining is faced with blue brindle bricks.

The water in the surrounding ground, which finds its way to the brickwork lining of the tunnel, flows down the extrados of the arch into channels leading to chimney drains built in the side walls. It escapes from the chimney

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drains through fireclay pipes built in the walls, and flows to either end of the tunnel through larger fireclay pipes laid on the formation close against the side walls.

The temporary works were situated at the north end of the tunnel, the chief of them being a protective overhead platform, a cement shed, a 3-ton derrick crane, and electric light and air plant. The overhead platform, besides being a convenience in dealing with the excavated and building materials, served to protect the traffic on the railway from the jib of the crane when in use. The cement shed was capable of holding 100 tons of cement. The electric lighting and air plant supplied light for the whole tunnel during the operations, and fresh air for the workmen, who, without it, would not have been able to remain in the tunnel for a reasonable time, owing to the presence of smoke emitted by engines passing through.

While the reconstruction was in progress the traffic was worked on a single line of rails laid in the centre of the tunnel. The actual work of reconstruction inside the tunnel was carried on with the aid of four steel travelling shields, the principal dimensions of which were 32 feet long, 22 feet wide and 16 feet 8 inches high. There were openings through the shields, 13 feet 8 inches wide and 13 feet 6 inches high, for the passage of the trains. These openings were lined with timber, which served as a protection both for the traffic on the railway and for the workmen engaged on the top of the shield. Each shield consisted of two parts, which were connected rigidly together with bolts, and which could be taken apart if necessary. Small trolleys running on narrow-gauge lines conveyed the excavated and building materials between the base of operations at the north end of the tunnel and the shields. They were assisted on Sundays, during the cessation of ordinary traffic, by waggons on the running line.

The reconstruction of an originally unlined portion of tunnel was comparatively simple, owing to the ground being rock. The shields merely acted as a protection, and were scarcely ever required to carry any load other than the weight of the workmen and of the building materials. The side walls were built clear of the shields, and ordinary tunnel centres were used for the building of the arch.

In the reconstruction of an originally lined portion of

tunnel in soft ground, the old brick lining was supported off the leading end of the shield. A top heading was driven over the extrados of the old arch to allow of the two centre crown-bars being drawn. Then the old arch was removed, commencing at the crown, and the length was timbered as in ordinary tunnelling, the bars being supported at their back end off the new brick arch and at their front end off one of the ribs of the leading half of the shield. When a 12-foot length was completely excavated and timbered, the rear half of the shield was detached and moved back to the last length, to be used as a scaffold in connection with the removal of the timber centres. While the two portions of the shield were apart the opportunity was taken of building the side walls. Then the rear half of the shield was moved forward with the centres, which were erected in their new position, and another length of brick arch was built.

Alarm-bells connected with the signal-boxes outside were provided at seven different points in the tunnel, and there was also telephonic communication between the middle of the tunnel and the same signal-boxes. The drivers of engines were instructed to prevent as far as possible the emission of smoke and steam when passing through the tunnel and to sound their whistles.

The time taken to complete a 12-foot length of originally unlined tunnel was seven days. The corresponding time for a 12-foot length of originally lined tunnel in soft ground was eleven days, and for a 12-foot length of originally lined tunnel in rock eight days. The average progress was 15 lineal yards per month per shield, the best progress of any one shield being 18 lineal yards per month.

The operations were carried on continuously, working night and day and on Sundays. There were three 8-hour shifts of miners in the twenty-four hours and one shift of bricklayers, the number of men employed daily being 150. The reconstruction work proper inside the tunnel was commenced on January 27, 1902, and was completed on December 25, 1903. Single-line working through the tunnel was brought into operation on December 1, 1901, and double-line working was resumed on March 6, 1904.

The work was carried out by the Caledonian Railway Company, under the direction of Mr. Donald A. Matheson, C.E., assisted by Mr. McLellan, Mr. W. A. Kemp acting as resident engineer.

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EDITORIAL NOTICES.

In view of the many difficulties which are certain to arise in connection with the law, practice rules and procedure under the Workmen's Compensation Act, we have added to our staff A VERY EMINENT BARRISTER, who has made the subject a special study, and will be glad to answer in the columns of this paper any questions relating to the complicated matters arising from the provisions of this difficult Act. Our LEGAL ADVISER will further answer any legal question that may be of interest to our readers. All letters must be addressed "LEGAL ADVISER," Office of "The Architect," Imperial Buildings, Ludgate Circus, London, E.C.

The Editor will be glad to receive from Architects in London and the Provinces results of Competitions and Tenders and other particulars of Works in progress in which they may be interested.

The authors of signed articles and papers read in public must necessarily be held responsible for their contents.

No communication can be inserted unless authenticated by the name and address of the writer—not in every case for publication, but as a guarantee of good faith.

Correspondents are requested to make their communications as brief as possible. The space we can devote to Correspondence will not usually permit our inserting lengthy communications.

TENDERS, ETC.

*** As great disappointment is frequently expressed at the non-appearance of Contracts Open, Tenders, &c., it is particularly requested that information of this description be forwarded to the Office, Imperial Buildings, Ludgate Circus, London, E.C., not later than 2 P.M. on Thursdays.*

COMPETITIONS OPEN.

LAMBETH.—March 30.—For municipal buildings at Brixton Hill. Particulars from Mr. H. J. Smith, Town Hall, Kennington, S.E.

NELSON.—March 4.—Designs for a free public library. Premiums of 50*l.*, 25*l.* and 15*l.* Mr. J. H. Baldwick, town clerk, Town Hall, Nelson.

CONTRACTS OPEN.

ASHTON-UNDER-LYNE.—March 6.—For the erection of vicarage for St. James's Church, Ashton-under-Lyne (stone building). Messrs. Thos. George & Son, architects, 7 Warrington Street.

ASHTON-UNDER-LYNE.—March 6.—For seating and sundry repairs, also for painters' work, required at the Corporation baths. Mr. J. T. Earnshaw, A.M.I.C.E., borough surveyor, Town Hall, Ashton-under-Lyne.

BARKISLAND.—March 18.—For rebuilding the Barkisland Mill bridge, Barkisland, near Halifax. The County Surveyor, County Hall, Wakefield.

BARMING HEATH.—March 14.—For infectious hospital, day-room, bays to additional buildings, alterations and additions to laundry and other works at the Barming Heath asylum, near Maidstone. Mr. W. J. Jennings, architect, 4 St. Margaret's Street, Canterbury.

BECKENHAM.—March 20.—For the erection of two cottages for firemen in Westbourne Road, for the Beckenham Urban District Council. Mr. John A. Angell, surveyor.

BEVERLEY.—March 7.—For additions to Little Tranby, Beverley. Messrs. Botterill, Son & Bilson, architects, 23 Parliament Street, Hull.

BIRSTALL.—March 10.—For the erection of a small-pox hospital at Birstall, for the Oakwell Joint Hospital Board. Mr. Wm. Middlebrook, clerk, 70 Huddersfield Road, Birstall, near Leeds.

BLACKHILL.—March 8.—For the erection of three self-contained dwelling-houses, three-stalled stable, cart shed, &c., in Blackett Street, Catchgate. Mr. W. B. Barron, 3 West View, Blackhill, Durham.

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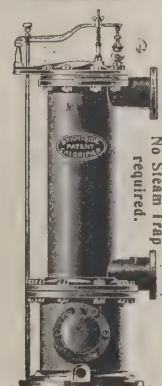
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BRIDLINGTON.—March 7.—For the construction of the Bridlington grammar school new cricket pavilion. The Headmaster.

BROMLEY.—March 7.—For the erection of a public library in the High Street, Bromley, Kent. Mr. Evelyn Hellicar, architect, 10 Serjeants' Inn, E.C.

BURY ST. EDMUNDS.—March 18.—For the erection of a secondary school and pupil teachers' centre at Bury St. Edmunds for 210 scholars. The County Architect, Sudbury, Suffolk.

CASTLETON.—March 14.—For the erection and furnishing of a branch library at Castleton, Rochdale. Mr. Jesse Horsfall, architect, 4 Chapel Walks, Manchester.

CHEADLE.—March 6.—For the erection of a shelter and conveniences on the recreation ground, Stockport Road, Cheadle. Mr. E. Sykes, Public Offices, 9 High Street, Cheadle, near Manchester.

CHEDDLETON.—March 4.—For the erection of infants' school, Cheddleton. Mr. Graham Balfour, director of education, Education Committee, Stafford.

CHIPPING NORTON.—March 21.—For the erection of a bridge at Chipping Norton Junction and the reconstruction of a bridge at King's Sutton, for the Great Western Railway. The Engineer, Paddington Station, London.

COBHAM.—March 22.—For the erection of a laundry (fitted with certain appliances for hand-power only) at the isolation hospital, Whitehill Road, Cobham, near Gravesend. Mr. Archibald E. Loach, 8 Northcote Road, Strood.

COUNDON.—March 4.—For the erection of a Roman Catholic elementary school at Coundon, Bishop Auckland. Mr. J. Keenan, architect and surveyor, North Bondgate, Bishop Auckland.

CROMER.—March 13.—For the construction of an engine-house, boiler-house, chimney shaft, cottage, and other works in connection therewith, at the site of the new pumping station at Metton, near Cromer. Mr. J. C. Melliss, engineer, 264 Gresham House, Old Broad Street, E.C.

CROSLAND MOOR.—For the erection of new Wesleyan chapel at Crosland Moor, Huddersfield. Messrs. W. J. Morley & Son, architects, 269 Swan Arcade, Bradford.

DERWENT.—March 27.—For the construction of the Grindleford to Rowsley section of the Derwent aqueduct, in the county of Derby. The work will comprise—tunnels, about $\frac{1}{2}$ mile; cut and cover, about 4 miles; 45-inch pipe-laying, about $4\frac{1}{4}$ miles, with valve-houses, stream crossings, &c. Mr. Edward Sandeman, engineer, Bamford, near Sheffield.

DRAYTON BASSETT.—March 4.—For new school, Drayton Bassett, for the Staffordshire County Council. Mr. Graham Balfour, director of education, Stafford.

EDINBURGH.—March 11.—For executing the following works in the erection of Drummond Street school, for the Edinburgh School Board:—(1) mason and brick work; (2) carpentry and joiners' work; (3) smith and ironfoundry-work; (4) slaters' work; (5) plasterers' work; (6) plumbers' work; (7) painters' work. Mr. Carfrae, architect, 3 Queen Street, Edinburgh.

ENFIELD AND WILLESDEN.—March 13.—For the erection of caretaker's quarters on a site adjoining the magistrates' courts, Enfield; also for the erection of caretaker's quarters on a site adjoining the magistrates' courts, Willesden. Mr. H. T. Wakelam, county architect, Middlesex Guildhall, Westminster, S.W.

ETWALL.—March 10.—For alterations and additions to the Council schools, Etwall, Derby. Mr. Arthur Eaton, architect and surveyor, 6 St. James's Street, Derby.

EXMOUTH.—March 11.—For the erection of four houses at Mamhead View, Exmouth. Messrs. Crews & Son, Rolle Street, Exmouth.

FARLEY.—March 8.—For the erection of Baptist Sunday schools at Farley, Yorks. Mr. Wilson Bailey, architect, Tanfield Buildings, Bradford.

GLASGOW.—March 13.—For work to be executed in the reconstruction at Bridge Street station, Caledonian Railway Co. Company's Engineer, Buchanan Street Station, Glasgow.

GLASGOW.—March 13.—For the rebuilding of the station offices on the down-line platform at Whifflet low-level station, for the Caledonian Railway Company. The Company's District Engineer, 16 Killermont Street, Glasgow.

HAMMERSMITH.—March 8.—For the constructional steel-work, &c., required in the erection of additions to boiler-

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IRELAND.—March 6.—For erection of a goods office in masonry at Londonderry station, for the Great Northern Railway Company (Ireland). Mr. W. H. Mills, engineer-in-chief, Amiens Street Terminus, Dublin.

KEIGHLEY.—March 15.—For the erection of a manual training-room, covered playground, &c., at Eastwood Council school, Keighley. Mr. Wilson Bailey, architect, Tanfield Buildings, Bradford.

LINDLEY.—March 9.—For various works (except masons') required in erection of a dwelling-house, boundary walls and outbuildings in Holly Bank Road, Lindley, Huddersfield. Messrs. John Kirk & Sons, architects, Huddersfield.

LONDON.—March 8.—For addition to coal store at the North-Western Fever hospital, Lawn Road, Hampstead, N.W. Mr. W. T. Hatch, engineer-in-chief, office of the Asylums Board, Embankment, E.C.

LONDON.—March 9.—For alterations and additions to the relief offices, Mary Ann Buildings, High Street, Deptford. Mr. Louis Jacob, surveyor, Globe Chambers, 493 New Cross Road, S.E.

LYDDINGTON.—March 6.—For building a new classroom and alterations to master's house, for the Managers of Lyddington school, near Uppingham.

MANCHESTER.—March 11.—For the erection of a laboratory at the Withington sewage works, Chorlton-cum-Hardy. The Rivers Department, Town Hall.

MENDLESHAM.—March 6.—For the erection of a blacksmith's shop at Mendlesham, Suffolk. Mr. H. G. Bishop, architect, Market Place, Stowmarket.

MYLOR.—March 11.—For the erection of a farmhouse at Restronguet, Mylor, Cornwall. Estate Office, Carclew, Perranarworthal.

NEWCASTLE-ON-TYNE.—March 6.—For works, repairs and materials (unexpired portion of from April 1, 1905, to March 31, 1906) for the following station in the Newcastle Royal Engineer Sub-District of the North-Eastern District:—Alnwick, including Alnmouth, Moor Laws rifle range and

practice batteries within a radius of 25 miles. The Royal Engineer Office, 13 Bell Grove Terrace, Newcastle-on-Tyne.

NEWTON-ON-OUSE.—March 8.—For the extension of the churchyard, comprising (1) clearing the site, (2) rebuilding a portion of the boundary wall, (3) taking down and rebuilding the lych gate. Rev. E. Paske Smith, The Vicarage, Newton-on-Ouse, Yorks.

NEWHALL.—March 9.—For the erection of an extension to the Sunday schools, Newhall Wesleyan chapel, Burton-upon-Trent. Mr. C. H. Read, Granville Mill, Swadlincote.

NORTHALLERTON.—March 8.—For the erection of a milk depot at Northallerton, for the North-Eastern Railway Company. Mr. William Bell, the company's architect, York.

NORWICH.—March 8.—For alterations and additions to the Norwich free library. Mr. Arthur E. Collins, city engineer, &c., Guildhall, Norwich.

OULTON.—March 17.—For the enlargement of the Oulton Council school buildings, near Lowestoft. Mr. F. W. Richards, architect, 14 Stanley Street, Lowestoft.

PONTYPOOL.—March 21.—For the erection of a pair of semi-detached villas in the Station Field, Pontypool. Mr. D. J. Lougher, architect, Bank Chambers, Pontypool.

POOLE.—March 24.—For the erection of a new elementary school building in Wimborne Road, Poole. Mr. Walter Andrew, architect, Parkstone.

PORTREE.—March 17.—For the erection of new Royal Naval Reserve buildings at Portree, in the Isle of Skye, N.B. The Director of Works Department, Admiralty, 21 Northumberland Avenue, London, W.C.

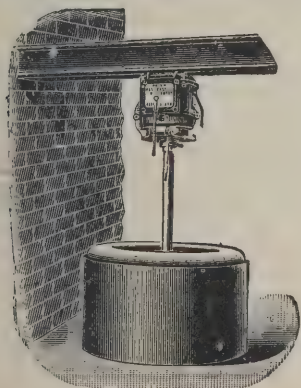
RICHMOND.—March 13.—For erection of three additional workmen's dwellings at Manor Grove. Mr. J. H. Brierley, borough surveyor, Town Hall, Richmond, Surrey.

RYE.—March 11.—For building an additional ward to the infirmary of the workhouse. Mr. E. J. Cory, surveyor, High Street, Rye, Sussex.

SANDAL.—For erection of Wesleyan church and schools, Sandal, Wakefield. Messrs. Garside & Pennington, architects, Ropergate House, Pontefract.

SCOTLAND.—March 7.—For the mason, carpenter and slater's work of (1) farm steading, Backhill of Seggat; (2) farm steading, Middlehill of Seggat; (3) additions to

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SCOTLAND.—March 10.—For the erection of new Royal Naval Reserve buildings at Ulapool. The Director of Works Department, Admiralty, 21 Northumberland Avenue, London, W.C.

SCOTLAND.—March 10.—For the erection of new Royal Naval Reserve buildings at Banff. Director of Works Department, Admiralty, 21 Northumberland Avenue, London, W.C.

SCOTLAND.—March 11.—For the following works in connection with erection of an isolation hospital at Friarton, Perth, for the Town Council—viz.: (1) excavations, brick and masons' work; (2) carpenter and joiner's work; (3) plumbers' work; (4) plaster, cement, and tile work; (5) slaters' work; (6) glaziers' work; (7) electric bells and telephones. Mr. George P. K. Young, 42 Tay Street, Perth.

SCOTLAND.—March 15.—For (1) the brickwork; (2) wright-work; (3) steel and iron work; (4) slaters' work; (5) plasterers' work; (6) concrete work; (7) plumbers' work; (8) tilework; (9) painters' work; (10) heating and ventilating work; and (11) steam boilers—of new hospital proposed to be erected at Gateside, Greenock. Mr. Colin Macculloch, clerk to the board, Municipal Buildings, Greenock.

SCOTLAND.—March 31.—For the mason, carpenter, slater, plumber, plasterer, painter, glazier and bell-hanging works of an infectious diseases hospital to be erected in Alvie for the Inverness-shire County Council. Mr. Alexander Cattanach, architect, Kingussie.

SETTLE.—March 7.—For the erection of a detached residence at Settle. Mr. James Hartley, architect, Skipton.

SHEERNESS.—March 8.—For the erection of a wooden pier for the unloading of coals at Sheerness. Length over 200 feet, width 11 feet. Plans and specifications can be seen by appointment with, and estimates may be sent to, the Secretary, Co-operative Society, Ltd., 94 High Street, Sheerness.

SLEAFORD.—March 13.—For the erection of two pairs of cottages at Rauceby asylum, Sleaford, Lincs. Mr. Jesse Clare, county architect, Sleaford.

SOUTH SHIELDS.—March 18.—For the erection of municipal buildings on the site in Westoe Road, South Shields. Mr. Ernest E. Fetch, architect, 26 John Street, Adelphi, London, W.C.

STAFFORD.—March 7.—For erection of a small plant-house at the cemetery. Mr. W. Blackshaw, Borough Hall, Stafford.

SWANSEA.—March 9.—For new tramp cells at the Swansea workhouse. Mr. Llewn Jenkins, clerk, Union Offices, Alexandra Road, Swansea.

WALES.—For alterations to Llandaff House, Llandaff. Mr. W. H. Dashwood Caple, architect, Church Street Chambers, Cardiff.

WALES.—March 4.—For alterations and additions at the Rhos Non-provided schools. Rev. T. Prichard, Rhos Vicarage, Johnstown, Ruabon.

WALES.—March 4.—For the erection of a police station at Cwmaman, Glamorgan. The Glamorgan County Council Offices, Westgate Street, Cardiff.

WALES.—March 6.—For the erection of two shops in Dunraven Street, Tonypandy. Mr. R. S. Griffiths, architect and surveyor, Excelsior Buildings, Tonypandy.

WALES.—March 7.—For the erection of a new bath-room and alterations at the master's house at Twynrodyn school, Merthyr Tydfil. Mr. J. Llewellyn Smith, architect, Central Chambers, 67 High Street, Merthyr Tydfil.

WALES.—March 8.—For the erection of a new post office at Llanrhaidr-yn-Mochnant. Messrs. Shayler & Ridge, architects, Bank Chambers, Oswestry.

WALES.—March 8.—For the erection of twenty-five houses at Abertysswg, for the Abertysswg Building Society. Mr. J. M. Davies, 11 The Green, Abertysswg.

WALES.—March 10.—For the erection of a fan and engine house at the Aberpergwn Collieries, Glyn-Neath. Mr. John Roberts, M.E., Fisher Street, Swansea.

WALES.—March 14.—For the extension and alteration of Horeb Calvinistic Methodist chapel, Treherbert. Mr. W. D. Morgan, Victoria Chambers, Pentre, Rhondda Valley.

WALES.—March 23.—For the erection of a mixed and infants' school at Cwmcuffin, Llanhilleth, Mon. Messrs. Swash & Bain, architects, Midland Bank Chambers, Newport, Mon.

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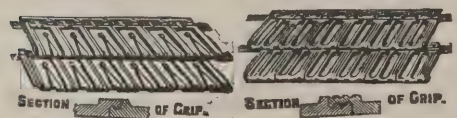
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Circus, London, E.C.

WALSALL.—March 6.—For the erection of a senior mixed department for 300 children, together with a classroom for fifty infants and sundry alterations to the present boys and girls' schools. Messrs. Bailey & McConnal, architects, Bridge Street, Walsall.

WALTON-ON-NAZE.—March 6.—For the erection of new schools at Walton-on-the-Naze for 200 children. Mr. F. Whitmore, architect, Duke Street, Chelmsford.

WASHINGTON.—March 24.—For Primitive Methodist school and vestry at Washington Station, Durham. Messrs. Davidson & Phillipson, architects, 32 Clayton Street West, Newcastle-on-Tyne.

WOKINGHAM.—March 13.—For the construction of bacteria filter beds, and other works in connection therewith, at Wargrave. Mr. Richard Hassard, 1 Victoria Street, Westminster.

WORSBROUGH BRIDGE.—March 4.—For the erection of three houses on Park Road, at Worsbrough Bridge, Yorks. Mr. Arthur Whitaker, architect, Worsbrough Bridge, Barnsley.

WORTLEY.—March 18.—For widening Wardsend Goit bridge, on the Sheffield and Halifax main road. County Surveyor, County Hall, Wakefield.

WREXHAM.—March 22.—For the construction of sewage disposal works, including settling tanks and percolating filters, formation of road, laying land, also 9-inch sewers, &c., for Acrefair, Cefn-Bychan and Newbridge, in the parish of Cefn, near Ruabon. Mr. J. Price Evans, Argyle Chambers, Wrexham.

An effort is being made to finish the new promenade at Blackpool by Easter, and the Corporation have settled a strike of carters by agreeing to pay 7d. a ton for sand carted and tipped behind the sea wall.

The Pennsylvania Railway Company will, it is said, spend 30,000,000 dols. in the construction of a new railway station at Chicago; of this sum 20,000,000 dols. will be spent in acquiring land and 10,000,000 dols. will be spent on buildings. Plans and specifications have been completed, and show a group of supply and storage warehouses, a large freight warehouse and a passenger depot.

TENDERS.

AYLSHAM.

For the construction of new tramp cells for the Board of Guardians.

Hawes & Son	£149	0	0
Gunton & Palmer	149	0	0
Watts	142	0	0
Culley	135	10	0
Tuddenham	135	3	0
W. & H. Wade	129	18	6
Martin	129	0	0
Kemp	127	13	8
BACHELOR & SON, Stalham (accepted)	127	0	0

BURNLEY.

For paving, kerbing, channelling, flagging and making-up streets in the township of Briercliffe, for the Burnley Rural District Council. Mr. S. EDMONDSON, surveyor.

Sugden	£4,945	4	10
Wadge	4,874	1	4
Atkinson	4,542	16	3
Shepherd	4,465	6	3
Read & Sons	4,408	16	4
Exors. A. Broadley	4,191	8	1
Watson & Co.	4,180	14	6
Miles	4,077	12	11
J. GREEN, Burnley (accepted)	4,077	1	4
Burgess	4,012	0	7

CARLISLE.

For repairs and alterations to premises in Fisher Street, necessary for their adaptation as municipal offices. Mr. H. C. MARKS, city surveyor.

HILL & SON, Carlisle (accepted)	£716	18	5
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CROWBOROUGH.

For the erection of a shop and post office. Mr. H. MEAD, architect, London.

Hockley & Co.	£2,000	0	0
Chilton	1,975	0	0
J. LENEY & SON, Tunbridge Wells*	1,965	0	0

* Accepted subject to modification.



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CHERITON.

For works in Somerset Road.	Mr. F. FEATHER, surveyor.			
Arnold & Son	£285	0	0	
Trueman	279	8	10	
Wallis & Sons, Ltd.	260	0	0	
Reeves	253	2	6	
Gosly	249	5	8	
Wilson	240	0	0	
Chittenden & Simmonds	217	3	11	
ROAD MAINTENANCE CO. LTD., Gravesend				
(accepted)	212	18	1	

CONISBORO'.

For the erection of new residence.	Mr. H. L. SMETHURST, architect, Conisboro'.			
Lumb	£1,635	0	0	
Carpenter & Co.	1,400	0	0	
Baines	1,069	10	1	
Gray & Sons	1,056	0	0	
Johnson & Moore	957	0	0	
Gill & Son	947	0	0	
B. WORTLEY & SON, Doncaster (accepted)	794	0	0	
Lazenby	780	0	0	

EAST PRESTON.

For the erection of a mortuary at the union workhouse.				
Smith & Son	£202	5	0	
Linfield & Sons	169	10	0	
Snewin Bros.	166	3	6	
EDMUND HILL, Littlehampton (accepted)	163	5	0	
Selby	144	0	0	
Drake	135	10	0	

GREAT HORTON.

For the various works required in erection of warehouse for the industrial Society. Messrs. JOHN DRAKE & SON, architects, Queensbury.

Accepted tenders.

Ingham, mason	£1,600	0	0	
Barrett & Sons, ironfounder	460	0	0	
Towers, joiner	194	14	0	
Hodgson, plumber	103	10	0	
Crabtree, slater	87	10	0	
Hillam, painter	20	0	0	
J. C. & A. Sunderland, plasterer	18	0	0	

HARRINGTON.

For work necessary for erection and completion of two houses in Church Terrace. Messrs. W. G. SCOTT & Co., architects, Workington.

Accepted tenders.

Shackley, builder	£565	0	0	
Graham, joiner	283	10	0	
Stewart, plumber	90	15	0	
Hageney, plasterer	89	0	0	
Burrow, slater	41	10	0	
Davies, painter	39	0	0	

HARROW-ON-THE-HILL.

For the erection of new isolation ward, block and enlarging and extending the existing buildings at the hospital field, Pinner Lane. Mr. J. PERCY BENNETTS, surveyor.

Clayton	£3,587	0	0	
Willcock & Co.	3,295	0	0	
Mattock Bros.	3,194	0	0	
Waring-White Building Co.	3,161	0	0	
H. Hudson & Son	3,157	0	0	
Brightman	3,150	0	0	
Parnell	3,134	0	0	
Batchelor	3,132	0	0	
J. Ferguson & Co.	3,040	0	0	
W. Lawrence & Son	2,994	0	0	
Aldridge	2,990	0	0	
J. Shelborne & Co.	2,987	0	0	
C. SIMMONS, Willesden Junction (accepted)	2,854	0	0	

IBBOTSHOLME.

For additions to the stable buildings at Ibbotsholme, Kendal. Mr. J. BINTLEY, architect, Kendal.

*Accepted tenders.**Masonry, slating, excavating and drains.*

J. Braithwaite, Windermere	£550	6	0	
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Carpenters and joiners' work.

W. Sharp, Windermere	175	0	0	
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Plumbing, painting and glazing.

J. Garside	169	0	0	
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Plastering, &c.

Woodburn & Storey	90	0	0	
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LANCHESTER.

For the erection of a house and workshop in Ford Lane, Lanchester. Mr. THOMAS E. TAYLOR, architect.
L. THORNTON, Lanchester (*accepted*) . . . £1,409 0 0

LEDBURY.

For the substitution of a brick, concrete and steel girder bridge for the present brick Storesbrook Bridge. Mr. A. DRYLAND, engineer, Hereford.
Beavan & Hodges . . . £683 0 0
Watkins & Son . . . 680 0 0
Hill . . . 654 0 0
Smith . . . 636 0 0
Cruwys & Holborough . . . 617 0 0
Dyke . . . 611 0 0
Herbert . . . 606 0 0
W. JAMES, Bromyard (*accepted*) . . . 606 0 0

LONDON.

For the supply and erection of five penstocks and two timber dams, with all accessories, at the penstock chambers in Turner's Road and Rhodeswell Road, Stepney, for the London County Council.
Hunter & English . . . £2,335 0 0
Moreland & Son, Ltd. . . . 2,296 0 0
Yates & Thom . . . 2,294 0 0
Ashton, Frost & Co., Ltd. . . . 2,150 0 0
Glenfield & Kennedy, Ltd. . . . 2,094 0 0
BLAKEBOROUGH & SONS, Brighouse, Yorks (*accepted*) . . . 2,030 0 0
For construction of new cells at Tottenham Court Road police station. Mr. J. DIXON BUTLER, surveyor. Quantities by Messrs. THURGOOD, SON & CHIDGEY.
A. Hood . . . £3,360 0 0
Lascelles & Co. . . . 3,120 0 0
Grover & Son . . . 3,099 0 0
Higgs & Hill . . . 3,074 0 0
Holloway Bros. . . . 3,073 0 0
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Lathey Bros. . . . 2,963 0 0
Lawrance & Son . . . 2,871 0 0
Lovatt, Ltd. . . . 2,825 0 0

LONDON—continued.

For completing the surfaces of the carriageways and footways on section A of the White Hart Lane estate for the London County Council.
Adams . . . £3,157 18 5
Muirhead, Greig & Matthews . . . 3,036 16 4
Mowlem & Co., Ltd. . . . 2,966 0 0
Bloomfield . . . 2,930 5 3
Griffiths & Co., Ltd. . . . 2,875 2 6
Manders . . . 2,872 10 7
Gibbons . . . 2,827 0 0
Coxhead . . . 2,760 0 0
Grounds & Newton . . . 2,687 13 5
E. J. KNIFTON, Hope Yard, Edmonton (*accepted*) . . . 2,467 12 1
Engineer's estimate . . . 3,033 0 0
For supply of heating apparatus at the Sleaford Street school, Clapham.
Wright Bros. . . . £684 10 0
Haden & Sons . . . 659 0 0
Haden & Sons (*alternative tender*) . . . 648 0 0
Cannon & Sons . . . 599 0 0
Stevens & Sons . . . 585 0 0
Clarke . . . 557 0 0
G. & E. Bradley (*recommended*) . . . 539 10 0
For supply and fixing of a water-shute and springboard in the first-class swimming-bath, Lancaster Road, W., for Kensington Borough Council.
Bartle & Co. . . . £62 9 0
J. E. BOAZ & Co. (*accepted*) . . . 59 14 0
Engineer's estimate . . . 55 0 0

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For making-up road, &c., leading to small-pox hospital at Sedgbrook, for the East Sussex committee.
King . . . £188 3 0
Carey . . . 180 0 0
Mayo . . . 176 7 0
Knight, jun. . . . 173 0 0
S. PARKHAM, Burgess Hill (*accepted*) . . . 165 0 0

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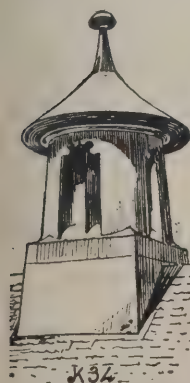
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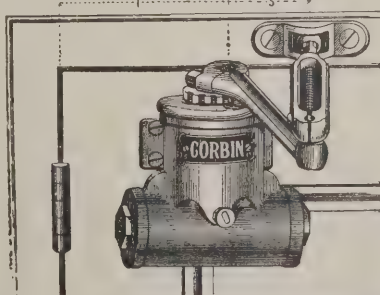
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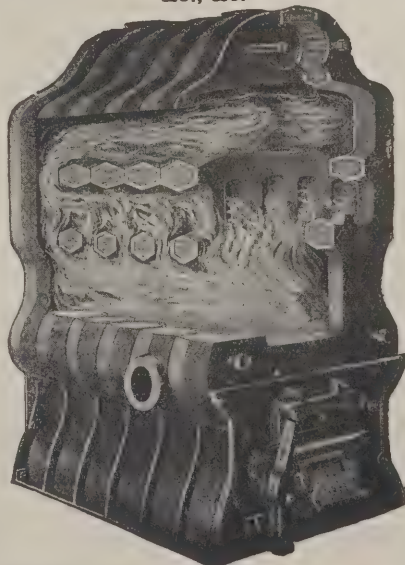
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Asphaltic Limestone Concrete Co.	£5,521	14	10
Starkey	5,139	19	10
Hunt	4,819	15	7
Hadfield & Co.	4,814	4	9
Robson	4,793	8	6
Crombie & Sons	4,521	1	9
Smiles	4,402	6	3
Cruddas & Son	3,954	8	5
Short	3,814	17	11
Simpson	3,697	2	5
Meredith	3,603	19	4
Hardy & Atkinson	3,560	9	0
Burn	3,467	13	10
Inglett	3,432	2	0
Shepherd	3,426	9	5
Pickering	3,352	2	4
North of England Asphalt Co.	3,311	9	10
Hobbs	3,293	6	9
O'Doherty & Son	2,950	2	0
ELLISON, Cleckheaton (accepted)	2,944	12	10

SHELLEY.

For the construction of main sewers, including manholes, lampholes, &c., for the Shelley Urban District Council, Huddersfield. Mr. T. AIRD MURRAY, engineer, Sheffield.

Buckley	£2,423	15	9
Eyre	2,375	0	0
Hill & White	2,370	0	0
Turner	2,346	17	9
Nadin & Derwent	2,319	0	0
Graham & Sons	2,200	0	0
Bottomley & Son	2,200	0	0
Wood	2,172	0	0
Wilson Bros.	2,096	9	9
Garforth	2,003	5	6
Barry	1,979	0	0
Firth	1,976	0	0
Cooper	1,975	15	0
Doleman	1,884	9	1
WARING & SONS, Huddersfield (accepted)	1,883	1	9

ST. ASAPH.

For the construction of sewer from workhouse entrance to present termination of the St. Asaph main sewer.

Evans and Son	£579	0	0
Hughes & Williams	371	12	0

SOUTHAMPTON.

For executing private street works for the Corporation. Mr. J. A. CROWTHER, engineer.

Whitworth Road.

Daysh	£2,888	7	0
Douglas & Richards	2,289	8	2
Osman	2,058	0	0
Butt	2,027	0	0
H. LAWRENCE (accepted)	1,988	17	5
Engineer's estimate	2,416	0	0

Grove Road (part of), York Road and May Road.

Hood	1,519	0	0
Daysh	1,428	15	8
Douglas & Richards	1,418	15	4
Golding & Ansell	1,408	0	0
Osman	1,256	10	0
J. BUTT (accepted)	1,190	0	0
Engineer's estimate	1,403	0	0

TENDRING.

For sewage-disposal works, Essex. Mr. ARTHUR J. MARTIN, engineer, Westminster.

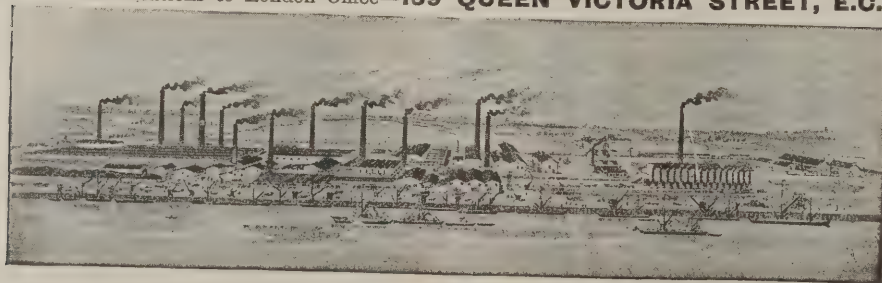
Jackson	£1,257	14	6
Coxhead	959	0	0
Thurman	854	6	8
Moran & Son	845	18	6
Marsh	833	10	8
Porter	820	0	0
Saunders	813	0	0
Burgoyne	791	11	5
Scales & Robins	748	0	0
WILSON, BORDER & Co., Romford (accepted)	713	15	0

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TOTTENHAM.

For making-up Crowland Road (second section), Kent Road (remainder), Lansdowne Road (remainder), and Woodside Gardens (part of), for the Urban District Council.

Crowland Road (second section).

Knifton	£522	9	10
Grounds & Newton	436	17	0
C. Bloomfield	433	12	6
E. T. BLOOMFIELD (accepted)	368	12	0

Kent Road (remainder).

Knifton	138	18	4
C. BLOOMFIELD (accepted)	127	7	7
Grounds & Newton	126	2	6
E. T. Bloomfield	122	13	6

Lansdowne Road (remainder).

Knifton.	1,441	8	9
Rowley, jun.	1,414	14	2
C. Bloomfield	1,339	0	0
E. T. Bloomfield	1,301	17	0
GROUNDS & NEWTON (accepted)	1,298	0	3

Woodside Gardens (part of).

Grounds & Newton	264	1	4
Knifton	244	13	4
Rowley, jun.	234	12	3
C. Bloomfield	213	4	0
E. T. BLOOMFIELD (accepted)	207	0	6

URMSTON.

For paving, draining and improvement works in Firwood Avenue, Oak Grove, Stephen Street, &c., for the Urban District Council. Mr. J. HEATH, surveyor.

Stamp & Sons	£5,801	6	10
Naylor	5,485	5	4
Boyson	5,246	16	5
Willan	5,064	14	9
Clarke & Sons	5,047	14	0
Braddock & Co.	5,025	0	0
Wood fine	5,017	3	8
Owen	4,989	13	9
Worthington	4,921	16	3
Johnson & Hindley	4,847	0	0
Snape & Sons	4,578	19	0

WALES.

For the erection of thirty-five houses on Blaencuffin Road, Llanhilleth, for the Maesycnew Building Co., Ltd.

D. LEWIS, Aberbeeg (accepted) £7,000 0 0

WELLINGBOROUGH.

For alterations at the workhouse.

Goodman & Murkett	£3,330	0	0
Henson	3,310	0	0
Bayes	3,255	0	0
Berrill	3,200	0	0
Stevens	3,198	0	0
Marriott	3,197	19	0
Hacksley Bros.	3,189	0	0
Brown & Sons	3,140	0	0
Berrill & Green	3,100	0	0
R. MARRIOTT, Wellingborough (accepted)	2,998	0	0

Received too late for classification.

LONDON.

For the erection of two shops, Lea Bridge Road, London, N.E. Mr. HERBERT RICHES, architect, 3 Crooked Lane, King William Street, E.C. Quantities supplied.

Courtney & Fairbairn	£3,259	0	0
F. & S. Thorne	3,155	0	0
Battley, Sons & Holness	3,130	0	0
Clemens Bros.	3,070	0	0
Todd & Newman	3,033	0	0
Osborn & Sons	2,989	0	0
SHEFFIELD BROS. (accepted)	2,950	0	0

RUGBY.

For making streets on the Naseby estate, Hillmorton Road. IRELAND & KNIGHT, Atherstone (accepted) £3,279 0 0

MESSRS. NORTON & GREGORY, LTD., have published a humorous description of their premises in Westminster, where photo-copying, architectural photography, lithography, process engraving, drawings, perspectives, tracings, mounting and framing, modelling and typewriting are carried on. Four years ago it appears the firm occupied two small back rooms on a top floor. Recently they have had to erect spacious premises covering the site of the old Stag Inn.

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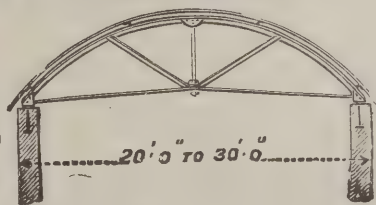
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MANCHESTER
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BUILDING AND BUILDERS.

THE Liverpool Cathedral committee decided on Monday to proceed with the erection of the building upon scheduled prices and not upon a lump sum contract.

ABOUT eighty petitions have been presented against the administrative county of London electric power bill—a speaking testimony to the ambitious nature of this enterprise—which seeks to afford to the whole of London a cheap supply of electricity “in bulk.”

THE Manchester City Council having declined to entertain the proposal to purchase the gardens of the Royal Botanical and Horticultural Society at Old Trafford, the Council of the Society decided last week to sell the gardens to the highest bidder. It is understood that the property is likely to be soon purchased as building sites.

THE Glasgow Institute of Architects have adopted the following clause regarding repairs after electrical work proposed by the Institute of Measurers for embodiment in specifications of contracts was approved of, viz.: “The contractor to do all mason, brick, joiner, plaster, and other works required to carry out and complete his contract, and to make good at his own expense all damage caused by his operations, and he shall be bound to employ the plasterer engaged on the job at the usual jobbing rates.”

THE Aberystwyth Harbour breakwater has been completed at a cost of over 13,000*l.*, and at a recent meeting of the Town Council the engineer and contractor were formally thanked. Mr. Walmsley, the engineer, informed Mr. Lester, the contractor, that no other contractor could have done the work so well. The structure would stand as a breakwater, and if they wished to make a promenade they had only to add a parapet. The work had been completed within the revised estimate, although it had exceeded the original estimate. The contract was for 10,500*l.*, and the total cost was 13,375*l.* 11*s.* 6*d.*

DISSATISFACTION being expressed at the use of cement as specified in the roadway on the new middle pier at Pittenweem Harbour, which is near completion, the Commissioners agreed to form same with causeway instead, as being more serviceable for the traffic. Messrs. Gray & Sons, the contractors, with the approval of the engineers, con-

sented to carry out the alterations without any extra cost on the condition that they could deposit the hardest of the excavations and surplus stones from the interior of the harbour on to the west beach instead of taking same out to sea as provided by their contract.

ELECTRIC NOTES.

THE Handsworth Town Council have decided to borrow 45,000*l.* in connection with the electric lighting scheme.

THE Troon Town Council have resolved to ask the makers of destructors to specify the cost of providing complete in every respect a two-cell destructor.

THE Board of Trade have granted the application of the Pollokshaws Town Council for an electric-lighting order, with power to transfer it to the Corporation of Glasgow. It is expected that the work of erecting the necessary plant will be carried through during the incoming summer.

ARBITRATION proceedings have been commenced between the London, Deptford and Greenwich Tramways Company and the London County Council in reference to a claim for compensation for loss of traffic caused by the operations of the Council in the construction of their electrical lines at the Tower Bridge approach crossing the lines of the company. Major-General Hutchinson, C.B., R.E., is the arbitrator appointed by the Board of Trade.

THE consulting electrical engineer to the Liverpool Corporation in his annual report on the electric supply department, stated that owing to various funds having to be provided for, and a material rise in the price of fuel, the engineer does not think any general reduction in charges could be prudently made, but recommends that, to encourage a more extensive use of electrical energy for power purposes, the price after 3,000 units per quarter (which are charged at 2*d.* per unit) should be reduced from the present rate of 1½*d.* to 1*d.* per unit. He also recommends that in some special cases where arc lamps are used in the daytime for medical or other purposes, and not for lighting, the charge, subject to a guaranteed minimum consumption, should be made on the power scale.

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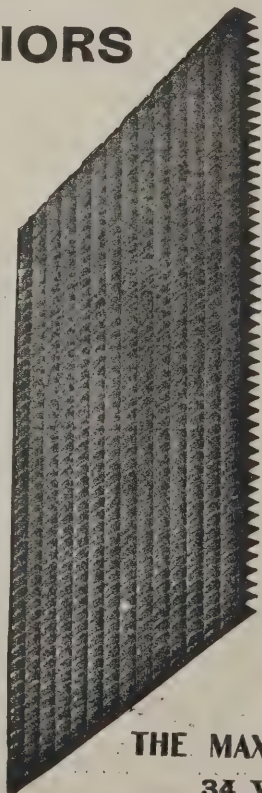
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Carlisle.—William Stephenson & Co., 6 Paternoster Row.
Chester.—Williams Brothers & Co., Kaleyford Works.
Dublin.—James A. Campbell & Co., Cuffe Lane, Stephen's Green.
Edinburgh.—A. Cunningham & Co., 18 Leith Street and 60 Home Street.
Glasgow.—C. & J. Malloch, 304 St. Vincent Street.
Gloucester.—Sessions & Sons, Southgate Street.
Halifax.—John Naylor & Son, Cheapside.
Huddersfield.—George Garton & Son, Market Place.
Hull.—James Darby, Mill Street.
Lancaster.—Abbott & Co., Chapel Street.
Leeds.—Kayll & Co., Alfred Street, Boar Lane.
Leicester.—H. C. Snow, 8A Pocklington's Walk.
Liverpool.—J. G. Nicholls, 52 Renshaw Street.
Manchester.—Baxendale & Co., Miller Street Works.
Northampton.—E. Nichols, Abingdon Square.
Nottingham.—T. E. Burnett & Co., 40 Castle Gate.
Newcastle-on-Tyne.—Reed, Millican & Co., Croft St. Works.
Newport (Mon).—Harse, Son & Shepherd, 83 Commercial St.
Sheffield.—John Norton & Son, 122-126 Queen Street.
Sussex.—A. W. Loomes, 7 Blatchington Road, Hove.
York.—T. G. Hodgson, 12 Grape Lane, Petergate.

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ILLUSTRATIONS.

MOUNT STUART, ISLE OF BUTE, N.B.: THE CHAPEL, EAST END.

FOXWOLD, SOUTHBOURNE.—THE LOUNGE.

CATHEDRAL SERIES.—ST. ASAPH: THE CHANCEL FROM NAVE.

THE CHURCH OF ST. ETIENNE LE VIEUX, CAEN.

SOUTH DOORWAY OF THE CHURCH OF ST. PHILIBERT, DIJON.

The electricity committee of the Aston Town Council have resolved to abolish the two-rate system of charge, and in substitution have adopted the following rate of charges for the supply of electrical energy for lighting purposes, viz.:—Consumption under 300 units per quarter $3\frac{1}{2}d.$ per unit; 300 but under 600, $3\frac{3}{4}d.$; 600 but under 1,000, $3\frac{1}{2}d.$; 1,000 but under 1,500, $3d.$; 1,500 but under 2,000, $2\frac{3}{4}d.$; 2,000 units and upwards, $2\frac{1}{2}d.$

The Croydon County Council, by twenty-two votes against seventeen, have decided to withdraw from its Bill the proposal to extend the electric tramways to Upper Norwood and the Crystal Palace. There was recently a poll of the borough on the subject, and a majority of only eighty-eight was given in favour of the Bill out of nearly 7,000 votes recorded, the tramways proposals being the real issue. The chief opposition came from the frontage owners of Upper Norwood.

The Carlisle Tramways Company were informed at the annual meeting that the result of last year's working had been less satisfactory than that for the previous year. This was entirely attributed to the extra cost incurred in making the experiment of a ten minutes' service during the first three months of the year. They had hoped that as they were giving a more frequent service the Corporation of Carlisle would make a substantial reduction in the price of the electric current, but these anticipations were not fulfilled.

A SAFETY device for the protection of persons from the electric current upon the rupture of a trolley wire has been placed on the market. By the employment of this arrangement the current is cut off and the wire rendered harmless.

The device is fitted to each section of the wire, and consists of an ordinary connecting ear, held in its proper position by the strain on the trolley wire. Directly this tension is released, as by the breaking of the trolley wire, the current is immediately cut off the broken section.

THE parliamentary committee of the London County Council have prepared a report on the Administrative County of London and District Electric Power Bill and the East London and Lower Thames Electric Power Bills, in which it is proposed to supply electrical energy over a wide area. The matter is declared to be of the utmost importance. It is stated that "the proposals in respect of which powers are sought are such as to constitute a serious menace to existing and future municipal electrical supply undertakings, and leave the Council no alternative but to oppose the Bills."

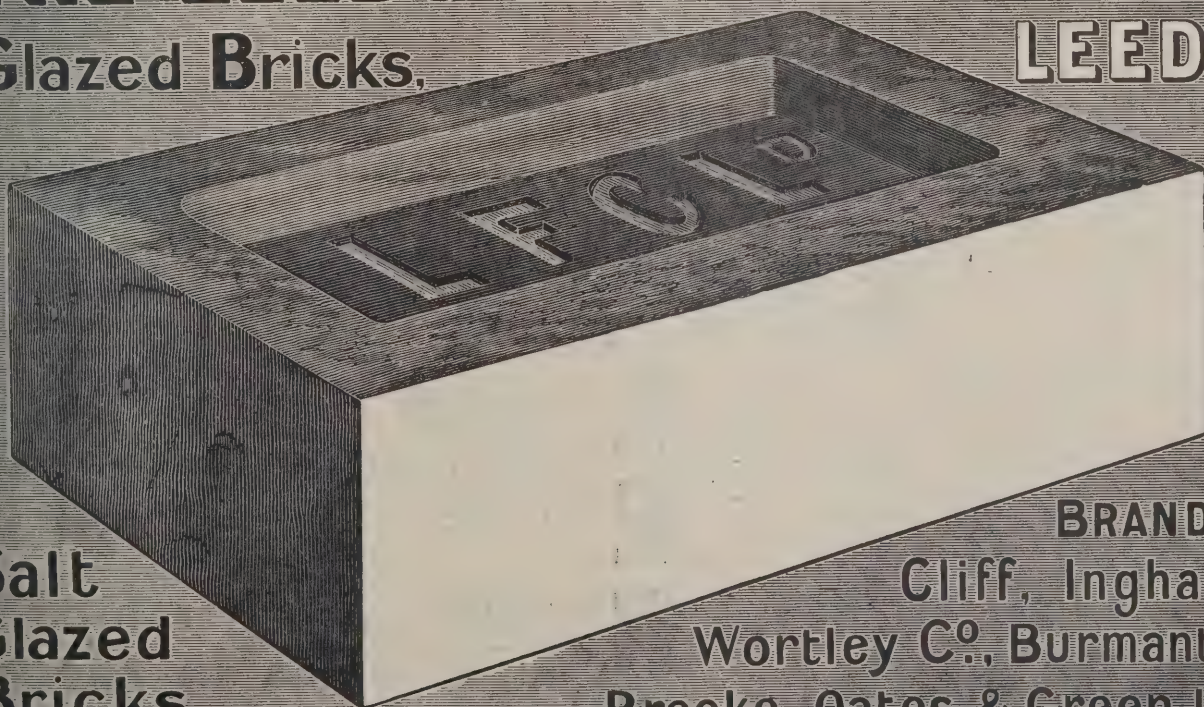
THE new first-class battleship *King Edward VII.*, which was commissioned at Devonport, contains several important innovations in her electrical equipment, which is the most complete and exhaustive so far installed in any warship afloat. The power motors number over 100, varying from 50 horse-power for working the capstan and coal hoists, of which there are seven, to those for driving the electric fans which will purify the air in confined spaces. Motor power is also utilised for working the ammunition supply, lathes and machines, hoisting in coal from lighters or colliers, pumping water to the bath-rooms and cookery departments, clearing the boiler-rooms of ashes, mixing dough in the bakery, &c.

THE Columbia University School of Architecture is to be reorganised on the atelier system in vogue in the schools of Paris. The changes have been under consideration for the last two years. By the action taken the standard of the school will be raised, so that after July 1, 1905, it will become an advanced school. Admittance will be granted only to those who have spent not less than two years in some approved school or college. Professor A. D. F. Hamlin, now adjunct professor of architecture, is promoted to be professor of the history of architecture and placed in charge of the architectural school.

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Wortley Co., Burmantofts
Brooke, Oates & Green Ltd.

VARIETIES.

SIR RALPH LITTLER stated at a meeting of the Middlesex County Council that the model of the King Edward VII. Bridge at Kew had obtained the gold medal for bridge-building at the St. Louis Exhibition.

MODELS of the chair made out of the foundations of old Kew Bridge, and accepted by His Majesty the King in commemoration of the opening of "King Edward VII." Bridge at Kew in 1903, have been presented by Mr. Chancellor to the Surrey and Middlesex County Councils.

THE Durban Town Council will advertise for tenders for the erection of municipal buildings. The contractors are to belong to Durban, Maritzburg, Johannesburg, Cape Town, Port Elizabeth, Bloemfontein, East London or Pretoria; the date of receiving the tenders to be six weeks from the date of the advertisement. The estimated cost of the buildings is 320,000/.

THE plans submitted by Messrs. Briggs & Wolstenholme and Mr. Arnold Thornley for the Wallasey town hall, to be erected on the North Meade estate, Seacombe, which were awarded the first place for merit in the recent competition, have been approved by the works committee. The architects have amended the drawings to include a tower on the promenade elevation.

MR. WEMYSS has resolved to build a wet dock adjoining Buckhaven Harbour at a cost of from 150,000/ to 200,000/. It was thought that a tidal harbour would be suitable, the depth of water being nearly 30 feet, but on going more minutely into the matter, the surveyors decided that it would be better to have a wet dock. According to the plans, which are now being submitted to the contractors, there will be a depth of water of 27 feet on the sill at ordinary tides, and 25 feet at neap tides.

TRADE NOTES.

MESSRS. DOULTON & Co., LTD., of the Royal Doulton Potteries, London, have been selected to supply the whole of the sanitary fittings, and to carry out the plumbing work at the sanatorium now being erected for His Majesty the King at Midhurst, Sussex.

MESSRS. OETZMANN & Co., of 62 to 79 Hampstead Road W., announce that they have purchased the entire stock of Messrs. Norman & Stacey, Ltd., of 252 to 256 Tottenham Court Road, and are now removing it to their own show-rooms and galleries in Hampstead Road, and that all goods are marked in plain figures at the lowest possible prices for cash.

MESSRS. WM. POTTS & SONS, clock manufacturers, Leeds and Newcastle-on-Tyne, are erecting a first-class clock and chimes at the ancient abbey church, Blunsdon, Wilts. They have also a clock with four illuminated dials and bell for Gloucestershire, and a clock with two external dials for Herts, and a new clock with two large external dials for Fulham Town Hall, London, S.W.

ASPINALL'S ENAMEL, LTD., as a company are always endeavouring to meet new requirements. They have paints which are admirably adapted for use by amateurs. Their new "Sanalene" is an enamel paint which is intended for practical work by practical users. It is to be applied as if it were a high-class varnish, and each coat must be thoroughly dry before another is applied. If properly laid on, the surface has a marvellous sheen, and yet it is found to resist wear. It is supplied in several colours, but special colours can be matched to order. All the materials employed are chemically pure.

POSSIBLY the most perfect damp and time-resisting materials existing are lead and bitumen. Lead is so well known that comment is unnecessary, and for 5,000 years the mummies of Egypt have been preserved in their wrappings of bitumen, which must not be confounded with pitch or tar. These materials are encased by Messrs. Watson & Co., of 119 Victoria Street, S.W., in a double layer of asphalted felt covered with sand, which serves as a cushion to shield the lead and bitumen from injury, and gives a key to the mortar. The Reliance lead and bitumen damp course is made in 15-yard lengths to any width, and is easily laid and joined. It is claimed for it that it does not crack or squeeze out, is pliable as leather and absolutely impervious to damp. No pressure can injure it and it may be bent to any angle with safety. We understand that it is specified by H.M. War Office, the Admiralty, Office of Works, and for many large contracts in London and the provinces.

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HARDENS.

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SIDE, DRIES IN ABOUT
15 HOURS ACCORDING TO
WEATHER.

CORRESPONDENCE.

Waterproofing Concrete.

SIR,—In a late issue reference is made to a lecture by Mr. W. H. Finley, C.E., in which he alludes to a German waterproof cement for use in concreting, &c. Recognising the value of such a material, we took steps to secure the English rights, and did so, but in practice found it no improvement on ordinary cement, and at once stopped the sale of it. Our lead and bitumen damp course is conceded by many important authorities to be the best medium for rendering concrete waterproof. It does not curl or blow like asphalt, and the face being covered with sand, a key is provided to which the cement in the concrete adheres.

Your obedient servants,
WATSON & Co.

119 Victoria Street, Westminster, London, S.W.,
February 23, 1905.

SIR,—We are obliged by your reference to the air-lift pump on page 22 of your current issue. Permit us to point out, however, that this pump is fitted at the Midland Hotel, Birmingham, not Reading.—Yours faithfully,
THE PULSOMETER ENGINEERING CO., LTD.
Reading, February 25, 1905.

NEW CATALOGUES.

THE reputation of the St. Pancras Ironwork Company is so well established that contractors will be glad to learn that they are now turning their organising power, plant, and general facilities to the manufacture of steam motor vehicles. The wagons are not merely adapted for conveying heavy goods, but they can be arranged to suit special circumstances, and, if necessary, can have a tip body. The boiler is of such a size as to have a reserve of power, and consequently there can be no breakdowns. The tanks hold enough water for a run of from fifteen to twenty miles, they are easily guided, and they comply in weight with the new regulations of the Local Government Board. One of the vehicles, capable of carrying 7 tons twenty miles a day for five days in the week, makes the cost of carriage not more than twopence per ton mile. The new vehicle

meets a want which contractors have not hitherto been able to meet unless at an enormous expense.

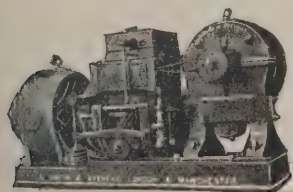
SOME new catalogues of their mouldings, cornice, picture and dado rails, architraves, cappings, handrails, skirtings, staircases and other worked wood have been issued from the Albert Works, Newbury, belonging to Messrs. Elliot. They make architects' designs a specialty and submit estimates for every description of joinery according to architects' designs. The mills of the company are among the largest in England and possess the most perfect machinery that is obtainable. None but thoroughly dry and seasoned wood is used. The majority of the designs are registered. It is also an advantage to have a number of Gothic mouldings. Messrs. Elliot have been successful in securing the services of Mr. Edward Buckingham as general manager, and, as he is a thoroughly practical man of untiring energy and exceptional capabilities, the high reputation which the firm has enjoyed for so many years will be fully maintained under his guidance.

THE catalogue of the G. W. Lewis Tileries, Ltd., presents a variety of roofing tiles, ridges, ridge-tops, finials, besides flooring tiles and chimney-pots. They are a class of goods which is now largely demanded, and all the examples are of satisfactory form. The hip tiles will be especially useful; tables of weights and prices are given, and they will be found to be inexpensive.

At the present time every manufacturer who has to employ steam power must encounter two serious difficulties. A large number of official and unofficial personages are ready to invoke the law against him if by any diminution of combustion at a high rate thick smoke should be found to issue from his chimneys for a few minutes. He has also to remember economy, and cannot employ more fuel than is necessary to secure a certain amount of power; or, in other words, there must be a close relation between the work done by every ton of coal and the quantity of steam which is produced. That is to say, much depends on the character of the stoking. Manual labour for that purpose is costly, it is laborious, and it is rarely uniform. Mechanical stokers are consequently

ELECTRIC LIFTS. SMITH & STEVENS.

THESE LIFTS ARE SOLD ON THEIR
MERITS, NOT ON THEIR PRICE,
BUT THE PRICE IS VERY MODERATE.



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Holland.—Hausmann Bros., Wynstraat 46, Wijnhaven 37, Rotterdam.

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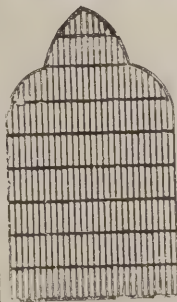
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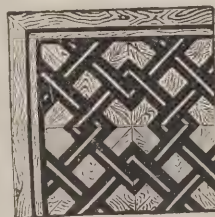
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sought after. What is known as the Bennis stoker, which is manufactured by E. D. Bennis & Co. Ltd., Bolton, is simple in arrangement, does not need skilled superintendence, and is efficient. It consists of a hopper with an ingenious arrangement of a feeding-box and a shovel-box with patent pneumatic gear, by which the fuel is distributed in sections over the fire; there is, therefore, no possibility of that superabundance which is not only wasteful, but creates thick smoke. The stoker is used in some of the largest works in England, and its power is unquestioned.

LEEDS AND YORKSHIRE ARCHITECTURAL SOCIETY.

At the rooms of the above Society, on the 25th ult., Mr. Maurice B. Adams read a paper on "Public Libraries, their Building and Equipment. A Plea for State Aid." Mr. C. B. Bulmer, president, was in the chair.

The lecturer said that this was a paper mainly dealing with the requirements of to-day, and therefore, by way of introduction, there need be no hesitation in claiming indulgence if he emphasised the importance of a comprehensive, not to say a liberal-minded, survey of the whole question of library legislation, presenting as the subject does one of the contemporary problems of our time. Retrospectively, the story concerning the origin of libraries and their subsequent history abounds in incidents of the utmost interest. The earliest libraries known were the famous "Record Office" at Kouyunjik, founded more than twenty-five centuries ago; and the library of the great temple at Nippur, discovered four years ago by Dr. Peters, of New York, carries back Babylonian civilisation to 7,000 B.C., though no document was found at Nippur of later date than 2,280 B.C.; and the great library of Pergamon, founded 200 B.C., and contained 200,000 volumes. Prior to entering upon any discussion about the special arrangement of library buildings, it will be convenient briefly to allude to the subject of library provision in its wider aspect. This reference brings us face to face with the stern realities of what is called the "penny rate," which was fixed more than fifty years ago; but as the law now stands, any town can by a special Act of Parliament

augment its penny rate for library purposes, and twenty-eight boroughs, with satisfactory results, have done so. It requires little imagination to realise what a direful struggle to make ends meet in many a small town must be experienced with only a penny rate, and in most places the attempt is practically impossible. If in fairly big towns the penny rate is not enough, the whole thing in villages becomes preposterous, and the lecturer thought that the Board of Education should have powers to include library enterprise when making grants for educational purposes. The system of State aid for libraries obtains in Canada, Australia, South Africa, and the United States. The Central Library at Boston, U.S.A., cost 473,000*l.* and contains 800,000 books, with ten branch libraries besides, averaging 20,000 volumes each. The yearly cost of maintenance is 52,000*l.*, out of which the city purse provides 47,000*l.* We now come to the initial question in the planning of a public library as to the respective proportion of space which should be allowed to the different departments, in allocating the available superficial area. A roomy and even spacious entrance hall is essential. According to the usually accepted *régime* in proportioning the floor area of a library with a closed lending department, the following allocation of space for every 10,000 feet superficial has been recommended, viz., 3,000 square feet for newspapers, 2,000 square feet for magazines, 2,000 square feet for the reference department, leaving 3,000 square feet for the lending library. With regard to the position of the librarian's room, I think he ought always to be next the reference room and close to the lending library.

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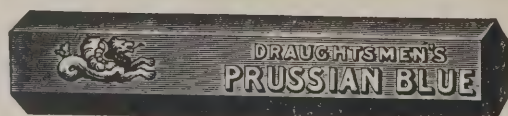
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For Index of Advertisers, see page x.

ashed furnace slag; this material is also used around the beam girders as a protection against fire. The ceilings will be painted with cold-water paint, applied directly to the reverse side of the floor-slab without plaster.

During construction two entire bays of the floor were accidentally loaded with cement. The load was about 100 lbs. per square foot, and produced a deflection of 1 inch in one bay and $\frac{1}{2}$ inch in the other. After the removal of the load the deflection decreased in the first bay 1 inch, and increased in the second to 5-16 inch, but later recovery reduced the permanent set to $\frac{3}{8}$ inch and 3-16 inch in the two bays. The floors were designed for a load of 100 lbs. per square inch, with a factor of safety of four, in accordance with the system of the Columbian Fireproofing Company.

SIR WILLIAM ARROL, M.P., ON ART.

THE art exhibition promoted at Ayr by the Carnegie Library Committee and the Ayr Sketch Club was formally opened on Saturday by Sir William Arrol, M.P. In the course of his remarks Sir William Arrol said that although he bought many pictures he could not say that he was an art critic. The critics were, like the pictures, of varied qualities. He could not say that he was much of a critic of art, but he had a great liking for pictures. There was one thing certain, and that was that a good picture always sold well, and there were more pictures being sold at the present day than ever before, and that showed that there was an increasing taste for good art. The dealers always said that they could sell a good picture well, but the difficulty was to sell bad ones. That, he thought, was a very encouraging sign. It was the duty, and it ought to be a pleasure, for everyone to encourage art. It was an education and a pleasure both for those who produced objects of art and those who admired their work. A perfect piece of ivory carving had recently been dug up in Egypt, the representation of the head of an Egyptian king, which was supposed to be 7,000 or 8,000 years old, and there were a great many examples of Egyptian art that were 5,000 years old, which showed that the Egyptians had a high conception of art. And coming to a much later period they had the art of the Greeks and Romans. In

later times they had still many examples of pictorial art of 200 and 300 years ago, and it showed the increasing appreciation of those pictures that they were now worth fifty times as much as when they were produced. He did not like a picture the meaning of which you had to go to the catalogue for. A picture should always plainly tell its own story. There was one picture in his house that a gentleman friend of his often came to see, and brought others to see it, it was so bright, and there were others of his pictures that he never tired looking at. Art was an interesting and engrossing study, and he thought it should be encouraged in every possible way. The other day he visited an exhibition of Dutch pictures in London. No doubt they were very good pictures, but he thought them rather cold—there was plenty of water in Holland. In an adjoining room he came across a picture by Patrick Naismith and others by Fraser. It was like going out of a dark room into one flooded with sunshine. Then last week he saw Watts's pictures. Watts was a great artist, and they were grand pictures; but for ordinary people who were not artists there was, he thought, a coldness about them. Now, in his opinion, pictures that were to hang in a house ought to be cheery. Nothing raised the spirits more quickly than a beautiful picture, and nothing put the spirits down readier than a dull and melancholy picture. Speaking of the impressionist school, he said he must confess that he did not think the new Glasgow school an improvement on the old. They gave you an impression of colour, but you required to ask the artists what it was meant to be. Their pictures sometimes reminded him of the kind of door that he used to see at a village cartwright's. They used to paint the inside of the carts white, the outside green, and the bottom red, and the apprentice who did the work, having only one brush, cleaned it on a door. In that way they sometimes got a very pretty blending of colours, and if they went far enough back they could imagine, perhaps, that it represented a "coo." That was pretty much the impressionist school. He thought when they had a picture on the wall they should not require the artist to explain to them what it was about. He liked to see well-proportioned pictures and beautiful colouring as near nature as possible, because there was nothing prettier than nature. He did not wonder that there



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should be so many followers of art in Ayr, because they had such an enormous number of opportunities of looking at beautiful sunsets. He had never seen anything anywhere to equal the sunsets seen from Ayr when the sun was setting behind the Arran hills. Sir William wished the exhibition every success.

THE FUTURE BIRMINGHAM.

A PAPER was read by Mr. William Henman before the Birmingham Architectural Association on "The Future of our City." He said people little thought of the effect of architecture on the character of a town or city. That was only too apparent. Notwithstanding many excellent qualities possessed by the people of important centres there was an absence of a collective taste in art. Individual taste and artistic spirit existed, but this failed in its effect through a want of collective appreciation. They must do something to broaden this artistic spirit, and to create an interest in the architecture of our streets, so that an ugly building offended as would a discordant sound. After giving his impressions of Birmingham on his first visit thirty-three years ago he observed that he hoped he might say without hurting the susceptibilities of those native to the city that there was still ample room for improvement. There had been too much self-gratification displayed since Birmingham was called the best governed city in the world. Mr. Henman asked his hearers whether, from an architectural standpoint, Birmingham had kept reasonable pace with its prosperity?

Mr. Henman showed a plan of a proposed improvement of the approach to the city from Edgbaston by a road running through the Old Wharf in a line with Paradise Street and entering Broad Street near the Children's Hospital. He submitted this scheme to the then borough surveyor (the late Mr. Till) in 1884, but at that time the Town Council had shortly before had the Corporation Street scheme in hand, and were not prepared to embark upon any great street improvement. The canal and railway systems also added to the difficulty. Mr. Till was, however, greatly impressed by the advantages which the scheme offered.

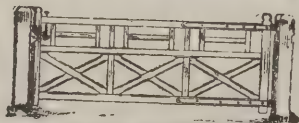
The new Corporation Street might, continued Mr. Henman, be made an ornament to the city or the very opposite. He regretted that the street was begun under the Workmen's Dwellings Act rather than as a street improvement. The line adopted for it was by no means the best available. Many of the streets crossed at awkward angles, and the older streets were damaged as business thoroughfares. They must be thankful for its construction, however, in that it had provided an airy thoroughfare and had given character to the city. Through the kindness of Mr. Joseph Hill Mr. Henman was able to place on the screen maps showing the development of the city, and spoke of the inconvenience caused by the lack of through streets, reminding one more of a spider's web than of a well laid-out city. The city authorities and the land and property owners might unite to make Birmingham what it ought to be. He suggested improvements between Paradise Street and Five Ways, and on land between the Prince of Wales Theatre and Easy Row in the neighbourhood of the Crescent he saw a site for the new cathedral, clergy house and other public buildings. Easy communication could be obtained between the centre of the city and Bordesley by a continuation of New Street.

The Lord Mayor and General Phelps, who were present, spoke in appreciation of the paper, and a vote of thanks was passed to Mr. Henman, a supporter of the motion suggesting that the Birmingham Corporation might do worse than imitate the municipal body of Brussels in offering prizes to architects giving the best frontages to their streets.

VENTILATION OF THE HOUSE OF COMMONS.

SOME important recommendations for improving the sanitation of the House of Commons are contained in the report just presented of a prolonged investigation conducted last session by Dr. M. H. Gordon, with the assistance of Dr. W. H. Huntley, Demonstrator of Public Health Chemistry at St. Bartholomew's Hospital, and Dr. J. Aitken, at the request of the First Commissioner of Works. Dr. Gordon entertains the view, says the *Times*, that the present air-inlet should be raised and widened, and that a systematic survey of the structure of the building might

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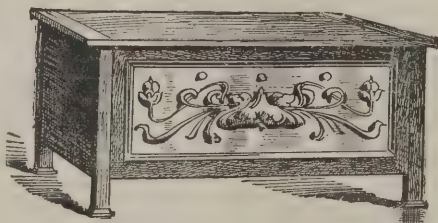
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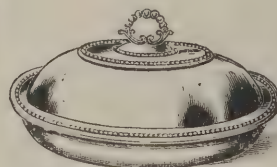
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to the discovery of some way in which this end could be attained without unduly interfering with the façade. In case, he advises that traffic over the north inlet should be abolished. For the purpose of purifying the air he suggests that the moistening spray should, in future, be applied regularly instead of occasionally; and as further measures of precaution he would like to see the three openings between the ventilating fan and the inlet removed or made absolutely airtight, traffic across the airway entirely prohibited while the House is sitting, shallow pans of water (kept scrupulously clean) and, if possible, wet mats or sponges, suspended in the battery chamber over the heating apparatus so that the increased avidity for moisture which obtains through its temperature being raised should be satisfied, all steam pipes passing through the airway between the inlet and the floor of the chamber covered with asbestos or suitable composition for isolation, and the pans continuous and complete hygrometric records kept. Having pointed out that it is as important to prevent the air of the debating chamber from becoming too damp as it is to prevent its being too dry, Dr. Gordon proceeds to emphasise the necessity of checking pollution from material brought in upon members' boots and from particulate contamination by material given off in the breath. In the latter connection he admits the superiority of the upward system of ventilation, but, holding that there is a possibility of devising some means of dealing more effectively than at present with particulate contamination, he recommends vigilant watchfulness. With regard to the floor covering of the House, he has come to the conclusion that the string carpeting now in use is liable to injury by steam, and therefore only formalinises the air admitted—a disinfecting process that kills some but by no means all of the micro-organisms. The question consequently arises whether it would not be wise to substitute hair-matting, seeing that steam, as applied in the modern way as a steriliser, kills all micro-organisms at a single exposure. In conclusion, Dr. Gordon recommends the more effectual withdrawal of air from the legislative chamber at the end of the ceiling over the Speaker's chair and the Ladies' Gallery, the clothing of all attendants employed between the air-inlet and the floor of the House in clean white linen or drill, and the maintenance of a daily chart or record with the object

of securing uniform efficiency in the ventilation of the building.

During the recess the recommendations of the Select Committee of the House of Commons with reference to the ventilation have been carried into effect, with the exception of the completion of the extract fan. This has been delayed by reason of structural difficulties incidental to the floor of the Commons Lobby Chamber, but it is expected that this fan will be running within a month from date. The principal improvements already effected are (1) the complete washing of the air by means of a new type of water screen; (2) the erection of a much more powerful intake fan; (3) the more effective isolation of passages joining the main airways. This will be followed by experimental tests having in view the better distribution of air to the Chamber, and also by tests of the air so distributed. It is hoped that the works already completed will result in a very considerable improvement in the quantity and quality of the air supply.

PIG-IRONS.

A PAPER was read on Saturday by Mr. E. Adamson, before the Manchester Association of Engineers, on "Pig-irons and their Use in the Foundry and Forge." The practical difference in pig or cast iron was, he said, more in degree than in kind, and to manufacturers faced with a variety of specifications pig-iron and its contents present an unending subject of instructive and interesting study, which the relentless march of scientific investigation renders imperative if the finished goods are to hold their own in the world's markets in quality and in price. Pig-iron is divided into kinds or classes—that is, made from different ores. Certain of these are subdivided into hot and cold blast and refined irons, and all are further divided into grades or numbers, which are usually distinguished by the fracture. The historical side of the manufacture of iron has been so ably treated by Percy in 1864, and since by Turner and the late Sir I. Lowthian Bell, as well as others, that it is perhaps wonderful in these days to read a recent remark which fell from the lips of a well-known man, giving as the reason for the closing of so many inland ironworks

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The Cathedral Church, Pretoria, South Africa.
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Works have been carried out under the direction of the late Sir ARTHUR W. BLOMFIELD, A.R.A., J. L. PEARSON, Esq., R.A., F.S.A., Messrs. BOOTH & CHADWICK, Manchester, and other eminent Architects.

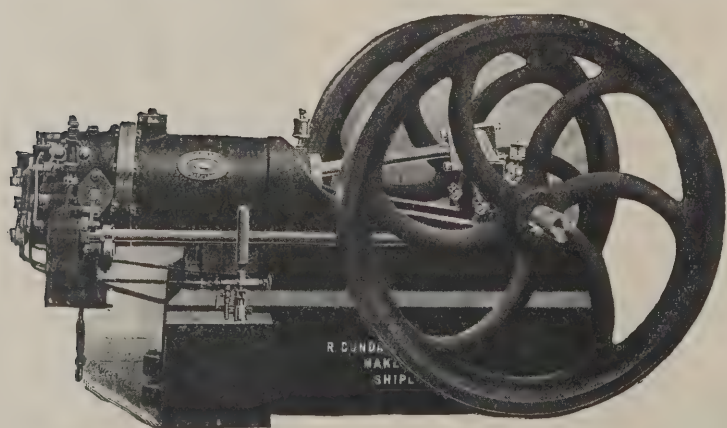
that the heart of England is not the place for a trade which is dependent on foreign ore. But the lecturer pointed out that iron ores are found in many, including inland districts, and this is the cause of pig-iron being made in different parts of the country. These pig-irons have become known by the district in which they are made. He presented a table giving each class of iron and its ore supply. He discussed the difference between hematite pig-iron made from British and foreign ores, quoting the researches of Professor Arnold and Mr. J. E. Stead on the influence of copper and arsenic, adding that there was little doubt that in the absence of specific knowledge and accurate information on these points both copper and arsenic have been made the scapegoats of careless, faulty, and perhaps sometimes ignorant manufacture, and that where no evident cause of failure has been readily traceable, the presence of these elements, if detected, has been eagerly seized upon, and as readily accepted as a sufficient explanation; but, when put to the test, it is found that both may go free, and that in such quantities as usually found in pig-iron they are at least harmless, if not beneficial. Further tables contained typical analyses of the various classes of foundry and forge pig-irons made in this country, and the lecturer stated that the reason for the differences in quality, analysis for analysis, was governed by the methods of manufacture. He maintained that irons could be obtained in this country quite equal to any which are imported. He stated that both in the foundry and forge the question of grading was most important. He first quoted West's tests, showing how grading by fracture is not reliable, and after fully describing the difficulties of so grading, he gave an example of the grading adopted in the United States by silicon contents, which is a sufficient guide in ordinary cast iron where no test is specified. He went fully into the use of "glazy," or the more euphonious American designation, "silvery," iron, which many founders are afraid to use because of its somewhat resembling the true white iron; and gave curves showing how it was really at the other extreme to white iron, and that it is a matter of simple arithmetical calculation in silicon contents as to how much glazy or silvery iron can be used in any given charge. He stated that the reason why the Americans can work so well on analysis is that nearly all their ironfounders employ a

metallurgist, and he quoted from Mr. Souter's paper on the metallurgical engineer, given before the American Iron foundrymen's Association, on the value of the services of such an expert.

In discussing the question of special castings to meet specified tests, he pointed out that pig-iron has two distinct conditions—the one chemical and the other mechanical each being independent of the other. He quoted instances of actual tests from pig-iron of almost identical analyses—the one giving 41 and the other 21 cwt., transverse test on a 2 by 1 bar, with 3.0 centres, and maintained that West's tests upheld this opinion. He stated that the mechanical condition, which is governed by methods of manufacture, is no doubt the explanation of the difference between cold-blast and refined irons, against hot-blast irons. The methods under which cold-blast and special irons are made tend to produce in these irons a smaller molecular structure. Hence their grading must necessarily be somewhat different, as, generally speaking, these irons have a lower silicon content, number for number. For instance a No. 1 cold blast will be much closer than a No. 1 hot blast, as will also Nos. 2, 3, 4 and 5. A series of hot and cold blast samples sent by the Lilleshall Company for the lecture were here referred to. The lecturer said that, in addition to these fractures, there are also two fractures of the identical number (a No. 4)—the one is hot and the other cold blast. No. 4 is usually subdivided, as No. 4 foundry and No. 4 forge, but these have been selected as representing the same subdivisions of No. 4 as comparisons purely. In outward appearance to a casual observer there is no difference, but on closer inspection it will be found that the cold-blast sample has a much greater "pull" than the other, and on the polished back it will be observed that the cold blast is close in grain even in the centre of the pig, whilst the hot-blast pig shows much more open in the centre on the polished surface, which is the true test of close tests. Hot-blast irons are different in analyses and molecular structure, but by suitably selecting and refining, both these conditions can be obtained. Generally, the refined irons will be lower in sulphur, which is not an objectionable feature, and in Mr. Adamson's experience these have given much higher mechanical tests than ordinary cold-blast irons.

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EDITORIAL NOTICES.

In view of the many difficulties which are certain to arise in connection with the law, practice rules and procedure under the Workmen's Compensation Act, we have added to our staff A VERY EMINENT BARRISTER, who has made the subject a special study, and will be glad to answer in the columns of this paper any questions relating to the complicated matters arising from the provisions of this difficult Act. Our LEGAL ADVISER will further answer any legal question that may be of interest to our readers. All letters must be addressed "LEGAL ADVISER," Office of "The Architect," Imperial Buildings, Ludgate Circus, London, E.C.

The Editor will be glad to receive from Architects in London and the Provinces results of Competitions and Tenders

and other particulars of Works in progress in which they may be interested.

The authors of signed articles and papers read in public must necessarily be held responsible for their contents.

No communication can be inserted unless authenticated by the name and address of the writer—not in every case for publication, but as a guarantee of good faith.

Correspondents are requested to make their communications as brief as possible. The space we can devote to Correspondence will not usually permit our inserting lengthy communications.

TENDERS, ETC.

* * *As great disappointment is frequently expressed at the non-appearance of Contracts Open, Tenders, &c., it is particularly requested that information of this description be forwarded to the Office, Imperial Buildings, Ludgate Circus, London, E.C., not later than 2 P.M. on Thursdays.*

COMPETITIONS OPEN.

COLCHESTER.—April 13.—For school in Mill Road, Mile End. Block plan to be obtained from Mr. C. E. Denton, Educational Offices, Colchester.

LAMBETH.—March 30.—For municipal buildings at Brixton Hill. Particulars from Mr. H. J. Smith, Town Hall, Kennington, S.E.

SWINDON.—April 14.—The education committee of the Town Council of Swindon propose to erect a public elementary school with accommodation for 840 scholars, and invite plans from architects. Mr. W. Seaton, Secretary to the Education Committee, Education Office, Town Hall, Swindon.

CONTRACTS OPEN.

BARKISLAND.—March 18.—For rebuilding the Barkisland Mill bridge, Barkisland, near Halifax. The County Surveyor, County Hall, Wakefield.

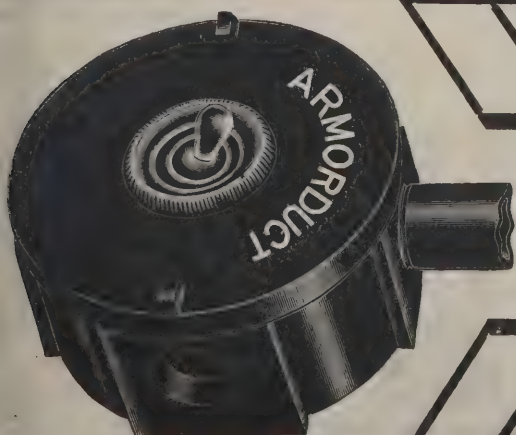
BARMING HEATH.—March 14.—For infectious hospital, day-room, bays to additional buildings, alterations and additions to laundry and other works at the Barming Heath asylum, near Maidstone. Mr. W. J. Jennings, architect, 4 St. Margaret's Street, Canterbury.

BECKENHAM.—March 20.—For the erection of two cottages for firemen in Westbourne Road, for the Beckenham Urban District Council. Mr. John A. Angell, surveyor.

BIRMINGHAM.—March 20.—For alterations to the female epileptic block at the infirmary, Dudley Road, Birmingham. Mr. W. H. Ward, architect, Paradise Street, Birmingham.

BIRMINGHAM.—March 20.—For erection of a fire station at Bordesley Green. Mr. John Price, city engineer and surveyor, the Council House, Birmingham.

BARHAM.—March 16.—For the supply and fixing of three iron exterior staircases at the Barham workhouse. Mr. R. M. Cook, clerk, Union Offices, 6 Providence Street, Ipswich.



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BURTON-UPON-TRENT.—March 14.—For alterations to the town hall. Mr. Henry Beck, architect, 10 High Street, Burton-upon-Trent.

BURY ST. EDMUNDS.—March 18.—For the erection of a secondary school and pupil teachers' centre at Bury St. Edmunds for 210 scholars. The County Architect, Sudbury, Suffolk.

CARDIFF.—March 13.—For the construction of a public convenience in Allensbank Road, Cathays. Mr. W. Harpur, borough engineer, Town Hall, Cardiff.

CARLISLE.—For the whole or any part of the works required in the following contracts:—New front elevation and other alterations to the Liverpool Arms, English Street, shop and warehouse, St. Cuthbert's Lane; laundry (except machinery and fittings) for the Crown and Mitre hotel. Messrs. Oliver & Dodgshun, architects, Carlisle.

CARLISLE.—March 20.—For the erection of a caretaker's lodge and boundary wall at the Robert Ferguson schools; Denton Street. Mr. Henry C. Marks, surveyor, 36 Fisher Street, Carlisle.

CASTLETON.—March 14.—For the erection and furnishing of a branch library at Castleton, Rochdale. Mr. Jesse Horsfall, architect, 4 Chapel Walks, Manchester.

CHESTER-LE-STREET.—March 18.—For the erection of an inspector's house and office, with cottage, at Chester-le-Street, Durham. Mr. Stephen Wilkinson, architect, 30 Mosley Street, Newcastle-on-Tyne.

CHIPPING NORTON.—March 21.—For the erection of a bridge at Chipping Norton Junction and the reconstruction of a bridge at King's Sutton, for the Great Western Railway. The Engineer, Paddington Station, London.

COBHAM.—March 22.—For the erection of a laundry (fitted with certain appliances for hand-power only) at the isolation hospital, Whitehill Road, Cobham, near Gravesend. Mr. Archibald E. Loach, 8 Northcote Road, Strood.

CLEATOR MOOR.—March 14.—For the erection of two shops and dwelling-houses at Cleator Moor, Cumberland. Mr. Edmund Jackson, C.E., Tangier Buildings, Whitehaven.

CROMER.—March 13.—For the construction of an engine-house, boiler-house, chimney shaft, cottage, and other works in connection therewith, at the site of the new pumping station at Metton, near Cromer. Mr. J. C. Melliss, engineer, 264 Gresham House, Old Broad Street, E.C.

DERWENT.—March 27.—For the construction of the Grindleford to Rowsley section of the Derwent aqueduct, in the county of Derby. The work will comprise—tunnels, about $\frac{1}{2}$ mile; cut and cover, about 4 miles; 45-inch pipe laying, about $4\frac{3}{4}$ miles, with valve-houses, stream crossings, &c. Mr. Edward Sandeman, engineer, Bamford, near Sheffield.

DUNDALK.—March 16.—For building a dwelling-house on St. Mary's Road, Dundalk. Mr. John F. McGahon, architect, Roden Place, Dundalk.

EDINBURGH.—March 11.—For executing the following works in the erection of Drummond Street school, for the Edinburgh School Board:—(1) mason and brick work; (2) carpentry and joiners' work; (3) smith and ironfoundry-work; (4) slaters' work; (5) plasterers' work; (6) plumbers' work; (7) painters' work. Mr. Carfrae, architect, 3 Queen Street, Edinburgh.

EGREMONT.—March 22.—For the conversion of buildings into two cottages at Egremont, Cumberland. Mr. James Cowan, surveyor, Egremont.

ENFIELD AND WILLESDEN.—March 13.—For the erection of caretaker's quarters on a site adjoining the magistrates' courts, Enfield; also for the erection of caretaker's quarters on a site adjoining the magistrates' courts, Willesden. Mr. H. T. Wakelam, county architect, Middlesex Guildhall, Westminster, S.W.

EXMOUTH.—March 11.—For the erection of four houses at Mamhead View, Exmouth. Messrs. Crews & Son, Rolle Street, Exmouth.

GLASGOW.—March 13.—For work to be executed in the reconstruction at Bridge Street station, Caledonian Railway Co. Company's Engineer, Buchanan Street Station, Glasgow.

GLASGOW.—March 13.—For the rebuilding of the station offices on the down-line platform at Whifflet low-level station, for the Caledonian Railway Company. The Company's District Engineer, 16 Killermont Street, Glasgow.

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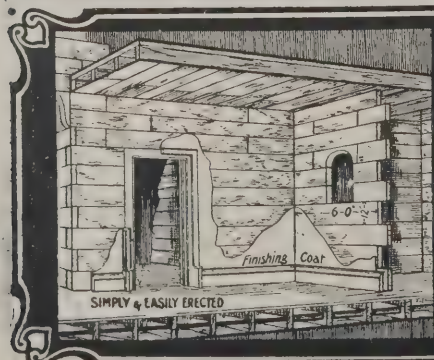
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GLoucester.—March 16.—For additions to electric light and refuse destructor works. City Surveyor's Office, Guildhall, Gloucester.

GORLESTON.—March 11.—For alterations to two dwelling-houses on the Brush Quay, Gorleston, for the Great Yarmouth Port and Haven Commissioners. Mr. James E. Teasdel, architect, Queen Street, Great Yarmouth.

HALIFAX.—March 15.—For building the Kebroyd Mills, Triangle. Messrs. Jackson & Fox, architects, 7 Rawson Street, Halifax.

HATFIELD WOODHOUSE.—For the erection and completion of two shops and premises in Doncaster; also eight cottages at Hatfield Woodhouse. Mr. John Athron, architect, 10 Priory Place, Doncaster.

IRELAND.—March 11.—For building four dwelling-houses and offices at Newcastle, co. Down. Mr. Robert Hunter, Circular Road, Downpatrick.

KEIGHLEY.—March 15.—For the erection of a diphtheria pavilion at the infectious diseases hospital, Morton Banks. Messrs. Moore & Crabtree, architects, York Chambers, Keighley.

KEIGHLEY.—March 15.—For the erection of a manual training-room, covered playground, &c., at Eastwood Council school, Keighley. Mr. Wilson Bailey, architect, Tanfield Buildings, Bradford.

LANCASTER.—March 16.—For the excavating, brickwork and masonry work in connection with the removal of the car-shed from Dalton Square to Thurnham Street. Tramway Engineer's Office, Electricity Works, Marton Street, Lancaster.

LIVERPOOL.—For the erection of the new cotton exchange in Oldhall Street, Liverpool. Messrs. Matear & Simon, Century Buildings, North John Street, Liverpool.

LONDON.—March 29.—For the erection of a branch library in Lillie Road, for the Fulham Borough Council. Mr. Francis Wood, borough engineer and surveyor, Town Hall, Fulham, S.W.

LONGPRESTON.—March 18.—For the erection of a two-storey warehouse in Longpreston, Clitheroe. Mr. Edmund T. Welch, surveyor and architect, 10 York Street, Clitheroe.

MAIDSTONE.—March 21.—For the reconstruction of the internal fittings of the Crown Court, Sessions House, Maidstone; also for heating and ventilation. The County Architect, 86 Week Street, Maidstone.

MANCHESTER.—March 11.—For the erection of a laboratory at the Withington sewage works, Chorlton-cum-Hardy. The Rivers Department, Town Hall.

MANCHESTER.—March 27.—For alterations and additions to the Lloyd Street and Mulberry Street municipal schools, Hulme, Manchester. The Education Offices, Deansgate, Manchester.

MYLOR.—March 11.—For the erection of a farmhouse at Restronguet, Mylor, Cornwall. Estate Office, Carclew, Perranarworthal.

NELSON.—March 18.—For the erection of new club premises at Nelson, Lancs. Messrs. A. O. Evans, Williams & Evans, architects, Pontypridd.

NEWARK.—March 30.—For the erection of infectious and small-pox hospitals and appurtenant works in Barnby Road, Newark. Mr. George Sheppard, borough surveyor, Town Hall, Newark.

OULTON.—March 17.—For the enlargement of the Oulton Council school buildings, near Lowestoft. Mr. F. W. Richards, architect, 14 Stanley Street, Lowestoft.

PERTH.—March 11.—For the excavating and concrete foundation work required at the electricity works, in connection with extensions. Mr. John Lambert, burgh electrical engineer, Perth.

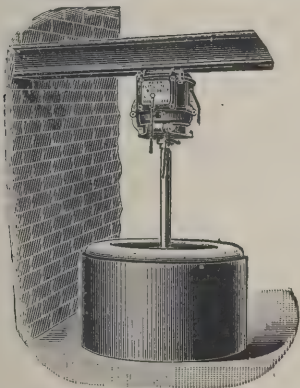
PONTEFRAC.—March 16.—For the erection of three shops, offices and workrooms. Messrs. Garside & Pennington, architects, Pontefract.

PONTYPOOL.—March 21.—For the erection of a pair of semi-detached villas in the Station Field, Pontypool. Mr. D. J. Lougher, architect, Bank Chambers, Pontypool.

POOLE.—March 24.—For the erection of a new elementary school building in Wimborne Road, Poole. Mr. Walter Andrew, architect, Parkstone.

PORTREE.—March 17.—For the erection of new Royal Naval Reserve buildings at Portree, in the Isle of Skye, N.B. The Director of Works Department, Admiralty, 21 Northumberland Avenue, London, W.C.

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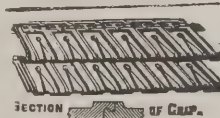
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RADCLIFFE.—For the erection of a weaving shed, &c., at Radcliffe, Lancs. Mr. William Henry Atkinson, architect, Shaw Street, Colne.

RICHMOND.—March 13.—For erection of three additional workmen's dwellings at Manor Grove. Mr. J. H. Brierley, borough surveyor, Town Hall, Richmond, Surrey.

ROTHWELL.—March 20.—For the construction of new sewerage and sewage disposal works at Stourton. Mr. E. J. Silcock, engineer, Park Row, Leeds.

RUNCORN.—March 23.—For the construction of a steel trough bridge with concrete abutment in the Urban District of Runcorn. Mr. W. Hunter, chief engineer, 41 Spring Gardens, Manchester.

RYE.—March 11.—For building an additional ward to the infirmary of the workhouse. Mr. E. J. Cory, surveyor, High Street, Rye, Sussex.

SALFORD.—March 14.—For providing and fixing the whole of the timber and ironwork required in the erection of a verandah adjoining the house at Buile Hill Park. The Borough Engineer's Office, Town Hall, Salford.

SALFORD.—March 14.—For the erection of a river wall at the end of Brazil Street, Broughton. The Borough Engineer's Office, Town Hall, Salford.

SCOTLAND.—March 11.—For the following works in connection with erection of an isolation hospital at Friarton, Perth, for the Town Council—viz.: (1) excavations, brick and masons' work; (2) carpenter and joiner's work; (3) plumbers' work; (4) plaster, cement, and tile work; (5) slaters' work; (6) glaziers' work; (7) electric bells and telephones. Mr. George P. K. Young, 42 Tay Street, Perth.

SCOTLAND.—March 11.—For mason, carpenter, plumber, plasterer and slater's work for a clubhouse to be erected at Fyvie. Messrs. A. Marshall Mackenzie & Son, architects, 343 Union Street, Aberdeen.

SCOTLAND.—March 13.—For the mason, carpenter, slater, plaster, plumber, painter and glazier works of new premises to be erected at Fraserburgh. Mr. William Reid, architect, Saltoun Square, Fraserburgh.

SCOTLAND.—March 15.—For (1) the brickwork; (2) wright-work; (3) steel and ironwork; (4) slaters' work; (5) plasterers' work; (6) concrete work; (7) plumbers' work;

(8) tilework; (9) painters' work; (10) heating and ventilating work; and (11) steam-boilers—of new hospital proposed to be erected at Gateside, Greenock. Mr. Colin Macculloch, clerk to the board, Municipal Buildings, Greenock.

SCOTLAND.—March 31.—For the mason, carpenter, slater, plumber, plasterer, painter, glazier and bell-hanging works of an infectious diseases hospital to be erected in Alvie for the Inverness-shire County Council. Mr. Alexander Cattanach, architect, Kingussie.

SLEAFORD.—March 13.—For the erection of two pairs of cottages at Rauceby asylum, Sleaford, Lincs. Mr. Jesse Clare, county architect, Sleaford.

SOUTH SHIELDS.—March 18.—For the erection of municipal buildings on the site in Westoe Road, South Shields. Mr. Ernest E. Fetch, architect, 26 John Street, Adelphi, London, W.C.

STONEHAVEN.—March 21.—Offers for the work of extension of harbour in accordance with plans and specifications which may be seen at the office of the Clerk to the Trustees at Stonehaven, or with Mr. James Barron, M.Inst.C.E., Central Chambers, 216 Union Street, Aberdeen.

TEIGNMOUTH.—March 27.—For building a new police station at Teignmouth. Mr. E. H. Harbottle, county surveyor, Queen Street, Exeter.

TETBURY.—March 28.—For proposed alterations and additions to the workhouse, Tetbury, Glos. Mr. V. A. Lawson, architect, 17 Rowcroft, Stroud.

TWYNING.—March 11.—For the erection of a new Council school at Twynning, near Tewkesbury. Mr. R. S. Phillips, surveyor to education committee, Shire Hall, Gloucester.

WALES.—March 13.—For erection of a vestry at Nantycavan, near Seven Sisters, Neath. The Rev. Edmund Davies, Seven Sisters, Neath.

WALES.—March 14.—For the extension and alteration of Horeb Calvinistic Methodist chapel, Treherbert. Mr. W. D. Morgan, Victoria Chambers, Pentre, Rhondda Valley.

WALES.—March 14.—For additions to Nazareth Welsh Calvinistic Methodist chapel, Aberdare. Mr. T. Roderick, architect, Ashbrook House, Clifton Street, Aberdare.

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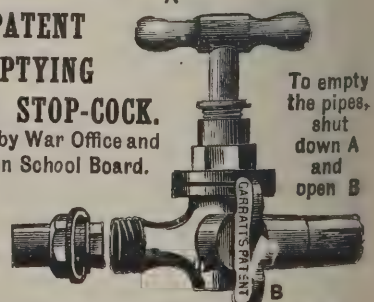
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WALES.—March 15.—For restoring and making additions to the parish church of Llanelly. Mr. E. M. Bruce-Vaughan, architect, Cardiff.

WALES.—March 16.—For the erection of 22 cottages at Park Hill, Tredegar. Mr. W. Beddoe Rees, architect, 3 Dumfries Place, Cardiff.

WALES.—March 18.—For the erection of a bungalow at Hutchins, Porthcawl. Messrs. Geo. F. Lambert & Son, architects, Bridgend.

WALES.—March 18.—For erection of a parish hall at Beaufort. Mr. H. Waters, architect, Beaufort.

WALES.—March 21.—For the erection and completion of seven villas at Maindy, Pentre, for the Maindy Building Club. Mr. W. D. Morgan, architect, Victoria Chambers, Pentre, Glam.

WALES.—March 23.—For the erection of a mixed and infants' school at Cwmcuffin, Llanhilleth, Mon. Messrs. Swash & Bain, architects, Midland Bank Chambers, Newport, Mon.

WASHINGTON.—March 24.—For Primitive Methodist school and vestry at Washington Station, Durham. Messrs. Davidson & Phillipson, architects, 32 Clayton Street West, Newcastle-on-Tyne.

WOKINGHAM.—March 13.—For the construction of bacteria filter beds, and other works in connection therewith, at Wargrave. Mr. Richard Hassard, 1 Victoria Street, Westminster.

WORTLEY.—March 18.—For widening Wardsend Goit Bridge, on the Sheffield and Halifax main road. County Surveyor, County Hall, Wakefield.

WREXHAM.—March 22.—For the construction of sewage disposal works, including settling tanks and percolating filters, formation of road, laying land, also 9-inch sewers, &c., for Acrefair, Cefn-Bychan and Newbridge, in the parish of Cefn, near Ruabon. Mr. J. Price Evans, Argyle Chambers, Wrexham.

THE Exhibition of Decorative Trade organised in Edinburgh by the National Association of Master Painters in Scotland was opened on Wednesday in the Waverley Market, Princes Street.

TENDERS.

BEAMINSTER.

For the erection of school and alterations to the school buildings in Hogshill Street, Beaminster, Dorset. Messrs. CRICKMAY & SONS, architects, Westminster.

Conway	£1,729	0	0
Chambers	1,440	0	0
C. & A. HANN, Beaminster (accepted)	968	0	0

BRADFORD.

For the erection of a casualty department, boiler-house and two boilers at the Royal Infirmary. Mr. FRED HOLLAND, engineer.

Accepted tenders.

Booth, mason	£1,100	0	0
Holdsworth & Sons, boilers.	550	0	0
Hill & Son, plumber	465	0	0
Moulson & Son, Ltd., joiner.	270	0	0
Parsons & Co., Ltd., ironfounder.	150	0	0
Howroyd & Son, plasterer	101	15	0
Wilkinson, slater.	44	0	0
Marsland, painter.	34	0	0

CARLISLE.

For certain alterations and additions to property in Fisher Street. Mr. HENRY C. MARKS, city engineer and surveyor, 36 Fisher Street, Carlisle.

Hindson	£872	9	0
J. & R. Bell	830	0	0
Scott	813	0	0
Batey	804	0	0
Beaty	790	0	0
Hill & Sons	782	10	0
Laing & Son	775	10	0
Baty & Sons	770	0	0
Baty	763	5	6
Hill	756	10	0
Exors. John H. Reed	752	0	9
Martin	745	11	10
G. HILL & SON, Carlisle (accepted)	716	18	5

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John Bros.	418	0	0
D. Jones	383	0	0
D. REES & SONS, Llwyngollen (accepted)	379	0	0

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Quick	£720	0	0
Corke	700	0	0
Middleton & Co.	680	0	0
Carter Bros.	671	4	6
Kirk & Randall	657	0	0
Hunt	618	0	0
Clark & Son	610	2	0
Streeter & Co.	527	5	3
Bell	497	0	0
Plummer	485	0	0
CROAD (accepted)	470	0	0
Porter & Co.	459	0	0

FINEDON.

For alteration of the Temperance Hall.			
Abbott	£225	0	0
Berrill & Green	200	0	0
Capps, Rolly & Keech	164	0	0
Lilley & Buse	160	0	0
F. HENSON (accepted)	138	0	0
For the heating apparatus.			
Mather	£39	15	0
Eades	34	5	0
A. MARRIOTT (accepted)	34	0	0

HEAVILEY.

For the erection of new mixed schools, for the Trustees of St. George's schools. Messrs. AUSTIN & PALEY, archi- tects, Lancaster.			
SMITH BROS., LTD., Burnley (accepted)	£13,021	5	10

IRELAND.

For carrying-out works for Newbridge water supply. Mr. F. BERGIN, engineer.			
Sunlight Engineering Company	£4,384	9	0
Taylor	4,363	3	2
A. Hull & Co.	4,142	1	7
McKee & McNally	4,055	17	10
Kennedy	4,019	4	3
Collen	4,000	0	0
Blake	3,998	19	8
Graham	3,954	14	4
Johnston	3,744	12	4
Baird	3,559	2	11
Sheridan	3,377	4	11
J. KELLY, Kilkenny (accepted)	3,262	1	5

KIRTON.

For the erection of a science laboratory at the Sir Thomas Middlecot's endowed school. Mr. JAMES ROWELL, architect, Boston.			
Leafe	£708	0	0
Wood	680	0	0
Cade	669	0	0
J. LANGLEY & SON, Kirton (accepted)	660	0	0

LINCOLN.

For the erection of a Primitive Methodist church in High Street.			
HALKES BROS., Lincoln (accepted)	£8,923	0	0

LIVERPOOL.

For alterations at the lower hospital, for the West Derby Guardians.			
H. DODD (accepted)	£2,499	0	0

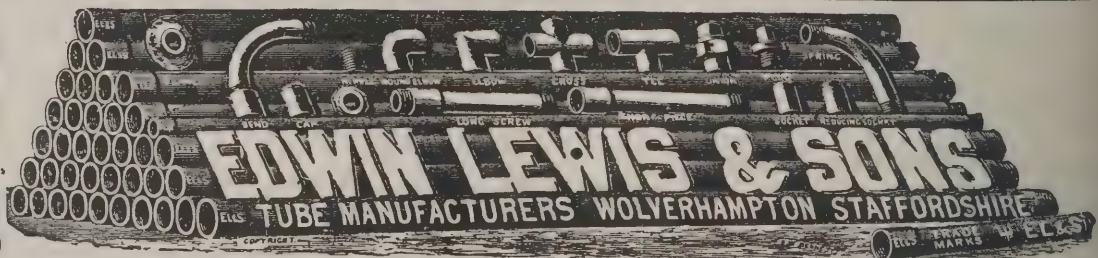
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LONDON.

or the sanitary and drainage works at Daubeney Road school, Hackney.	
Symes	£2,675 0 0
Porter	2,559 0 0
McCormick & Son	2,519 0 0
Durbin & Katesmark	2,463 0 0
Willmott & Sons	2,416 0 0
Lathey Bros.	2,405 0 0
Munday & Sons	2,352 0 0
Williams & Son	2,313 0 0
E. Lawrence & Sons	2,251 0 0
Peattie	2,217 0 0
Stevens Bros.	2,207 0 0
L. H. & R. Roberts	2,101 0 0
F. Bull, Upper Clapton (recommended)	2,075 0 0

or the supply of heating apparatus at Dunt's Hill school, Wandsworth.	
Fraser & Son, Ltd.	£1,249 0 0
Wenham & Waters, Ltd.	1,167 0 0
Purcell & Nobbs	993 0 0
Cannon & Sons	950 0 0
Mackenzie & Moncur, Ltd.	924 0 0
Strode & Co.	887 0 0
Wontner-Smith, Gray & Co.	859 10 0
Wippell Bros. & Row	855 0 0
Defries & Sons, Ltd.	835 0 0
Harlow & Sons, Ltd.	807 0 0
Kite & Co.	785 0 0
Dawson & Co., Ltd.	739 0 0
J. & F. May, Whetstone Park (recommended)	720 0 0

for the erection of a shop at Leyton, N.E. Mr. HERBERT RICHES, architect, 3 Crooked Lane, King William Street, London, E.C. Quantities supplied.	
Courtney & Fairbairn	£1,959 0 0
F. & T. Thorne	1,853 0 0
Batley, Sons & Holness	1,843 0 0
Clemens Bros.	1,840 10 0
Todd & Newman	1,836 0 0
Sheffield Bros.	1,786 0 0
T. OSBORN & SONS (accepted)	1,783 0 0

LONDON—continued.

For the erection of generating station, Manor Street, Chelsea. Mr. ALFRED ROBERTS, architect, Greenwich.	
F. & H. F. Higgs	£14,313 0 0
Nightingale	13,498 0 0
Lole & Co.	13,342 0 0
F. & T. Thorne	13,200 0 0
Patman & Fotheringham	12,923 0 0
Holliday & Greenwood, Ltd.	12,666 0 0
J. GREENWOOD, Ltd. (accepted)	11,865 0 0
For the external repairs and painting to the Lamb public-house, Plaistow, E. Mr. HERBERT RICHES, architect, 3 Crooked Lane, King William Street, E.C.	
A. W. DERBY (accepted)	£104 0 0

LYDFORD.

For drainage and sanitary work at the Dartmoor inn. Mr. CHARLES COLE, architect, Exeter.	
Glendinning	£160 8 0
Gibbard	140 0 0
Porter & Co.	110 0 0
Honey	98 16 0
Smale	88 0 0
Huggins	86 15 6
W. & J. Menninick	82 12 7
Heath	69 0 0
G. K. BLATCHFORD, Okehampton (accepted)	68 17 6

NEWCASTLE-ON-TYNE.

For the erection of 126 artisans' houses, for the City Council.	
W. FRANKLIN & SONS, LTD., Jesmond (accepted)	£18,177 0 0

PONTYPRIDD.

For erecting two lock-up shops with offices over. Messrs. A. O. EVANS, WILLIAMS & EVANS, architects.	
Seaton	£657 15 0
Jones	618 17 0
Smith-Jones	598 10 0
Price Bros.	597 10 0
HINCKLEY (accepted)	570 0 0

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PORTSMOUTH.

For the erection of a school in Copnor Road. Mr. G. C. VERNON INKPEN, architect, Portsmouth.

Armitage & Hodgson	£20,677	10	2
Dowdell	20,666	14	4
Kirk & Randall	20,618	0	0
Light & Sons	20,600	0	0
Cook & Sons	20,315	0	0
Ward	20,117	0	0
Perkins & Durrant	19,590	8	0
Evans	19,375	0	0
Clark & Son	19,103	0	0
Coltherup	18,823	6	9
Corke	18,591	18	10
Davis	18,500	0	0
Learmouth	18,494	3	7
Harding	18,443	13	0
Privett	18,365	0	0
J. CROCKERELL (accepted)	18,127	5	6
Salter	17,004	9	10

RISCA.

For the erection of fifty houses at Wattsville, North Risca, Mon, for the Urban District Council. Mr. A. J. DARDIS, surveyor.

Charles	£12,500	0	0
Morgan & Co.	11,995	0	0
Lewis	11,425	0	0
Jordan	11,250	0	0
J. PRITCHARD, Pontymister (accepted)	10,750	0	0

SCOTLAND.

For the erection of a new reservoir, &c., at Kilbirnie, in connection with the Kilbirnie and Glengarnock Special Water Supply District.

Flett	£20,081	0	0
Mackay & Son	18,337	0	0
Kirkwood, Kerr & Co.	18,334	0	0
Urquhart	17,990	0	0
Henderson & Duncan	17,416	0	0
Stark	17,307	0	0
JAMES MILLER, Kirkintilloch (accepted)	16,591	0	0

SOUTHEND.

For the erection of a building for manual instruction, &c., adjoining the London Road schools. Mr. E. J. ELFORD, borough surveyor.

Arnold	£1,583	0	0
Moss & Co.	1,524	0	0
Smith	1,500	0	0
Miskin	1,472	0	0
Myall & Upson	1,382	0	0
F. & E. Davey, Ltd.	1,381	0	0
Elvey & Son	1,340	0	0
A. & H. Holding	1,294	0	0
W. & E. DAVEY (accepted)	1,187	0	0

For the extension of the boiler-house at the electricity works, London Road, for the Corporation. Mr. E. J. ELFORD, borough engineer, Southend-on-Sea.

F. & E. Davey	£2,045	0	0
H. Lovatt, Ltd.	2,000	0	0
H. Windsor & Co.	2,000	0	0
Smith	1,943	0	0
Hughes & Stirling	1,888	0	0
Holding	1,805	0	0
S. E. Moss & Co.	1,777	0	0
Miskin	1,771	0	0
Arnold	1,757	0	0
Elvey	1,679	0	0
W. & E. DAVEY, Park Road, Southend (accepted)	1,558	0	0

WALTHAMSTOW.

For the erection of Winns Avenue schools. Mr. H. PROSSER, architect.

HAMMOND & SON, Romford (accepted)	£23,881	0	0
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WEST HAM.

For the extension of public baths, Balaam Street, Plaistow. Mr. J. G. MORLEY, borough engineer.

Horswell	£3,063	0	0
Horlock & Son	2,668	0	0
Symes	2,550	0	0
Gegan & Son	2,480	0	0
WORKS MANAGER, Canning Town (accepted)	2,456	0	0
Crisp	2,440	0	0

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15 HOURS ACCORDING TO
WEATHER.**

SELLY OAK.

For the erection of public baths, including chimney-shaft and storage tank, at Tiverton Road, Selly Oak, for the King's Norton and Northfield Urban District Council. Mr. E. HARDING PAYNE, architect, 11 John Street, Bedford Row, W.C. Quantities by Mr. GEO. KENWRICK, 83 Colmore Row, Birmingham.

Morris	£10,038	0	0
J. Barnsley & Son	9,888	0	0
T. Loud & Sons.	9,875	0	0
Turton (revised estimate)	9,858	0	0
J. Dallow & Sons	9,790	0	0
Rowbotham	9,707	0	0
W. & J. Webb	9,600	0	0
Bishop	9,477	0	0
Whitehouse	9,378	0	0
Harvey Gibbs	9,235	0	0
T. A. COLE & SON (accepted)	8,990	0	0

STRATTON.

For various street works. Mr. W. J. DUNBAR, engineer, Liskeard.

Osenton	£7,163	14	0
Harrison & Co.	4,591	0	0
Riley	4,069	2	4
Drew	3,400	0	0
Harris	2,678	7	2
Duke	2,565	16	4
Lucas	2,479	18	0
Curno	2,423	11	2
Cann	2,386	11	5
Shaddock	2,342	0	0
Smeeth	2,230	0	0
Bennett	2,051	9	0
S. & J. Pethick, Bude*	2,156	13	0

* Accepted on being reduced to £2,090.

WREXHAM.

For the construction of additional sewage tanks, outfall extension works, &c.

E. TAYLOR, Blackpool (accepted) . . . £3,636 15 9

For the making of a sewer in Hall Road and Danks Meadows.

DAVIES BROS., Wrexham (accepted) . . . £766 14 0

WIDNES.

For enlargement of Simm's Cross Council school. Mr. F. U. HOLME, architect, Liverpool.

Jones & Son	£2,500	0	0
Merritt	2,062	0	0
Holme & Green	2,040	0	0
Webster	2,007	0	0
Mayor	1,999	0	0
Hall & Son	1,949	0	0
Tyson	1,937	0	0
Gerrard & Son	1,915	0	0
Woods & Son	1,915	0	0
Rothwell & Sons	1,911	0	0
Duthie & Dobson	1,910	0	0
Fairclough	1,870	0	0
Hughes & Stirling	1,850	0	0
Lucas & Son	1,835	0	0
J. & E. RIMMER, Gateacre, Liverpool (accepted)	1,781	0	0
Parker & Son	1,775	0	0

Received too late for classification.

KIRKCALDY.

For the first section of the Kirkcaldy Harbour extension scheme.

BRAND & SONS, Glasgow (accepted) . . . £25,900 0 0

LONDON.

For the erection of new business premises upon the site of No. 24 Foley Street, Marylebone, W., for Mr. Alfred Austin. Messrs. GEO. HEAD & Co., architects, 7 Upper Baker Street, N.W.

Webber	£2,770	0	0
Batt & Hart	2,625	0	0
Kinnimont & Sons	2,600	0	0
Watson Bros.	2,548	0	0
E. & W. Hales	2,400	0	0
St. John & Sons	2,264	0	0

LONG EATON.

For contracts A., B. and I. at Primitive Methodist chapel. Messrs. GEORGE BAINES & R. PALMER BAINES, architects.

JONH BULL, Cobden Street (accepted) . . . £2,534 5 0

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	Stable.	Cottage.
G. Ansett & Son	£499 9 9	£277 18 7
Cox Bros.	445 0 0	303 0 0
Corben & Co.	435 0 0	300 0 0
Barden & Head	416 0 0	274 0 0
Wallis & Son, Ltd.	409 0 0	278 0 0
Elmore & Son	397 0 0	276 0 0
Pearce & Sons	397 0 0	250 0 0
R. AVARD (accepted)	389 0 0	249 0 0

NEWCASTLE-UNDER-LYME.

For sewerage works in the Liverpool Road area.

SMITH & TAYLOR (accepted)	£2,040 0 0
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TRADE NOTES.

THE Columbian Fireproofing Company, Ltd., 37 King William Street, London, E.C., have been successful in securing the contract for floors and roofs in the new elementary schools, Kingston-on-Thames. Another of their contracts is the steelwork (and floors in the new power-house for the sugar refiners, Messrs. Tate & Son, Silvertown.

In the Shipping Trust Building, Cockspur Street, of which Mr. Henry Tanner is architect, the stonework, which is the best Whitbed, has been supplied from the quarries of the John Pearce Company, at Portland, and worked by the Bath Stone Firms, Ltd., at their masonry works on the island, all under the supervision of Mr. Mitchell and the Waring White Building Company. The building will be visited by members of the Architectural Association on the 25th inst.

THE additions to the union infirmary, Chipping Norton, are being warmed and ventilated by means of Shorland's patent Manchester stoves and Manchester grates.

MESSRS. LONGMANS, GREEN & Co. are introducing some improved drawing implements for architects in D. A. Low's improved tee-squares and set-squares. The blades of the

tee-squares are formed of thin pine and celluloid, with the result that a very light article is produced, and one that seems to promise less difficulty in keeping drawings clean. The blades are supplied with either ebony or transparent celluloid at choice. Framed set-squares are also produced of similar construction to the blades of the tee-squares. A very useful article too is "Low's Vector Set-square," with which both rectangular and raking lines can be drawn with the same implement.

THE Great Central Railway Company have decided to work the branch line between New Holland and Barton-on-Humber by motor-cars, and the new system will be brought into use immediately. The motor-cars will carry about sixty passengers each, namely, forty-five third and fifteen first class. Experimental runs have been made on the Cheshire lines with most satisfactory results both as to speed, cost and comfort.

THE Eccles Town Council have approved of plans of municipal workmen's semi-detached cottages, and will make application to the Local Government Board for a loan. By the provisional order granted by the Local Government Board for the acquisition of the insanitary area of Eccles, the Corporation have to erect cottages for the accommodation of 340 persons dispossessed by the demolition of old cottages. The health committee propose to make provision for 230 persons, leaving 110 still to be provided for. The Corporation having no desire to compete with private owners, the rents of the cottages will be regulated according to the charges made for adjoining buildings.

THE Johannesburg Master Builders' Association at their first annual meeting agreed "That all master men connected with the building trades be eligible for membership in the Association." It was also resolved that the committee be instructed to approach the Architects' Association regarding the guaranteeing of quantities, and uniformity in getting them out; also that the contractor has the importing of materials, as specified, to carry out the building and the completion thereof; and, further, that there be uniform conditions of contract throughout Johannesburg. The entrance fee is to be reduced from 5*l.* 5*s.* to 2*l.* 2*s.*, the annual subscription remaining at 5*l.* 5*s.* a year.

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NEW CATALOGUE.

We have often commented on the remarkable communis-
tiveness among all classes of people in the United States
affording information. Trade and office secrets which
have been acquired by study, labour, and it may be expense,
are found printed in books and journals as if apprehensions
of rivalry were unknown across the Atlantic. The cata-
logue "P" of the Standard Manufacturing Company, of
Pittsburg and London, is an example. All the illustrations
are presented in such a way that similar forms and arrange-
ments could be introduced by other manufacturers. If
viewed merely as an example of illustrating and printing,
the book is a marvel. Indeed, some would consider it
deserves to be regarded as a work of art, for it shows how
advanced America is in matters which are often carelessly
neglected in England. The descriptions and prices are
precise, and the volume is sufficient to exemplify the
advanced state of sanitary appliances in America and the
remarkable ingenuity exercised in even the simplest kind
of apparatus. Evidently the owners of houses are willing
to expend more money on sanitation than is usual in
England, and the Standard Company provide them with
goods which are not only efficient but luxurious.

OPPOSITION is being raised to the proposal of the Lan-
cashire Asylums Board to erect a new asylum at Whalley
at a cost of between 250,000*l.* and 500,000*l.* The Bolton
Town Council will be invited to convene a meeting of the
representatives of the county boroughs to formulate the
opposition and report to the respective councils.

ELECTRIC NOTES.

THE Derby electric tramways, of which the first section
was opened in July last, are to be extended at a cost of
19,245*l.* The Town Council propose to purchase four cars
for 2,320*l.* The cars at present earn on an average 10½*d.*
per mile, and the total receipts are 505*l.* per week.

THE municipal electricity works at Bridlington, York-
shire, were opened on the 2nd inst. They were designed
by Mr. E. R. Matthews, borough engineer. The electrical
work has been carried out under the superintendence of
Mr. F. A. Medhurst, consulting electrical engineer, Man-
chester and London, and Mr. Arthur J. Beckett, who
officiated as clerk of the works during the progress of the
undertaking, has been appointed electrical engineer. The
scheme has been carried out at a cost of 30,000*l.*

THE Finchley District Council will apply to the Local
Government Board for raising a loan of 23,500*l.* for
extending the electric light. Tenders will also be invited
for the various items, which are made up as follows:—
Buildings and sub-station, 6,750*l.*; machinery, 5,450*l.*;
water supply, 2,180*l.*; mains, 5,370*l.*; service connections,
2,200*l.*; contingencies, office and inspection expenses and
loan charges, 1,500*l.*

MR. J. H. DOBSON, formerly an apprentice in the Crewe
Railway Works, has been appointed to the professorship of
electro-technics at the Transvaal Technical Institute,
Johannesburg. Mr. Dobson won a scholarship at Crewe
Mechanics' Institute, proceeded to University College,
Liverpool, was afterwards appointed head of the engineering
department at the Gamble Institute, St. Helens, and last
year went to South Africa with Professor Hele-Shaw.

ARRANGEMENTS have been made for the construction of
the first entirely electrically driven cotton-spinning mill in
this country by the Acme Spinning Co., Ltd., of Pendlebury.
It will contain 41,000 mule and 34,000 ring spindles, as well
as the usual preparation machinery. The supply of electri-
city will be three-phase alternating, obtained from the
Lancashire Electric Power Co.'s trunk mains. It will be
produced at their generating station at Outwood by steam
turbines driving 10,000 volt dynamos and transmitted at
this pressure to the mill, where it will be transformed down
to 400 volts for the motors and 230 volts for lighting.

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VARIETIES.

THE Chelsea town hall extension committee are in favour of a scheme of enlargement which Mr. Leonard Stokes, the architect, estimates will cost over 17,000*l.*

A MEMORIAL to Henry Cort, the inventor of the process of rolling iron, was unveiled in Hampstead parish church, Church Row, Hampstead, yesterday, by the Chairman of the London County Council, Mr. J. Williams Benn, M.P.

THE Walsall Board of Guardians have accepted a recommendation of the building committee that no further action be taken with a view to laying down brick-making plant, as the Guardians could buy all the bricks they required for less than the machinery would cost.

Six women tracers have, it is stated, been appointed for duty in the drawing-office at Chatham dockyard, and six for the drawing-office at Sheerness yard. A chargewoman has also been appointed to each yard to take the oversight of these new employees. Other women tracers will be selected later on.

THE Thames Conservancy Board granted on Monday permission for the construction at Stone of a timber quay about 6,600 feet long and 58 feet wide, and ten transport sheds each 300 feet long and 61 feet wide. It is stated that the construction of the new wharf at Stone will cost about 1,000,000*l.*, and that the wharf will allow of 6,000,000 tons of traffic being handled.

ON Tuesday a Local Government Board inquiry was held at King's Heath by Mr. R. H. Bicknell into an application by the King's Norton and Northfield Urban District Council for sanction to borrow 13,000*l.* for the erection and equipment of public baths in that district. It was stated that the site was very central to serve a population of 24,000 people in Selly Oak Ward. The work was commenced in January last.

A PARLIAMENTARY return issued on the 7th inst. states that the total number of Bills deposited for the Session of 1905 relating to railways, canals, tramways, and the supply of electricity, gas, and water is 131, as compared with 159 of the Session of 1904. The total money proposed to be raised is 47,470,914*l.*, as compared with 37,825,761*l.*, an increase of 9,645,153*l.*

A PARLIAMENTARY return just issued summarises the accounts of the gas companies for the year 1903, and shows that the number of such companies continues to increase. In 1882 there were 352 undertakings, and they sold 45,484,000 thousands of cubic feet of gas to 1,055,000 consumers. In 1903 the undertakings numbered 459, with a paid-up capital of 67,417,000*l.*, and they supplied 93,923,000 thousands of cubic feet of gas to 2,385,348 consumers. There has been an equally noteworthy increase in the number and size of gasworks owned by local authorities.

KING EDWARD DOCK, Gibraltar, will be used for the first time by a first-class battleship when *King Edward VII.* is docked there. This is the first and smallest of the three large new graving docks to be brought into use. It has a depth of 35½ feet of water over the sill at low water. The width of the entrance is 95 feet, and the length on the floor of the dock is about 450 feet. It is only just able to take this huge battleship. The dock is closed by a travelling caisson worked by hydraulic power, and the capstans and senstocks or sluices are also worked by the same hydraulic installation. The other two larger docks will, it is expected, be in use by the end of this year. These docks form part of the great Admiralty scheme of dockyard extension and of harbour improvement which has been in progress for some years, and which is now rapidly drawing to a conclusion. The three moles and the dredging are practically completed; so, also, are the enormous workshops which have been built on reclaimed ground. The total cost of the Works Loan scheme will be about 5,000,000*l.* sterling.

BUILDING AND BUILDERS.

THE Ancrum Road school, Dundee, is to be enlarged at a cost of 7,500*l.* The plans, by Mr. J. H. Langlands, have been approved by the Education Department.

THE Barrow Town Council are considering a scheme for the erection of a central police court and police station at a cost exceeding 16,000*l.*

THE committee of the Manchester City Council appointed to consider the advisability of establishing a works department of the Manchester Corporation decided on Monday to

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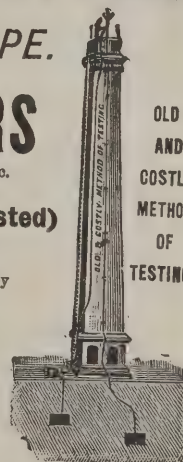
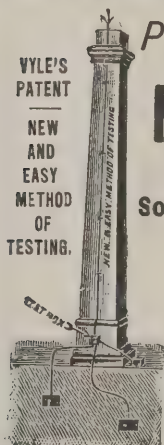
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tain information on the matter from other corporations, including county councils.

At the meeting on Tuesday of the London County Council the question was asked whether it was intended to continue the Building Act Amendment Bill now before Parliament, in view of the fact that some eighty petitions had been presented against the measure. Captain Hemphill, chairman of the Building Act committee, said he could not answer that question. The number of petitions against it was no criterion of the strength of the opposition, which might be confined to a clause here and there.

PLANS for the new Edinburgh slaughter-houses and markets to be erected at Gorgie have been presented, so far as the proposed railway sidings are concerned, to a joint sub-committee of the Lord Provost's and markets committee of Edinburgh Town Council. There was, it is understood, a feeling among the members of the committee that the plans were too elaborate for first requirements, and it was agreed to remit them to the railway companies for reconsideration.

The Holland Railway Company will receive tenders up to March 27 for the following work:—Contract No. 8: The construction of groundworks, artificial works, hardening works, enclosures, buildings, the laying of the superstructure, the construction of the ballast bedding and of additional works for the reconstruction of the Helder-Amsterdam railway, in connection with the widening of the railway bridge over the North Sea canal, near Zaandam (nieuwe Hembrug), in two lots, the total being 87,333*l*.

The erection of a large paper-mill at Healing, Lincolnshire, is in contemplation. On Monday, before the Grimsby Rural District Council, Mr. H. C. Scapeing, architect, submitted plans for the drainage of the proposed mill direct from Healing to the Humber. Mr. Scapeing stated that his clients' scheme involved an expenditure of from 80,000*l*. to 100,000*l*., and would provide regular employment for about 300 men. The Council decided to submit details of the scheme to counsel before taking further action.

The parish church of St. Teilo, Llandilo Fawr, Carmarthenshire, was reopened by the Bishop of St. Davids on Friday, March 3, after the addition of a new organ chamber, and after being thoroughly restored and renovated

from the designs and under the supervision of Mr. David Jenkins, F.R.I.B.A., architect, Llandilo. The general contractors were Messrs. Thomas Brothers, of the same town. Contractors of specialties:—Messrs. Roger Lowe, Ltd., Farnworth, for the maple wood-block flooring; Messrs. W. Godwin & Son, Hereford, for the encaustic and tesselated tile pavings; Messrs. Wake & Dean, Ltd., Yatton, Somerset, for the oak choir stalls; Messrs. Alfred Gardiner, Sons & Co., Ltd., Bristol, for the brass altar rails and standards; Messrs. Richard Williams & Son, Llandilo, for the cleaning, varnishing and gilding work; Mr. D. Pritchard Davies, Llandilo, the installation of electric light; Messrs. Saunders & Taylor, Ltd., Manchester, the heating apparatus; Mr. G. Vowles, Bristol, the rebuilding of the organ. The aggregate cost was 2,500*l*., and the restoration generally is acknowledged to be a decided success.

FINANCING BUILDING OPERATIONS.*

The methods of financing building operations vary in different places. In New York many schemes have been adopted for a while to give place at length to other methods.

For example, when apartment-houses were first introduced they became very popular. Then what was known as the co-operative apartment-house scheme was invented. The promoters would get the refusal of a piece of land, have plans drawn and organise a company of people who wanted homes. The plan was to give the owner of a certain amount of stock a perpetual lease of an apartment (very similar to the custom in Venice of different floors in a building belonging to different owners). A great many large apartment-houses were built on this scheme, but after one notable instance in which the mortgage was foreclosed and the stockholders wiped out this method was abandoned.

Formerly much of New York city was built on leasehold property, and many of the finest stores are on leased land, such as those of A. T. Stewart (now John Wana-

* A paper by Mr. W. H. Russell, read at the annual convention of the American Institute of Architects.

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maker's); Tiffany & Co., Union Square; W. & J. Sloane and others. But at the present time very little is loaned on leasehold, and it is almost impossible to finance a large proposition in New York if the fee of the land is not included. This is not the case in Chicago, where many very large and high buildings are on leased ground.

Most of the dwellings in the large cities of the world have been built by operators building rows of similar houses and selling them separately. This form of operation appeals to a large number. Men of small capital can start in a small way, and by investing their profits in more houses, often build whole neighbourhoods. They are usually successful during rising markets. Of course, houses reproduced a number of times can be built more cheaply than separate houses. The plan of finance is often to employ an "architect" to make the plans of one house, a building loan is then procured, and the different sub-contractors are induced to wait for their final payments until some of the houses are sold.

But there are many builders who build very good houses to sell in New York, and a large number of fireproof residences have been built and sold, and not a few have brought between 100,000 dols. and 200,000 dols. each in the last few years. There are very few private residences built at present on Manhattan Island, apartment-houses being the vogue.

In the financing of a building operation, the promoter has usually to provide the difference between the amount of money that can be borrowed on the enterprise and the cost of it. The permanent loan is usually made by a financial institution on a conservative basis, loaning only 50 or 60 per cent. of the value of the enterprise at a low rate of interest. If the conservative institutions decide not to loan money, there is very little promoting done until they again wish to loan. Of course, there is a great deal of money loaned by private individuals, but such loans are generally of smaller amounts.

There are institutions which make a business of loaning and selling the mortgages to private individuals. Thus the financial institutions have the first claim on most enterprises. They decide whether there will be an active business or not. If they are desirous of loaning, there are always operators who are anxious to promote enterprises.

As the size of operations in America has increased to such enormous proportions, so have construction companies, promoting companies and realty companies been formed with very large capital. Some of these have increased their scope until now they will underwrite the mortgage, assist in financing the whole operation and build the building. This class of operation is almost exclusively confined to central and staple property.

A popular mode of procedure, for a man who wishes to operate in real estate is to form a company, usually called a realty company, and for each particular building operation a subsidiary company is formed by the parent company, which method, under the laws of the State of New York, eliminates the element of personal liability of the stockholders.

There is a large field for these realty companies, managed on conservative lines, and they are of great advantage to people who are forced to improve their property. It may be that their buildings are too poor to compete with new neighbours or too old, or that they have been destroyed by fire, &c., or for other reasons. For example, a man has a piece of property in a business centre which he is forced to sell or improve, and which is appraised at, say, 1,000,000 dols.; it does not carry itself, and there is not a ready sale for it at that price. A realty company might make the following proposition, viz.:—To erect on it a building costing, say, 1,000,000 dols.; to pay him for his land 600,000 dols. in cash and 400,000 dols. in second-mortgage bonds of the company. The realty company would borrow from a financial institution, say, 600,000 dols. on the land, and, say, 500,000 dols. on the building as it progresses. After paying the owner 600,000 dols., they would have 500,000 dols. in cash for the building, and the stockholders would have to put in the balance, 500,000 dols., and own the equity. In some instances the company issues no second-mortgage bonds but only stock.

There are many men who are forced to sell or improve their property, and while they have not the means to improve it themselves, they would prefer to keep an interest in it to selling it altogether, and they also feel that the experts in the realty company know better than they what the nature of the improvement should be. Perhaps the owners are not in this country, or perhaps they are not in a

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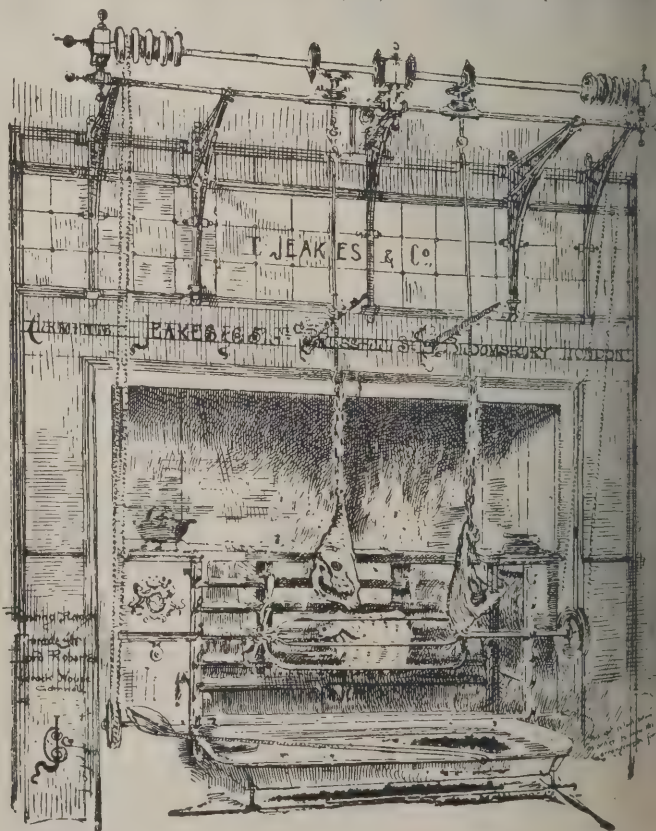
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to wish to take much trouble in posting themselves the requirements. Some propositions like the above, in which they retain naturally appeal to them. Of course, if the realty puts in very little cash, it may prove a poor ion for the owner of the land, as he is taking most of k and had better get most of the profits. The financing of large building operations has been in very much the same lines as railroads are financed, issuing bonds and stock in shares of, say, 100 dols. Also large operations have been put through in I am told, by selling only stock in small shares, at the property being bonded, and again other large ions have been successfully carried out by selling mortgage bonds in small amounts. The stock in such tance represents no payment in cash, but professes to unt the earning power over expenses. These plans have not been popular in New York. al estate has increased so much in value in large cities would not be possible for most men to invest in it, if e not through these companies. While formerly only ch were able to participate in large enterprises, now, gh the large corporations, the people can be interested the great enterprises of the country. ilding-loan corporations in great numbers have been d for persons who wish to build homes. Under their he tenant gets the property upon the payment of a small equity. He then, in lieu of rent, may pay off month a small portion of the mortgage, in addition to rrying charges. e questions, How much will a building cost? and a will it be finished? are of the greatest importance to ancier. These questions depend largely on the labour ions, on which subject the architect and his client, the r, are not usually given a chance to be heard, although viter is the greatest sufferer from strikes and lock-outs. terest account is going on all the while, and he has much more at stake than the builder. company that could give a good guarantee to finish a ng at a certain time for a certain amount of money l, indeed, greatly facilitate any building operation. Let pe that this may soon be the case. is not the province of the architect to formulate the

financial scheme or to place the securities of the project. He may be called upon to design a new building, introduc- ing features which will make it superior to its competitors. He is usually expected to prepare preliminary plans, specifications, and to give an estimate cost of building, carrying charges and operating expenses in the shortest possible time. He should be familiar with all requirements of the building he is called upon to design. He should theoretically not put anything in that is not of use. He should at the same time make his building pleasing to the public, without adding unnecessarily to the cost.

Assume, for instance, that it is proposed to finance the construction of a high office-building in some great centre. To insure a good income, the requirements, above the first or second storey, would probably oblige the build- ing to have as many windows as possible—not too large to be easily operated, and yet as large as practicable. Each window should be separated from each other window, preferably by masonry, as it is advisable to have as little steel as possible exposed to the elements, but steel thoroughly covered with cement masonry is supposed not to deteriorate. Projections over adjoining property should be dispensed with, to avoid legal complications. Many title-guarantee companies discriminate against such en- croachments. A large cornice is a disadvantage to windows under it. Therefore, the requirement which confronts the architect is a flat wall pierced with windows at equal intervals, like a waffle-iron, and not even relieved by a large projection.

Although this is a difficult proposition, it is certainly a very interesting one.

The high building is essentially American. It is a new proposition, and requires more originality to solve than a problem where some historic example from the Old World may be taken as a prototype.

Would it not seem as if these requirements might best be met by the clever application of colour? If someone could use bright-coloured terra-cotta, for example, omitting large projections but with a handsome sky-line, and so make a beautiful building, he would indeed deserve the thanks of the community. For the skyscraper has come to stay, and the business centres of our large cities will be rebuilt. The Egyptian, Greek, Roman, Romanesque and Gothic archi-

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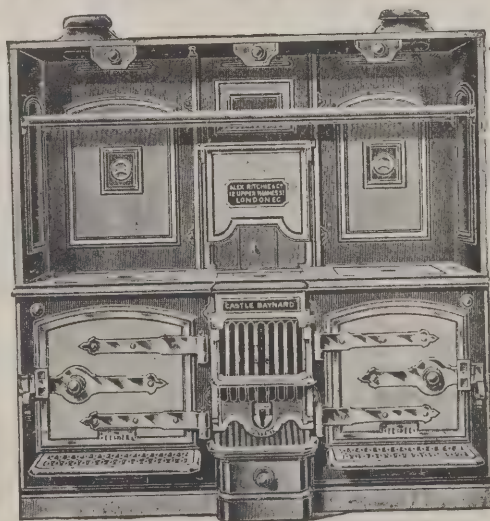
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pects all felt the want of colour and used it, and although colour had perhaps better not be suggested by an architect until he is quite sure that he will be employed, it seems to be a subject for serious consideration.

It is of the greatest importance to have the description of a proposition as brief as possible, but covering all the points. A résumé of the specification is of great benefit.

OLD CHURCH ORGANS.

In Halesowen churchwardens' ledger for the year 1497 appears the following item:—"Paid for repeyling the organs to the organ maker at Bromycham, 0-10-0"—which seems to indicate, says a correspondent of the *Daily Post*, that the craft of organ building had located itself in Birmingham at that early period.

In the scheduled possessions of the Birmingham Guild of the Holy Cross at the time of its suppression in 1545, there is an entry of "the fee of William Bothe, pulsatoris organi," the organ being that of the parish church of St. Martin. But Walsall Church boasted an organ of which there is even an earlier mention. In 1486 the "Meyre and his bredours (brothers) of Walshale" petitioned their patron, Sir Henry Verdon of Haddon, to appoint "Sir (or Rev.) William Fysshier" as their chantrey priest, "bothe to maynteine and uphold ovr organes and ovr choere (choir) with ovr grete labour moved."

At the dissolution of Halesowen Abbey in 1539 it appears that the organ was removed to the church, for in the accounts are found these two entries:—

"Paid my lord abbot for the organs . . . 4 marks.
Mending and setting them up . . . 40 shillings."

The organ at Sutton Coldfield Church was erected at the cost of Bishop Vesey about this time, in the reign of Henry VIII. Then came the Reformation. In an inventory of church goods taken in 1552 by order of the "Reforming" Council of Edward VI. it was reported that Brewood possessed "one peyre of organys," and also at Lichfield there was "one payre of organs." In Wolverhampton Old Church the organ occupied a gallery which replaced the ancient rood-loft; for it was not till after the Reformation that the

organ and choir were generally removed to the west end of the churches. How few of the pre-Reformation organs remain it would be difficult to hazard a guess. One interesting specimen of these old-world instruments was served in the chapel attached to Haddon Hall. The destruction that went on during the Civil Wars was lamentable. The Puritanical decree issued in 1644 that no music to be allowed in the churches beyond "plain psalm singing" and that all organs were to be "taken away and utterly defaced" accounts for the destruction, among hundreds, of those at Lichfield, Birmingham, Wednesbury, Wolverhampton, Walsall and Sutton. Just previously (1634 to be explicit) it had been recorded of Lichfield, a traveller who was touring through England, that on reaching that city he attended prayers in the cathedral, where "the organs and voyce were deep and sweet," and the music the most melodious description. To the Puritanical mind it was an abomination that—

Some to church repair,
Not for the doctrine, but the music there.

It would almost seem that special visits were paid to some outlying places for the express purpose of destroying the organs and other objectionable church fittings. The ancient organ which stood at the entrance to the chancel of Wednesbury Old Church is reported to have been willfully destroyed by the fanatical soldiery of Cromwell, although there is no record of military operations nearer to that town than Dudley. At Walsall the organ was burnt with a lot of other church property in the open market-place.

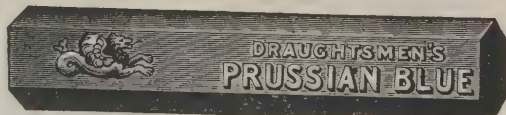
Under the conditions which prevailed in Puritanical England, as may easily be imagined, organ-building languished as a decaying industry. But with the Restoration of Charles II. in 1660 a revival speedily set in. It may be said that all our fine old organs date from the period of the Restoration. Practically, it was then we got that noble form of organ which has been designated "the king of instruments," the organ which remains to this day a musician's delight.

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ut it was long ere all the churches and cathedrals were
 lied; the demand was great and the skilled workmen
 few. In the Temple Church, London, two organs
 set up, one on each side, in a contest for supremacy.
 een two famous builders; Bernard Schmidt, otherwise
 her Smith, and Renatus Harris. Although such
 us players as Dr. Blow and Mr. Purcell performed on
 ne, and Mr. Lully, organist to Queen Catherine, on the
 , the contest was carried on for over a twelvemonth, at
 end of which Lord Chief Justice Jeffreys, was
 aled to, and gave his decision in favour of Father
 h's organ, and that instrument stands in the Temple
 ch to this day. The rival instrument, though in no
 disparaged, came into this district. According to Hone's "Table Book," it was purchased
 nd set up in Christ Church Cathedral, Dublin. In the
 of George II., an English maker named Byfield was
 for to repair it; but he prevailed on the Chapter to
 a new one made by himself, he allowing for the old
 in exchange. When he got it he offered it to the
 shioners of King's Lynn, but they preferred to have a
 one built by Snetzler, at a cost of 700*l*. Byfield then
 g, his widow sold Harris's famous organ to the church-
 fens of Wolverhampton for 500*l*, and there it remains
 is day. In 1776 it was declared to be "one of the best
 ern organs ever touched."

ather Smith was the builder of the organs for St. Paul's
 Westminster Abbey, for the cathedrals of Worcester
 Lichfield, and for other great fanes. That he built for
 field is said to be now in the possession of Mr. Josiah
 le, of Armitage. The oldest organ which remains in
 riginal condition is said to be that at Barnsbury Street
 gregational Chapel, Islington. A very fine and hand-
 e organ was also built by him for Walsall Church.
 instrument had to be repaired in 1726, and in 1772 it
 sold for the small sum of 12*l*. 10*s*. to a Walsall
 eman named Mr. George Hill, who built a room in his
 en for its reception. He afterwards sold it to the
 chwardens of Stowmarket, in Suffolk, for 50*l*, and it
 luty in the church there for many years afterwards.
 organ of St. Mary's, Warwick, was built in 1730 by
 mas Swarbrick.
 Half a century ago Birmingham possessed the second

largest organ in England; it was the splendid instrument
 erected at a cost of 2,000*l*. in the Broad Street Music Hall
 (now Prince of Wales Theatre), and afterwards purchased
 for St. Pancras Church, London.

AMERICAN ENGINEERING.

A CORRESPONDENT of the *New York Tribune* in London,
 in a recent letter wrote:—As an exiled American,
 very proud of my own country, yet discreet enough
 to prefer to have foreigners blow the trumpets for her,
 I have had a happy hour this week at the Institute of
 Civil Engineers, where Sir William White described in the
 handsome assembly hall the recent visit of the British
 delegation of engineers to the United States. The hall was
 crowded with members, and every tribute to American
 energy and hospitality was received with hearty applause;
 and when the great naval architect referred with admira-
 tion and enthusiasm to the marvels of engineering
 in and around New York it was fortunate that
 the lights were turned down, for the sake of the
 lantern slides, else I would have been betrayed in my
 place as a triumphant Yankee, exultant and unabashed.
 It was an informal and unpretentious record of the experi-
 ences and impressions of the British engineers who crossed
 the Atlantic last autumn and took an active part in the
 congress at St. Louis, after inspecting the subway, bridges,
 river tunnels, sky-scrapers and Croton Dam in Greater
 New York, and making flying excursions to Canada, Chicago
 and the Great Lakes; but the note of sincerity and good
 feeling vibrated through it, and every expression of grateful
 appreciation was caught up by the members, who knew
 how kindly their representatives had been received in
 America, and how much they had seen to inspire them
 with respect for the many mighty engineering works of
 their colleagues across the seas. Americans are in
 the habit of saying that Westminster Abbey, Shakespeare
 and all the noble traditions of English history and literature
 belong to them as much as to the insular Britons. These
 English engineers have learned that the converse is also
 true; that their own mechanic art has been carried to the

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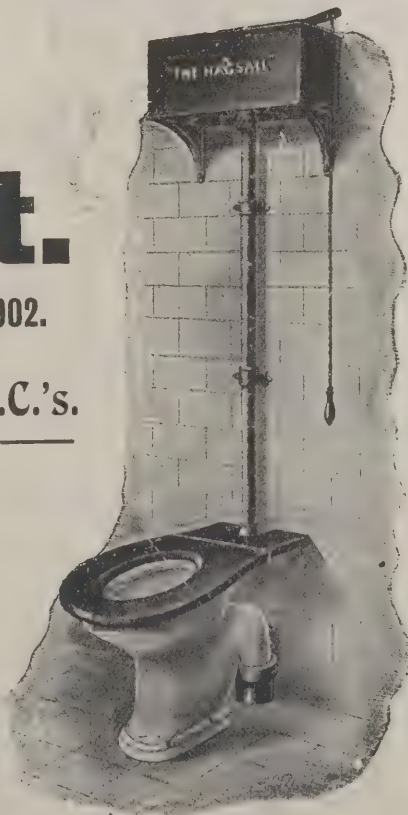
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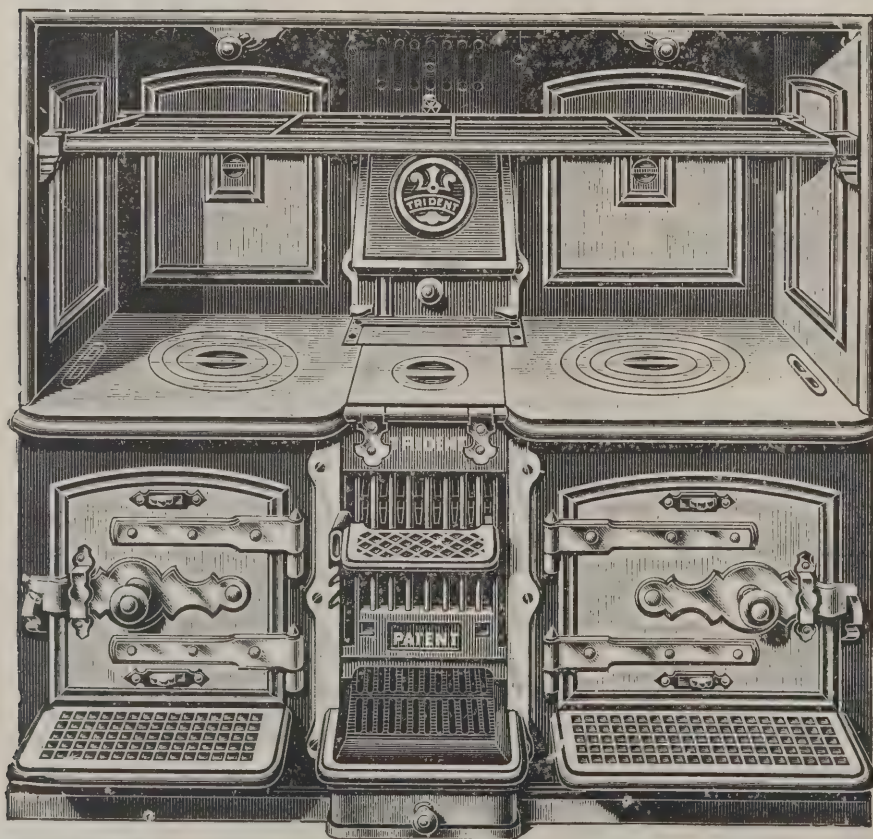
New World, and that they themselves have a rightful share in the marvels of invention, enterprise and progressive spirit which have been accomplished there. Certainly it is a poor rule that does not work both ways. If Americans are allowed "to read their title clear" to the storied abbeys, picturesque castles and literary monuments in England, they cannot object with reason if British engineers take pride in the costly works of New York and Chicago, the waterways of the Great Lake Basin, the utilisation of the power wasted at Niagara and Sault Ste. Marie, and all the other wonders of American and Canadian engineering science.

Sir William White, while not an orator, is a fluent speaker, with an engineer's trained talent for clearness of line, and a gift of his own for humorous comment and good-natured pleasantry. If his American and Canadian entertainers could have listened to his graceful acknowledgments of their hospitality and kindness they would have been well rewarded for the pains taken to enable the visiting engineers to see all the sights and to get an adequate idea of the stupendous energies of capital, municipalities, designers and inventors in working out the problems of a new world and the modern era of electric power. New Yorkers especially would have been highly gratified if they could have heard this running commentary upon the lantern slide illustrations of the subway, the great bridges over the East River, the tunnels under the North River, and the precautions taken to secure an abundant water supply for the American metropolis. All these great works he described with unrestrained enthusiasm, and as he counted their cost in millions he could hardly find words in which to express his wonderment over the faith of municipalities and the enterprise of Greater New York, where the genius of the engineers had overcome the obstacles of an unfavourable environment and enlarged the area available for a truly imperial centre of population. The sketches of the "sky-scrapers" were certainly less picturesque than Mr. Pennell's charming etchings at the New Gallery, and in some instances almost wantonly realistic; and while he gave an impressive account of the rapidity with which these mammoth structures were constructed, the enormous masses of capital invested in them, and the number of people earning a livelihood under a single roof—

10,000, for instance, in one of the largest Chicago buildings—he did not attempt to conceal his satisfaction that quaint time-worn London had remained behind the times. He was even more conservative in his description of the Brooklyn Navy Yard, for he was not prepared, as the director of construction for the Admiralty for a long period to admit that the old country had been surpassed in the resources of sea power; but his face lighted up with a fine glow of pleasurable reminiscence when he recalled his visit to West Point, the courtesies of General Mills and the beauty of the scenery on the Hudson.

There was no lack of enthusiasm when Sir William White recounted the marvels of Canadian progress, illustrated the enormous commerce of the Sault, described the new railways and waterways of the Dominion, paid glowing tribute to McGill University as one of the best equipped strongholds of modern learning, and displayed a fine series of pictures of Montreal, Ottawa, Quebec and Toronto. He explained how formidable a force Canadian energy had become when the improvement of the waterway north of the border was forcing the State of New York to undertake a new enlargement of the Erie Canal, and how winged a rapid flight among the sky-scrapers and storage elevators of Chicago, and finally swooped down upon St. Louis and the Exposition. Perhaps the most interesting passage of his address was his account of the new power generating works at Niagara, illustrated as it was with fine pictures on the screen, and containing an effective contrast between the first redskin who gazed with wonderment and awe at the majesty of the mighty cataract and the modern engineer who, while more sensitive to the scenic beauty of the flood in its onrush into the chasm, is chiefly concerned with the problem of wasted energy and the conversion of it into working power. The distance between the aboriginal and the electric engineer measured—in Sir William White's effective phrase—the entire sweep of the progress of civilisation. More eloquent than any purely literary phrase was the fraternal spirit in which this great designer of the British navy referred to everything that was progressive in the engineering work of Americans and Canadians. There was not a trace of what Emerson once described as the habit of condescension in the compliments and eulogies showered upon transatlantic engineers. Sir

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William White had risen to the high level of Anglo-Saxon brotherhood, and with unaffected simplicity and sincerity could speak without envy or jealousy of the wonderful achievements in engineering in America and Canada, and from his own heritage in the glory and renown of the English-speaking world.

BEAUTIFUL OLDHAM SOCIETY.

The Beautiful Oldham Society is an organisation whose very name shows that it possesses courage and optimism in an unusual degree. It has been ridiculed as a Society which appears to people possessing only an average share of hope to have attempted an impossible task. But in spite of early ridicule, says the *Manchester Guardian*, it is beginning to command respect for the work which it has already done. If it is impossible to make such a town as Oldham beautiful absolutely, the Society has shown that much may be done to brighten some of its dull places. The encouragement of tree-planting was from the first one of the main objects of the Society. Experiments were made in the garden of the president (Mrs. C. E. Lees) to find out what trees and shrubs could best endure the smoky atmosphere. The results were then made known to the public. Permission has been obtained to plant several new streets with trees, and the Society has induced the Corporation to undertake work of a similar character. It is found that the black poplar thrives very well at the sides of streets. With a view to inducing the working-class people to utilise the small plots of soil which are found in front of many of the cottages, the Society on Saturday procured a number of rooted slips of privet and golden elder, which were offered for sale at reasonable terms. There was not what might be called a "rush" for these plants, but the business done was regarded as satisfactory, considering the experimental nature of the effort. It is probable that the Society will have such a sale annually and institute a "tree-planting day."

The desirability of implanting in the minds of children a love of such objects of natural beauty as can be produced in a manufacturing town is fully recognised. School gardens have been instituted at a number of the public elementary schools. They are kept in condition by the scholars, who

have manifested a great interest in this work. Every spring a show of flowering bulbs is held. The prizes are so arranged that the majority of them are within the reach of children and cottagers who have grown the bulbs they exhibit. Thousands of school children are admitted to the show free, and so inspired with a desire to rear these beautiful flowers in their own homes. Then the Society is always on the look-out for desolate spots of vacant land. When it has found one and obtained the permission of the owner, the ugly place is transformed by shrubs. The railway company has been induced to have one or two unsightly embankments treated by the Society, and a number of small plots have been taken hold of. Perhaps the most interesting part of this work is the attempt to brighten slum courts. One court was found with an insanitary ashpit in its centre. The sympathies of the landlord were enlisted, the ashpit was removed, and in its place a little garden was made. The care of the garden was handed over to the boys of the court. The boys have been equal to the confidence placed in them and are taking a great pride in their garden. The owners of a number of mills have been induced to plant trees round their mill lodges. The grounds in which some of the churches and chapels stand have been found to be the reverse of ornamental, and the Society has induced the authorities to give them a better appearance. In these and a hundred other ways the Society works incessantly.

There seem to be no limits to the scope of its work. One of its objects is to promote better housing for the poor. Its members have investigated one or two slum areas and exposed the black spots through the public Press. As a result of this action some improvements have been made to property of the worst class. One of the latest, and certainly not the least needed, activities of the Society has been the gathering and publication of information on the subject of black smoke and its prevention. The advice of experts has been obtained on the question. Quite an astonishing amount of valuable knowledge has already been gathered, and the inquiry is still proceeding. The Society is telling manufacturers what kinds of coal are best to burn in their furnaces, how it is best to burn them, and how they may detect the coal merchant when he sends a coal of a quality inferior to that which was ordered.



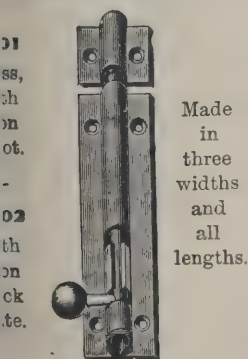
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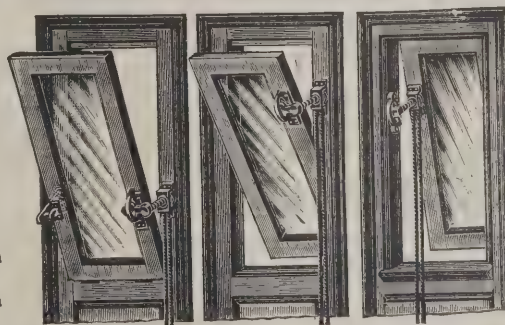


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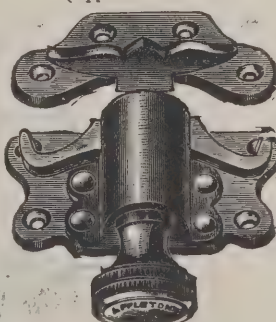
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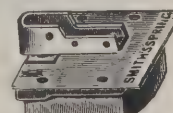
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If the Society has been ridiculed, it has also met with flattery in its sincerest form—imitation. Organisations with similar objects in view have been founded in several Lancashire and Yorkshire towns, and letters of inquiry and advice have been received from still more. The fame of the Society appears to have extended far, inquiries having come from places so remote as Newcastle.

INLAND WATERWAYS.

At a meeting of the Society of Engineers held at the Royal United Service Institution, Whitehall, on March 6, Mr. N. J. West, president, in the chair, a paper was read on "The Transport Possibilities of our Inland Navigable Waterways," by Mr. Benjamin H. Thwaite. The author commenced by observing that the creation of the inland located manufacturing industries of England and the development of our agricultural industry would have been impracticable but for the inland navigable waterways provided by our transformed rivers and canals, the inception of which he traced to King Henry I., and for the construction of which Parliamentary powers were obtained. Similar powers were obtained in increasing proportions up to 1793-4 when no fewer than thirty-eight Acts for the construction of navigable waterways or canals received royal sanction. He gave full credit to the important work of the Exeter Town Council in the construction of the Exeter canal. Generous recognition was also given to the work of the River Conservancy Boards initiated in the fifteenth century. To the work of the canal engineers, Brindley, Jessop, Telford, Vermuyden, Rennie and others, and the constructional efforts of the River Conservancy Boards, the author attributed England's possession of a magnificent system of water carriage by which the agricultural areas were connected with the manufacturing centres and the seaports, by which means the development of England's industries surpassed those of France and Spain. Even during the dark days of the Napoleonic wars, England was prosperous. Canal shares were highly valued,

but the work of Stephenson produced a rival that for many years led to the practical abandonment of public interest canals.

One of the effects of the railway boom in the forties during which no fewer than 272 Railway Acts were passed was to almost extinguish the interest of statesmen in canals, and Parliament by its indifference almost invited the policy of astute railway administrators in attempting to secure the control of the canals that were local traffic carriers and rivals. The author observed that as a result of that policy, the railway companies absorbed no fewer than fifty canals of more or less importance. The most serious feature of this was that it placed in the hands of the railway companies the power to determine canal rates for through traffic. The culminating effect of canal absorption, railway madness and Government indifference, was the depreciation of canal properties by many millions of pounds sterling, which, said the author, was equivalent to robbing the British people of the heritage of centuries of energy and enterprise in canal and navigable waterway construction.

The author went on to point out that modern statesmen and the public realised from the arguments advanced in favour of the Manchester Ship Canal in 1884-5 that the railway policy of obtaining canal control was entirely against the interests of the trading and industrial community, and, as a result, an Act of Parliament was passed in 1885 to check the canal control propensity. But the Act after a while was only an example of the *ex post facto* policy—it came too late. Some of the railway companies have altogether suppressed their canals, parts of which have been converted into railways. The Great Western Railway had relinquished its control over a group of canals, and under more sympathetic control the trade upon them was becoming prosperous.

A comparison was drawn by the author between the canal policies of the Governments of Germany, America and France, which was much to England's disadvantage. The waterways and railways of Germany were, he said, State-owned, and the Government was continually extending the lengths and carrying capacities of the canals. Owing as the German State did both systems, was a proof that canals were serviceable to the State, otherwise they would have been abandoned. But the author pointed out that

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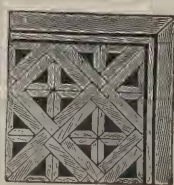
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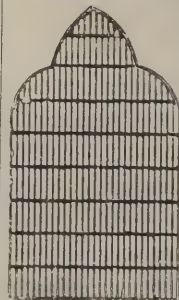
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was to be appropriated to their further development, which the railway rates were stated to be 25 to 50 per cent. lower than those of British railway companies. The Government had used the State-owned canals and the charges for transport of the privately owned railways, and the canals were maintained in a high efficiency.

The author set forth the *prima facie* economic advantages of carriage compared with those of railway transport in other countries. Even in comparison with the lowest railway rates, canal transit costs were stated to be lower, and it was said that the advantage would be increased by the electrification of the canals. Various methods of canal haulage were compared to the advantage of the electrification of the railways. According to the author, our existing navigable canals possess immense potentialities of good for the benefit of our agricultural and staple industries. He urged the Government to compulsory purchase on the basis of the value of the profits, and he gave credit to the Chamber of Commerce for its action in attempting to improve local and national canal efficiency.

PAINTERS' MATERIALS.

On "The Specifying of Painters' Materials" was a paper by Mr. J. Cruickshank Smith, B.Sc., before the Royal Society of Architects. Invitations were sent to architects of building and house-painting. Mr. Arthur Smith resided.

Mr. Smith, according to the *Aberdeen Journal*, disclaimed any intention of criticising architects or painters in their methods of specifying materials. His aim was to direct attention to important points of view from which the subject of painters' materials should be regarded, which appeared to escape common attention, and to endeavour also to bring into harmony the apparently antagonistic positions of architect, painter, and paint manufacturer. Were the present methods of specifying paints and kindred materials calculated to protect the individual who ultimately paid the cost, viz. the architect? The standpoints from which the question of materials might be approached were (1) the manufacturing or scientific standpoint, and (2) the standpoint of

the craftsman painter. Usually architects and engineers who specified or used paints had neither the exact scientific knowledge of the manufacturer nor the practical experience of the painter. This was to a great extent inevitable when one bore in mind the enormous scope and complexity of the knowledge required of the architect of to-day. Still, there appeared to be a supine or neglectful attitude on the part of many towards paint questions, which perhaps accounted somewhat for the lack of proper wording in the framing of paint specifications—the phraseology of which appeared to have remained practically unaltered for two generations at least. Mr. Smith read extracts from a recent paper by a well-known decorator, Mr. J. D. Crace, in support of this view. Mr. Crace advocated the standardising of workmanship or quality of work, and Mr. Smith laid stress on the necessity of drawing a clear distinction between that part of the specification which related to materials and that part which related to workmanship. This question of standardising workmanship was one, he said, which related more particularly to the craftsman, and might well form the subject of discussion and action in the distinctively painters' associations. After reference to the extent of the evil of scamping and its relation to the system of competitive trading and "cutting," the lecturer passed on to discuss present-day conditions in relation to the ordinary materials of the painters' craft, and showed that linseed oil, white lead, priming, knotting, copal varnish, &c., were terms with a very elastic meaning. He discussed in detail extracts from actual specifications and schedules, pointing out cases where these documents, as commonly worded, did not protect the person on whose behalf the architect was employed. Standardisation was also required in regard to the materials of the paint trade. At present terms and trade names and descriptions were used in a vague way and matters were little less than elastic. The old-fashioned rules were (1) to purchase your goods from a respectable house, and (2) to pay a good price for them—good advice, no doubt, but hardly sufficient for modern requirements. Mr. Smith then alluded to attempts made by large buyers of paints, corporations and the like, to protect themselves by buying to specification, and he pointed out how such a plan might defeat its object unless followed with prudence and technical knowledge. On the subject of

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protective paints, Mr. Smith gave some information. Recent researches in America, conducted by officials connected with some of the great railroads, had conclusively proved that, within certain limits, the chemical composition of the paint was not the prime factor that determined durability. It was the physical texture, or, to be more precise, the smallness in size of the particles, that was the essential point. Mr. Smith quoted details of actual experiments on this subject, and said that the practical result of the investigation was that durability and comparatively low cost were not incompatible. The lecturer went on to say that so far his arguments had been of the destructive order, and he might justly be asked what alterations he had to suggest on the wording which he condemned. He then discussed a number of points of interest to architects and painters alike, and indicated in what manner clauses dealing with various materials might be worded so as to meet modern conditions and protect those concerned against error or fraud. Concluding, Mr. Smith said the subject he had attempted to deal with was a very wide and complex one, and one that might be regarded from many points of view. He emphasised the growing need for the standardisation of paints, and more particularly the protective paints. He was pleased that interest in the subject had brought together such a large and representative audience, and he thanked them for their patient hearing.

The Chairman said he was sure he expressed the feelings of the audience when he said they had listened to a most interesting and instructive lecture.

Mr. Alexander Aitken, painter, said the lecture had been dealt with in a very comprehensive, lucid and racy manner. Regarding standardisation, he had always recognised the difficulty of the grading of specifications, and he thought that in Aberdeen they would be very happy to second any efforts in the direction of standardisation. He also referred to the prevailing competition, and said he should not be at all surprised if there were a reaction from this competition.

Mr. Williamson, president of the Master Painters' Association thought they were arriving at a time when the competition system should take a turn more in favour of the painter. Regarding Aberdeen, they were not far behind in specifying work, but he thought a great deal of fault lay with the workmen or at any rate with the master painter.

They were a great deal to blame for bad work. A thorough good tradesman would not do bad work, because he would look to his credit. It was really scandalous from an economic point of view that offers for a certain job should vary from 20s. to 120s. There must be something wrong both regards the material and the carrying out of the work.

Mr. William Kelly, architect, said that in his opinion the conclusion of the whole matter was that both for architects and for painters there should be something done in the way of education. He should like if in Aberdeen there were a technical college where architects and painters could go to know good material by examining it.

Mr. John Whyte, painter, remarked that he thought it was very necessary that proper inspection of work should be made by architects as the work proceeded. There should, he said, not a single architect in Aberdeen who gave no attention that was necessary to the inspection of painting, and that was the very first thing that would raise the price and help them to get on a right standard.

Mr. John Rust, city architect, said that in regard to the painter trade in Aberdeen, there was no doubt that the architects were in a very happy position. Mr. Whyte said that they did not look after the painterwork as they ought to do, but he might reply by saying that they had many good painters that the architects did not require to look after the work so carefully as they would otherwise have to do. He often thought that painters did not get enough money for the work they did, and he was satisfied that for about eight months of the year the painters' contracts were below cost price. He thought the painters should lay their heads together and try to get up a standard price, and if they got it up he was sure the architects would not want to crush them down. He thought they should raise their prices and not be so jealous of one another.

Councillor Latto proposed a vote of thanks to Mr. Smith for his lecture, and in the course of a few remarks pointed out that he thought the architects had a considerable amount of influence in the matter of contracts. When an architect saw an offer for a job at about half the price it should be, he thought it was the architect's duty to say to his customer that it was utterly impossible to buy the material at that price.

The vote was heartily awarded.

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EDITORIAL NOTICES.

In view of the many difficulties which are certain to arise in connection with the law, practice rules and procedure under the Workmen's Compensation Act, we have added to our staff A VERY EMINENT BARRISTER, who has made the subject a special study, and will be glad to answer in the columns of this paper any questions relating to the complicated matters arising from the provisions of this difficult Act. Our LEGAL ADVISER will further answer any legal question that may be of interest to our readers. All letters must be addressed "LEGAL ADVISER," Office of "The Architect," Imperial Buildings, Ludgate Circus, London, E.C.

The Editor will be glad to receive from Architects in London and the Provinces results of Competitions and Tenders and other particulars of Works in progress in which they may be interested.

TENDERS, ETC.

* * * As great disappointment is frequently expressed at the non-appearance of Contracts Open, Tenders, &c., it is particularly requested that information of this description be forwarded to the Office, Imperial Buildings, Ludgate Circus, London, E.C., not later than 2 P.M. on Thursdays.

COMPETITIONS OPEN.

COLCHESTER.—April 13.—For school in Mill Road, Mile End. Block plan to be obtained from Mr. C. E. Denton, Educational Offices, Colchester.

KING'S NORTON.—April 26.—For the erection of a public library in Church Hill, King's Norton.—Architects must be resident in King's Norton or practising in Birmingham. Particulars may be obtained from Mr. A. W. Cross, surveyor, 10 Newhall Street, Birmingham.

LAMBETH.—March 30.—For municipal buildings at Brixton Hill. Particulars from Mr. H. J. Smith, Town Hall, Kennington, S.E.

ROCHESTER.—May 15.—For the erection of a municipal technical institute at Rochester. Three premiums of 50, 20 and 10 guineas will be awarded. Copies of the instructions and a plan of the site can be had from Mr. W. Banks, surveyor, Guildhall, Rochester.

SWINDON.—April 14.—The education committee of the Town Council of Swindon propose to erect a public elementary school with accommodation for 840 scholars, and invite plans from architects. Mr. W. Seaton, Secretary to the Education Committee, Education Office, Town Hall, Swindon.

CONTRACTS OPEN.

ARMLEY.—March 20.—For the erection of new w.c.'s and urinal within the cemetery grounds. Mr. Harry Robertson, clerk, Cemetery, Hill Top, Armley, Leeds.

AUDENSHAW.—March 20.—For the whole of the works (except plumbers' work) in fourteen dwelling-houses at Audenshaw, Lancs; also for plumbing and glazing. Messrs. J. H. Burton & J. A. Percival, architects, 150A Stamford Street, Ashton-under-Lyne.

BARKISLAND.—March 18.—For rebuilding the Barkisland Mill bridge, Barkisland, near Halifax. The County Surveyor, County Hall, Wakefield.

BATLEY.—April 5.—For the masons', joiners', plumbers', plasterers', slaters', painters', heating engineers' and electrical engineers' work respectively in the erection of the Carnegie free library. Messrs. W. Hanstock & Son, architects, Branch Road, Batley.

BECKENHAM.—For the erection of semi-detached houses in Whitmore Road, Beckenham (Eden Park Building Estate). Messrs. J. Carter Jonas & Sons, Cambridge.

BECKENHAM.—March 20.—For the erection of two cottages for firemen in Westbourne Road, for the Beckenham Urban District Council. Mr. John A. Angell, surveyor.

BIRKENHEAD.—March 20.—For the erection of a children's cloak-room at the public baths, Livingstone Street. Mr. Charles Brownridge, borough engineer and surveyor, Town Hall, Birkenhead.

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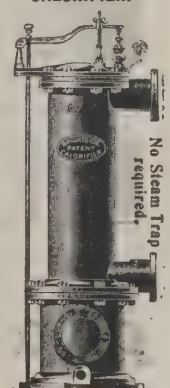
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BIRMINGHAM.—March 20.—For alterations to the female epileptic block at the infirmary, Dudley Road, Birmingham. Mr. W. H. Ward, architect, Paradise Street, Birmingham.

BIRMINGHAM.—March 20.—For erection of a fire station at Bordesley Green. Mr. John Price, city engineer and surveyor, the Council House, Birmingham.

BRENTWOOD.—April 1.—For the erection of a new mortuary building at the Essex County lunatic asylum, Brentwood. Mr. E. Whitmore, county architect, Duke Street, Chelmsford.

BURY ST. EDMUNDS.—March 18.—For the erection of a secondary school and pupil teachers' centre at Bury St. Edmunds for 210 scholars. The County Architect, Sudbury, Suffolk.

BURY.—March 20.—For new laundry, engine and boiler-houses, chimney, and setting of two Lancashire boilers, for the Guardians of Bury Union. Mr. Alfred Hopkinson, architect, 15 Agar Street, Bury, Lancs.

CAMBRIDGE.—March 18.—For additions and alterations on the female side at the Mill Road infirmary. Mr. John Congreve, clerk, 55 St. Andrew's Street, Cambridge.

CARDIFF.—April 6.—For the erection of a filter-house and meter-house at the Heath filter-beds, near Cardiff. Mr. C. H. Priestley, waterworks engineer, Town Hall, Cardiff.

CARLISLE.—March 20.—For the erection of a caretaker's lodge and boundary wall at the Robert Ferguson schools; Denton Street. Mr. Henry C. Marks, surveyor, 36 Fisher Street, Carlisle.

CASTLE EDEN.—March 18.—For the erection of new mixed and infants' schools at Horden Colliery Castle, Eden, Durham. Messrs. Clark & Moscrop, architects, Darlington.

CATCLIFFE.—For the erection of three houses at Catcliffe. Mr. J. P. Earle, architect, Norfolk Row, Sheffield.

CHESTER-LE-STREET.—March 18.—For the erection of an inspector's house and office, with cottage, at Chester-le-Street, Durham. Mr. Stephen Wilkinson, architect, 30 Mosley Street, Newcastle-on-Tyne.

CHIPPING NORTON.—March 21.—For the erection of a bridge at Chipping Norton Junction and the reconstruction

of a bridge at King's Sutton, for the Great Western Railway. The Engineer, Paddington Station, London.

COBHAM.—March 22.—For the erection of a laundry (fitted with certain appliances for hand-power only) at the isolation hospital, Whitehill Road, Cobham, near Gravesend. Mr. Archibald E. Loach, 8 Northcote Road, Strood.

CUDWORTH.—March 27.—For extension of the Cudworth engine-shed, for the Hull and Barnsley Railway Company. Mr. R. Pawley, engineer, 9 Charlotte Street, Hull.

DARTFORD.—For hot-water heating apparatus at Gort Farm upper hospital, near Dartford, Kent. Mr. W. T. Hatch, engineer-in-chief, Metropolitan Asylums Board, Embankment, London, E.C.

DERWENT.—March 27.—For the construction of the Grindleford to Rowsley section of the Derwent aqueduct, in the county of Derby. The work will comprise—tunnels, about $\frac{1}{2}$ mile; cut and cover, about 4 miles; 45-inch pipe-laying, about 4 $\frac{1}{4}$ miles, with valve-houses, stream crossings, &c. Mr. Edward Sandeman, engineer, Bamford, near Sheffield.

EGREMONT.—March 22.—For the conversion of buildings into two cottages at Egremont, Cumberland. Mr. James Cowan, surveyor, Egremont.

ENFIELD.—For Primitive Methodist assembly hall and classrooms at Bush Hill Park, Enfield, N. Messrs. Davidson & Phillipson, architects, 148 Aldersgate Street, London, E.C.

EXETER.—March 25.—For new parish institute for St. David's, Exeter. Mr. Harbottle Reed, architect, 12 Castle Street, Exeter.

GOOLE.—April 3.—For the erection of public swimming-baths in Pasture Road, Goole. Mr. E. Hazeldine Barber, surveyor, Council Offices, Goole.

GUILDFORD.—March 27.—For the erection of brick and concrete piers to carry a girder bridge across the mill stream at Rickford, with all hauling, hoisting, scaffolding and labour in connection with the erection of the bridge. Mr. John Anstee, engineer, Council Offices, Guildford.

GUISELEY.—March 18.—For the erection of a residence and stabling at Guiseley, Yorks. Messrs. Empsall & Clark, architects and surveyors, 7 Exchange, Bradford.

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HANWELL.—For the erection of a lecture-hall, &c., at Hanwell, Middlesex. Mr. W. G. Tutt, architect, 18 Ironmonger Lane, Cheapside.

HAVERFORDWEST.—March 22.—For alterations, additions and repairs at 22 High Street, Haverfordwest. Mr. D. Edward Thomas, architect, 17 Victoria Place, Haverfordwest.

HEREFORD.—March 31.—For the restoration of the tower of St. Peter's Church, Hereford, and other works. Messrs. Holson & Hartree, architects and surveyors, Hereford.

HERNE BAY.—March 31.—For the supply, installation and fixing in the town hall of a heating apparatus on the principle of the low-pressure hot-water system. Mr. W. J. Palmer, surveyor, Town Hall, Herne Bay.

HIPPERHOLME.—March 27.—For the erection of four houses, &c., at Whitehall, Hipperholme. Yorks. Mr. Raymond Berry, architect, Commercial Street, Halifax.

IDLE.—March 22.—For the erection of a pair of semi-detached villas at Idle, Bradford. Mr. J. Harper Baker, architect, Calverley Chambers, Victoria Square, Leeds.

IRELAND.—March 21.—For the erection of two public lavatories at Bangor. Mr. Ernest L. Woods, C.E., town surveyor, Town Hall, Bangor, co. Down.

IRELAND.—March 22.—For building a dwelling-house at Abbey. Messrs. W. H. Hill & Son, architects, 28 South Mall, Cork.

KINETON.—March 18.—For the erection of three cottages at Kineton, Warwick. Mr. E. G. Holton, architect, Henley Street, Stratford-upon-Avon.

LEEDS.—March 22.—For the erection of stabling and boundary wall at the Leeds Workpeople's Convalescent Home, Springfield, Horsforth. Mr. J. Harper Baker, architect, Calverley Chambers, Victoria Square, Leeds.

LEEDS.—March 23.—For the erection of new erecting shop in Dewsbury Road, Leeds. Mr. Stephen Ernest Smith, 12 South Parade, Leeds.

LONDON.—March 21.—For additional office accommodation at Paddington station, W., for the Great Western Railway Co. The Engineer, Paddington Station, London.

LONDON.—March 22.—For addition to stores and workshops at the Western Fever Hospital, Seagrave Road,

Fulham, S.W., for the Metropolitan Asylums Board. Mr. W. T. Hatch, engineer-in-chief, the office of the Board, Embankment, London.

LONDON.—March 28.—For (a) erection of artisans' dwellings at Magnolia Road, Strand-on-the-Green, Chiswick, and (b) street improvement works at Belmont Road, Chiswick. Mr. John Barclay, surveyor to the Council, Town Hall, Chiswick.

LONDON.—March 29.—For the erection of a receiving house for children in Acton Lane, Willesden, N.W. Mr. Alfred Saxon-Snell, architect, 22 Southampton Buildings, Chancery Lane, W.C.

LONDON.—March 29.—For the erection of a branch library in Lillie Road, for the Fulham Borough Council. Mr. Francis Wood, borough engineer and surveyor, Town Hall, Fulham, S.W.

LONDON.—March 30.—For the execution of alterations and additions to the medical superintendent's house at Southwark infirmary, East Dulwich Grove, S.E. Mr. G. D. Stevenson, architect, 13 and 14 King Street, E.C.

LONDON.—March 31.—For additions and alterations to the Alexandra schools, Western Road, Wood Green. Mr. C. J. Gunion, architect, Town Hall, Wood Green.

LONGPRESTON.—March 18.—For the erection of a two-storey warehouse in Longpreston, Clitheroe. Mr. Edmund T. Welch, surveyor and architect, 16 York Street, Clitheroe.

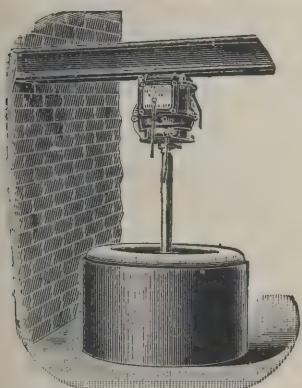
MAIDSTONE.—March 21.—For the reconstruction of the internal fittings of the Crown Court, Sessions House, Maidstone; also for heating and ventilation. The County Architect, 86 Week Street, Maidstone.

MANCHESTER.—March 22.—For the setting back of walls at the Wilbraham Road extension. The City Surveyor's Office, Town Hall, Manchester.

MANCHESTER.—March 27.—For alterations and additions to the Lloyd Street and Mulberry Street municipal schools, Hulme, Manchester. The Education Offices, Deansgate, Manchester.

MITCHAM.—April 4.—For the construction of a brick-built gasholder tank at Mitcham, Surrey. Mr. Benjamin Green, secretary and manager, the Works, Mitcham.

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MONK-BRETTON.—March 21.—For alterations to the Sun-inn, Monk-Bretton, near Barnsley. Messrs. R. & W. Dixon, architects, 5 Eastgate, Barnsley.

NELSON.—March 18.—For the erection of new club premises at Nelson, Lancs. Messrs. A. O. Evans, Williams & Evans, architects, Pontypridd.

NEWARK.—March 30.—For the erection of infectious and small-pox hospitals and appurtenant works in Barnby Road, Newark. Mr. George Sheppard, borough surveyor, Town Hall, Newark.

NORTHAMPTON.—For the work of widening and part rebuilding Blatherwycke Bridge, Mr. C. S. Morris, county surveyor, County Hall, Northampton.

NOTTINGHAM.—March 21.—For the erection of a wood-work centre at Shelton Street Council school. Mr. Frank B. Lewis, city architect, Guildhall, Nottingham.

OVENDEN.—March 28.—For the erection of pair of semi-detached villas on the Moor Lane building estate, Ovenden, Yorks. Mr. W. Clement Williams, architect, 29 Southgate, Halifax.

PISHILL.—March 24.—For making hospital, building nurses' room, &c., at Pishill, near Henley-on-Thames. Mr. C. Clements, surveyor, 36 Market Place, Henley-on-Thames.

PONTYPOOL.—March 21.—For the erection of a pair of semi-detached villas in the Station Field, Pontypool. Mr. D. J. Loughery, architect, Bank Chambers, Pontypool.

POOLE.—March 24.—For the erection of a new elementary school building in Wimborne Road, Poole. Mr. Walter Andrew, architect, Parkstone.

PORTSMOUTH.—March 28.—For constructing a new wing and an extension of the boundary wall at the infectious diseases hospital at Milton. The Borough Engineer's Offices, Town Hall, Portsmouth.

PURLEY.—For the erection of semi-detached houses at Purley, Surrey. Mr. Hampden W. Pratt, architect, 10 Serjeants' Inn, Fleet Street, E.C.

RADCLIFFE.—For additions and alterations to St. Thomas's schools, Radcliffe, Lancs. Messrs. James Sellers, Son & Orrell, architects and surveyors, Union Chambers, Bury.

RHOSTYLLEN.—March 31.—For the erection of a new chapel at Rhostyllen, near Wrexham. Mr. Samuel Thomas, High Street, Rhostyllen.

ROTHWELL.—March 20.—For the construction of new sewerage and sewage disposal works at Stourton. Mr. E. J. Silcock, engineer, Park Row, Leeds.

RUNCORN.—March 23.—For the construction of a steel trough bridge with concrete abutment in the Urban District of Runcorn. Mr. W. Hunter, chief engineer, 41 Spring Gardens, Manchester.

SCOTLAND.—March 20.—For the mason, carpenter, slater, plasterer and plumber's work of a villa to be erected in Methlick. Mr. James Cobban, architect, Haddo House.

SCOTLAND.—March 21.—For the mason, carpenter, plaster and slater's works of additions and alterations at the gasworks, Aberdeen, for the Town Council. Mr. Samuel Milne, Cotton Street, Aberdeen.

SCOTLAND.—March 31.—For the mason, carpenter, slater, plumber, plasterer, painter, glazier and bell-hanging works of an infectious diseases hospital to be erected in Alvie for the Inverness-shire County Council. Mr. Alexander Cattanach, architect, Kingussie.

SCOTLAND.—April 3.—For the erection of a new bridge constructed of steel girders and masonry over the river Bogie at Smithson, near Gartly. Mr. James Barron, engineer, Central Chambers, 216 Union Street, Aberdeen.

SHEFFIELD.—March 29.—For alterations and additions to the administrative block at the workhouse hospital, Fir Vale, Sheffield. Mr. H. I. Potter, 24 Norfolk Row, Sheffield.

SOUTH SHIELDS.—March 18.—For the erection of municipal buildings on the site in Westoe Road, South Shields. Mr. Ernest E. Fetch, architect, 26 John Street, Adelphi, London, W.C.

SPROWSTON.—March 23.—For the erection of Sprowston infants' school, Norfolk. Mr. Charles J. Brown, architect and surveyor, Cathedral Offices, The Close, Norwich.

STONEHAVEN.—March 21.—Offers for the work of extension of harbour in accordance with plans and specifications which may be seen at the office of the Clerk to the Trustees at Stonehaven, or with Mr. James Barron,

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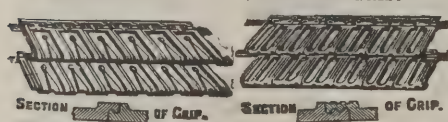
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SWANTON NOVERS.—March 24.—For alterations and additions to Swanton Novers school, Norfolk. Mr. Arthur J. Lacey, architect and surveyor, 6 Upper King Street, Norwich.

TEIGNMOUTH.—March 27.—For building a new police station at Teignmouth. Mr. E. H. Harbottle, county surveyor, Queen Street, Exeter.

TETBURY.—March 28.—For proposed alterations and additions to the workhouse, Tetbury, Glos. Mr. V. A. Lawson, architect, 17 Rowcroft, Stroud.

WALES.—March 18.—For the erection of a bungalow at Hutchins, Porthcawl. Messrs. Geo. F. Lambert & Son, architects, Bridgend.

WALES.—March 18.—For erection of a parish hall at Beaufort. Mr. H. Waters, architect, Beaufort.

WALES.—March 20.—For additions at the Maindy Council school, Cowbridge, Glamorgan. Mr. T. Mansel Franklin, clerk, Glamorgan County Offices, Westgate Street, Cardiff.

WALES.—March 20.—For the erection of a vicarage house and stabling at Maesteg, Glam. Messrs. Cook & Edwards, architects, Masonic Buildings, Bridgend.

WALES.—March 21.—For the erection and completion of seven villas at Maindy, Pentre, for the Maindy Building Club. Mr. W. D. Morgan, architect, Victoria Chambers, Pentre, Glam.

WALES.—March 22.—For building a chancel to the parish church, Abertillery, Mon. Mr. C. Telford Evans, architect, 8 Queen Street, Cardiff.

WALES.—March 23.—For the erection of a mixed and infants' school at Cwmcuffin, Llanhilleth, Mon. Messrs. Swash & Bain, architects, Midland Bank Chambers, Newport, Mon.

WALES.—March 24.—For rebuilding 91 High Street, Merthyr. Mr. C. M. Davies, 112 High Street, Merthyr.

WALES.—March 25.—For the erection of a new chapel-house and schoolroom, for the Nazareth C.M. chapel committee, Pontrug. Mr. Ellis F. White, architect, 27 Bangor Street, Carnarvon.

WALES.—March 25.—For the erection of about sixty-five cottages at Ynshir, for the Standard View Building Club. Messrs. Teather & Wilson, architects and surveyors, Andrews's Buildings, Queen Street, Cardiff.

WALES.—March 25.—For alterations and additions to the Ferndale Working Men's Conservative Club. The Secretary, 14 North Street, Ferndale.

WALES.—March 27.—For a surgery and dwelling-house at Park Place, Tredegar. Mr. W. S. Williams, architect, Tredegar.

WALES.—March 31.—For the erection of 90 to 100 houses at New Tredegar, for the Powell Duffryn Workmen's Building Society. Mr. Geo. Kenshole, architect and surveyor, Station Road, Bargoed.

WALES.—April 15.—For erection of a mixed school and the execution of works connected therewith at Abertaf, Abercynon. Mr. W. G. Thomas, architect, Public Offices, Mountain Ash.

WALLSEND.—March 20.—For the erection of a mortuary and urinal, Portugal Place, Wallsend. Mr. George Hollings, borough surveyor, Corporation Offices, Wallsend.

WASHINGTON.—March 24.—For Primitive Methodist school and vestry at Washington Station, Durham. Messrs. Davidson & Phillipson, architects, 32 Clayton Street West, Newcastle-on-Tyne.

WHITEHAVEN.—April 3.—For the erection of a public library. Mr. T. Brown, town clerk, Whitehaven.

WIDNES.—March 27.—For the enlargement of West Bank Council school. Mr. F. U. Holme, architect, Westminster Chambers, 1 Crosshall Street, Liverpool.

WINTON.—March 23.—For the erection of a chapel and vestries at Winton, near Bournemouth. Mr. T. E. Grimes, architect, 71 Talbot Road, Winton.

WORTLEY.—March 18.—For widening Wardsend Goit bridge, on the Sheffield and Halifax main road. County Surveyor, County Hall, Wakefield.

WREXHAM.—March 22.—For the construction of sewage disposal works, including settling tanks and percolating filters, formation of road, laying land, also 9-inch sewers, &c., for Acrefair, Cefn-Bychan and Newbridge, in the parish of Cefn, near Ruabon. Mr. J. Price Evans, Argyle Chambers, Wrexham.

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Pamphlet of particulars, containing over 50 shades of colours from
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TENDERS.

ABERYSTWYTH.

For completing nave and building a tower, &c., St. Michael's Church. Messrs. NICHOLSON & HARTREE, architects, Hereford.

Bastow & Co.	£7,808	7	11
Jenkins	7,300	7	6
Jones & Lewis	7,236	2	6
Owen	6,754	5	9
Cooke	6,636	11	10
J. & W. Edwards	6,392	3	6
Beaven & Hodges	6,347	6	8
Edwards Bros.	6,076	0	0
Treasure & Son	6,012	8	9
Bearne	5,977	3	9
Smith	5,949	0	0
HUMPHRYS & WILLIAMS, Aberystwyth (accepted)	5,762	14	9
Rathbone	5,643	17	6
Hopkins & Co.	5,132	0	0

ALVERSTOKE.

For drainage works and additional buildings at the children's home. Messrs. HOLMAN & GOODERHAM, architects.

Light & Son	£2,790	0	0
Gibbons	2,600	0	0
S. Kavanagh & Co.	2,465	18	9
Kimberley	2,373	0	0
Lear & Son	2,348	0	0
Dugan	2,268	16	0
Hunt	2,069	0	0
G. HUGHES, Wokingham (accepted)	1,941	4	11

BERKHAMPTSTEAD.

For house in Doctors' Commons Road. Messrs. C. H. & N. A. REW, architects.

Honour & Son	£692	0	0
NASH, YOUNG & HORNE (accepted)	662	0	0

BROMLEY.

For erection of a public library. Mr. EVELYN HELLICAR, architect. Quantities by Mr. STANGER.

	Library Complete.	Portland in lieu of Doultling.	Oak Wood Block Flooring in lieu of Maple.
Hammond & Son	£6,355	£160 0 0	£65 0 0
Hutchings	6,283	288 0 0	56 0 0
Crossley & Son	6,289	164 0 0	60 0 0
Ferguson & Co.	6,199	180 0 0	79 5 0
Quittenton	6,077	169 10 0	50 6 3
Lowe	6,049	161 0 0	58 0 0
Gann & Co.	5,879	396 0 0	50 0 0
Payne	5,871	142 0 0	120 0 0
Denne & Son	5,840	185 0 0	55 0 0
Podger & Sons	5,800	135 0 0	55 0 0
Bulled & Co.	5,756	325 0 0	69 0 0
Roome & Co.	5,750	150 0 0	50 0 0
Lonsdale	5,754	173 0 0	54 0 0
Shelbourne & Co.	5,743	135 0 0	57 0 0
Arnaud & Son	5,742	135 0 0	118 0 0
Perry Bros.	5,727	90 0 0	79 0 0
Nash	5,675	85 0 0	50 0 0
Holliday & Greenwood, Ltd.	5,654	131 10 0	55 0 0
Smith & Sons, Ltd.	5,555	100 0 0	64 0 0
Waring-White Building Co., Ltd.	5,514	130 2 3	64 12 9
Parnell & Son	5,457	224 10 0	60 0 0
Duthoit	5,453	161 0 0	52 0 0
Lawrence & Son	5,450	280 0 0	21 10 0
Wallis	5,399	152 0 0	51 0 0
Jones & Andrews	5,354	220 6 0	18 12 0
Bowman & Sons	5,327	290 0 0	19 0 0
Nightingale	5,290	197 0 0	56 0 0
Brightman	5,244	165 0 0	70 0 0
Renshaw	5,227	145 0 0	57 10 0
Norman & Burt	5,210	175 0 0	52 0 0
A. HUDSON & Co., Westminster (accepted)	4,990	265 0 0	57 10 0

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about 4,340 lineal yards of 9-inch pipes and 320 lineal yards of 24-inch pipes, manholes, and other works in connection therewith. Mr. JAMES ROWELL, engineer.

Fisher	£7,254	3	4
Sample	6,699	8	1
Johnson & Langley	6,538	12	6
Deane	5,242	10	4
Bower Bros.	4,801	1	8
Langley, Hardy & Johnson	4,738	0	0
LANGLEY & WESTMORELAND, Kirton (accepted)	4,373	0	0

CONWAY.

the construction of pumping station, for the Rural District Council. Mr. T. B. FARRINGTON, surveyor, Llandudno.

Underwood Bros.	£7,543	0	0
H. Hoberts	7,421	8	0
Westwood	7,321	11	4
Rowell & Sons	7,149	6	11
SHEFFIELD & EVANS, Rhyl (accepted)	6,669	12	6

DEPTFORD.

alterations and additions to Relief Office, Mary Ann's Buildings, Deptford, for the Guardians of Greenwich Union. Quantities by Mr. LOUIS JACOB, Globe Chambers, 493 New Cross Road, S.E.

J. & A. Oldman	£1,063	0	0
E. Mills	877	0	0
Holloway	847	0	0
Castle & Son	833	0	0
Gorham	829	0	0
Western	818	0	0
Martin	809	0	0
Staines & Son	795	0	0
Lawrence & Son	794	0	0
Hall Bros.	791	0	0
W. Mills	785	0	0
Groves	765	0	0
Peyton	750	0	0
Nash	727	0	0
Leng	694	0	0
Aldridge & Son	690	0	0

COBHAM.

For the erection of Sandroyd school, Cobham, Surrey, for Messrs. C. P. Wilson & W. M. Hornby. Messrs. TREADWELL & MARTIN, architects, Charing Cross House, 29A Charing Cross Road, London, W.C. Quantities by Mr. H. WILLIAMS MELLOR, 17 Buckingham Street, Adelphi, London, W.C.

Ashby Bros.	£20,034	0	0
Wm. Johnson & Co., Ltd.	18,950	0	0
F. & H. F. Higgs	18,790	0	0
Minter	18,529	0	0
Holliday & Greenwood, Ltd.	17,949	0	0
Martin, Wells & Co., Ltd.	17,300	0	0

DORCHESTER.

For new post office for the Commissioners of H.M. Works and Public Buildings.

			With Shamrock Stone.
Hoare & Sons	£8,768	0	0
Pethick Bros.	7,244	0	0
Merrick & Son	6,544	0	0
Jesty & Baker	6,228	12	0
Stevens & Co.	6,288	0	0
Wort & Way	6,199	0	0
Slade	6,177	0	0
Ham Hill & Doultling Stone Co., Ltd.	6,126	0	0
Wakeham Bros.	5,995	0	0
Mussellwhite & Sapp	5,990	0	0
Davis & Son	5,949	7	0
Bird & Pippard	5,850	0	0
Long & Sons	5,777	0	0
Pittard & Son	5,626	0	0
Lovell	5,625	0	0
East & Hyde	5,599	0	0
Colborne	5,494	0	0
J. W. & H. CHILDS (accepted)	5,407	0	0

HEMEL HEMPSTEAD.

For four houses and shcps. Messrs. C. H. & N. A. REW, architects.

E. Horn & Son	£2,420	0	0
Sear	2,410	0	0
J. HONOUR & SON (accepted)	2,095	0	0

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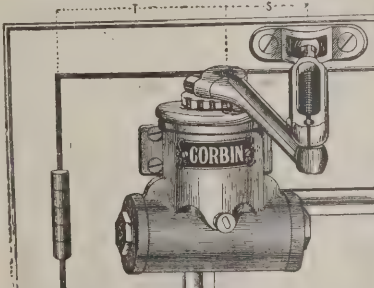
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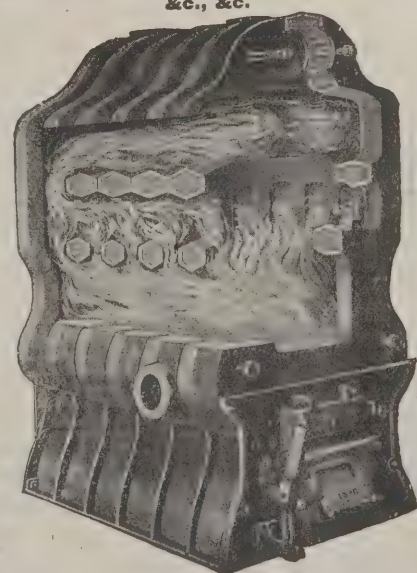
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GLAISDALE (YORKS).

For the erection of a pair of semi-detached villa residences.

Mr. EDWARD H. SMALES, architect, Whitby.

Kidd	£2,789	16	0
Fletcher	2,780	0	0
Coverdale & Longhorn	2,764	16	0
J. Brain & Sons	2,667	10	0
Harrison	2,484	15	0
Palframan	2,395	10	0
Porteous	2,325	9	7
R. HARLAND, Whitby (accepted)	2,228	13	0

LEYTON.

For erection of a shop. Mr. HERBERT RICHES, architect.

Courtney & Fairbairn	£1,959	0	0
F. & T. Thorne	1,853	0	0
Battley, Sons & Holness	1,843	0	0
Clemens Bros.	1,840	10	0
Todd & Newman	1,836	0	0
Sheffield Bros.	1,786	0	0
T. OSBORN & SONS (accepted)	1,783	0	0

LONDON.

For the erection of residential school for blind children at Elm Court, Norwood.

Holloway	£2,890	0	0
Enness Bros.	2,692	6	0
Ford	2,633	0	0
Lathey Bros.	2,577	0	0
Downs	2,569	0	0
Appleby & Son	2,458	0	0
Akers & Co.	2,403	0	0
J. & C. Bowyer	2,379	0	0
Spencer, Santo & Co.	2,369	0	0
Mitchell & Son	2,340	0	0
Johnson & Co.	2,278	11	9
Garrett & Son	2,268	0	0
Bulled & Co.	2,267	0	0
Triggs	2,250	0	0
Marsland & Sons.	2,224	0	0
Smith & Sons	2,211	0	0
Leng	2,174	0	0
Holliday & Greenwood	2,169	0	0

LONDON—continued.

For the formation of roads and sewers on Section C of the Totterdown Fields Estate, Tooting, for the London County Council.

Cunningham, Forbes & Co.	£9,224	11	8
Griffiths & Co., Ltd.	6,706	8	1
Muirhead, Greig & Matthews	6,602	13	11
Kavanagh & Co.	6,271	18	7
Mowlem & Co., Ltd.	6,255	0	0
Adams	6,136	9	11
Martin, Wells & Co., Ltd.	6,100	0	0
Truemall	6,668	0	0
Manders	6,012	14	0
Shepherd	5,803	7	0
Iles, jun.	5,433	0	0
Langley, Hardy & Johnson	5,411	0	0
Coxhead	4,781	0	0
O. T. GIBBONS, Leytonstone (accepted)	4,746	10	10

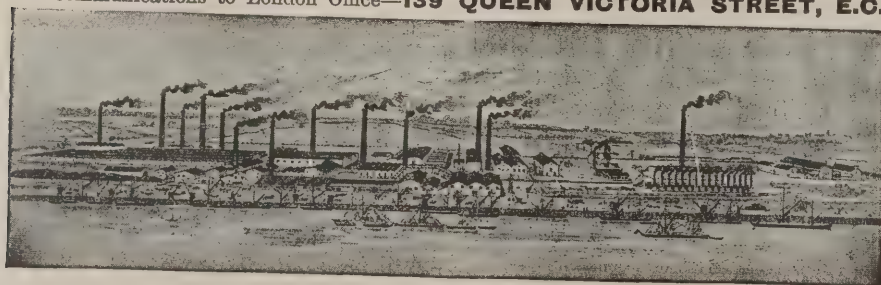
For the erection of school at Torridon Road, Lewisham.

Clarke & Bracey	£24,139	0	0
Holloway	22,607	0	0
Thomas & Edge	22,195	0	0
Wall	21,730	0	0
Killby & Gayford	21,723	0	0
Holloway Bros.	21,638	0	0
J. Smith & Sons	21,378	0	0
F. & H. F. Higgs	21,330	0	0
Lathey Bros.	21,310	0	0
Stimpson & Co.	21,260	0	0
Greenwood	21,253	0	0
E. Lawrance & Sons	21,138	0	0
Downs	20,960	0	0
J. & C. Bowyer	20,883	0	0
Patman & Fotheringham	20,733	0	0
W. Johnson & Co.	20,512	0	0
Kirk & Randall	20,475	0	0
Holliday & Greenwood	20,449	0	0
Marsland & Sons	20,248	0	0
Appleby & Son	20,120	0	0
Garrett & Son	19,971	0	0
J. & M. Patrick	19,719	0	0
Treasure & Son	19,438	0	0

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MARTOCK.

For the laying of about 4,500 yards of 12-inch, 9-inch and 6-inch sewer, and for the construction of sewage purification works and other works in connection therewith, for the Yeovil Rural District Council. Mr. A. J. MARTIN, engineer, Westminster.

Shaddock	£8,993	16	7
Grounds & Newton	8,394	3	11
Neal	6,963	0	0
Colborne	6,930	4	3
Wimpey & Co.	6,858	0	0
Jesty & Baker	6,764	17	8
Thatcher Bros.	6,763	18	11
Wright & Son	6,729	13	5
Pike	6,429	9	3
Bell	6,290	0	0
Steer & Pearce	6,196	16	0
Bird & Pippard	6,190	0	0
Sparrow	6,180	0	0
Free & Co.	6,163	19	9
Rutter	6,116	4	4
Muirhead, Greig & Matthews	6,090	11	0
J. Riley	5,978	16	6
Woodman & Son	5,972	0	0
Morse	3,876	4	6
H. J. Yandell & Sons	5,540	17	0
SMITH & Co., Walthamstow (accepted)	5,382	15	0

NEWCASTLE-UNDER-LYME.

For carrying-out sewerage works (Contract No. 3). Messrs. WILLCOX & RAIKES, engineers, Birmingham.

Rogers & Wood	£5,460	0	0
Cruwys & Hobrough	3,494	16	3
H. Roberts	3,089	2	0
Sanders & Torrance	2,682	19	0
Relly	2,666	0	0
Williams	2,650	0	0
Meredith	2,535	0	0
S. Wilton, jun.	2,467	14	0
J. Owens	2,449	0	0
Nevitt	2,447	16	0
Barke	2,260	0	0
SMITH & TAYLOR, Stoke-on-Trent (accepted)	2,040	13	2

NEWARK.

For additions to Coddington Manor. Mr. FAIRFAX B. WADE, architect.

Barker & Son	£3,249	0	0
Baines	2,618	0	0
Collins & Godfrey	2,586	0	0
G. Brown & Son	2,335	0	0
W. Smith	2,298	0	0

REIGATE.

For entrance lodge, vagrant wards, receiving wards, workshops, mortuary and alterations to existing buildings at the workhouse. Mr. E. PENFOLD, architect. Quantities by Messrs. LEANING & SONS.

Dean & Co.	£17,580	0	0
Lovatt, Ltd.	16,937	0	0
Cropley Bros.	16,483	0	0
Smith & Sons	16,420	0	0
Bushby & Sons	16,057	0	0
Martin	15,946	0	0
Minter	15,649	0	0
Turtle & Appleton	15,286	0	0
Lindfield & Son	15,257	0	6
Potter Bros.	15,080	0	0
Kingerlee & Son	15,052	0	0
Grace & Marsh	15,006	0	0
Gough & Co.	14,958	0	0
Holliday & Greenwood	14,919	0	0
Longley & Co.	14,919	0	0
Wallis	14,727	0	0
Goddard & Sons	14,418	0	0
Akers & Co.	14,324	0	0
Smith & Sons	13,925	0	0
Amos	13,820	0	0
Martin, Wells & Co.	13,775	0	0
Pink	13,634	0	0
Norman & Burt	13,558	0	0
Samuel, Page & Son	13,538	0	0

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REIGATE—*continued*.

For additions to Reigate grammar school. Mr. E. PENFOLD, architect.

Wiles	£7,561	0	0
Bushby & Son	7,559	0	0
King & Son	7,534	0	0
Buckland & Waters	7,480	0	0
Longley & Co.	7,398	0	0
Cummins & Sons	7,239	0	0
Hodge & Son	7,163	0	0
Pink	6,983	17	2
Jeal	6,637	0	0

REDHILL.

For the erection of children's homes. Mr. E. PENFOLD, architect.

Apted	£3,444	0	0
Cummins & Sons	3,342	0	0
Waycott	3,163	12	0
Parsons	3,010	0	0
Childs	3,000	0	0
Wickman	2,923	16	0
Nightingale	2,973	0	0
Jeal	2,945	0	0
Martin	2,784	0	0
Hodge & Son	2,632	0	0
Elsey & Sons	2,625	0	0

SHREWSBURY.

For concrete foundations and brick superstructure to water-tank at electricity works. Messrs. DEAKIN, architects. Mr. C. M. JOHNSTON, engineer.

Phillips	£596	12	0
Treasure & Sons	512	0	0
Morris & Sons	463	0	0
Wilding	460	0	0
Roberts	453	19	0
Buttock	427	0	0
Bickerston	422	0	0
H. PRICE, Shrewsbury (<i>accepted</i>)	419	0	0

WEYMOUTH.

For the erection of post office, for the Commissioners of H.M. Works and Public Buildings.

Hoare & Sons	£10,440	0	0
Merrick & Son	8,975	0	0
Baith & Co.	8,838	0	0
Wakeham Bros.	8,450	0	0
Ham Hill and Doulton Stone Co., Ltd.	8,365	1	0
Roberts	8,345	0	0
Conway	8,336	0	0
Pittard & Son	8,321	0	0
S. Bastow & Co., Ltd.	7,998	0	0
H. M. Patrick	7,929	0	0
Jesty & Baker	7,926	18	9
Pethick Bros.	7,709	0	0
C. Wall, Ltd.	7,330	0	0
A. J. COLBORNE (<i>accepted</i>)	7,170	14	0

WALES.

For the erection of chapel and schoolroom at Maesycwmmmer.

Mr. R. L. ROBERTS, architect, Abercarn.

Lewis	£2,669	0	0
Jones	2,570	0	0
Spratt	2,520	0	0
Hamilton & Millard	2,405	0	0
Jones Bros.	2,347	10	0
Rees	2,295	0	0
Lewis	2,289	0	0
Partridge	2,280	0	0
Lloyd	2,245	0	0
Jenkins	2,230	0	0
Williams	2,195	0	0
Morgan	2,170	0	0
Harding	2,155	14	0
Vodden & Lee	2,122	7	3
James	2,120	0	0
Phillips	2,110	6	0
W. YEO, Fleur-de-lis (<i>accepted</i>)	2,011	15	11

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PAINT.****FOR PRACTICAL WORK,
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10 HOURS, and GRADUALLY
HARDENS.****RED LABEL FOR OUT-
SIDE, DRIES IN ABOUT
15 HOURS ACCORDING TO
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WARWICK.

For water-supply works. Messrs. WILLCOX & RAIKES, engineers.

Contract No. 1.—Sinking well 20 feet deep.

Price	£545	5	0
Lines	540	8	0
Law	527	0	0
Timmins & Sons	446	9	6
Vale & Sons, Ltd.	433	9	9
Danson	391	2	6
J. RILEY, Cheltenham (accepted)	289	15	2

Received too late for classification.

BARNESLEY.

For additions to the small-pox hospital.

Accepted tenders.

Hawley, carpenter and joiner.	£275	12	6
Snowden & Sons, ironwork	87	10	0
Snowden & Sons, painter	15	0	0

ILFORD.

For the erection of a central fire station in Ley Street, Ilford.
F. & A. Willmott £6,627 0 0

NEW CATALOGUES.

THE establishment of Merryweather & Sons can claim to have a history. It is only necessary to look at the representations of old types of their wind-engines, which appear in their latest catalogue, to realise that the evolution

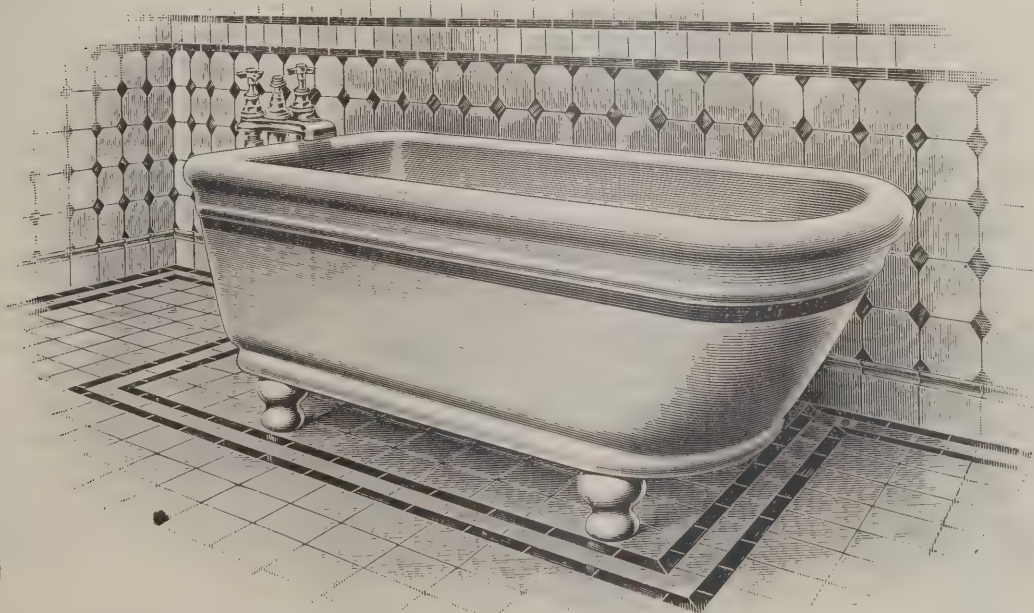
of their windmill for domestic and other water supply was commenced a great many years ago, and that the improvements are their own creation. A more inexpensive power than is obtainable by their machinery cannot be devised. They have brought the experience gained during a long period to the perfecting of their windmills, which are examples of scientific construction. There are several varieties shown in the catalogue, but we advise those who are desirous of employing one of the pumping engines to enter into communication with the consulting department of the firm, where experts are to be found who are acquainted not only with Great Britain, but with many parts of the world. It would have been fortunate for the owners of several famous English mansions if they had adopted that course, for they would have preserved invaluable treasures.

THE Teale Fireplace Co. have issued new editions of their illustrated catalogues, which relate not only to the grate, which has proved its merits, but to various other apparatus.

THE Glasgow Corporation announce that the new wiring rules in connection with their electricity supply will come into force on May 1. The principal alteration in the new issue of the wiring rules is that dealing with the bonding and earthing of metal sheathed conductors and metal tubes and conduits. The Corporation now most distinctly insist that all metal tubes into which insulated electric light wires are pulled must be connected together by means of properly screwed sleeves or couplings, or securely soldered together so as to form a permanently continuous conductor from end to end of the system. Also, where iron pipes are used for protecting insulated electric conductors, it is necessary always to keep these iron pipes clear of gas pipes by means of a distance-piece, and special attention is drawn to the fact that this distance-piece is always fixed securely in position. There is a slight addition to the rule concerning the insulation of paper and jute-covered cables, and the undue use of flexible on installations is discouraged. Bare terminals on motors and accessories connected therewith are also prohibited, and these must be covered in some way.

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BUILDING AND BUILDERS.

THE Runcorn education committee have resolved to build a two-storeyed school to accommodate 300 girls and 300 boys. Mr. James Wilding, surveyor to the Urban Council, has been appointed architect to prepare plans at a commission of 5 per cent. to include supervision.

THE Cardiff public works committee recently discussed the question of what local stone should be used in Cardiff side streets for surface dressing, &c., a sub-committee having visited a number of quarries. Considerable diversity of opinion existed. It was finally resolved that a list be formed of the various quarries from which stone can be bought, leaving to the discretion of the borough engineer the amount to be obtained from each quarry.

THE Battersea town hall estate, consisting of municipal workmen's dwellings, was inaugurated on the 11th inst. The houses are in the form of self-contained flats and give accommodation for thirty-six families. The erection was carried out by the works department of the Borough Council for 10,673*l*. The rents charged range from 6*s*. 6*d*. to 8*s*. 6*d*. per week. Each house is wired for electric light and includes a bath-room.

SCOTCH quarrymasters have decided to form an association, the objects being the benefit and protection of the slate trade generally. The quarries represented at the meeting last week in Glasgow were Ballachulish slate quarries, Easdale slate quarries, the Brecklet slate quarries, Balvicar slate quarries, Cullipool slate quarries, Breadalbane slate quarries, Belnahua slate quarries, Aberfoyle slate quarries, Craiglea slate quarries, Perth and Port Mary slate quarries.

THE foundation-stone laying ceremony of the Baptist church and schools, St. Andrew's Street, Rugby, was held on March 15. The block occupies one of the most prominent sites in the town, and is faced externally in red brick, the dressings being in Bath stone. A bold tower forms a prominent feature. The church will accommodate about 760 persons and the school over 800. The contract is let to Messrs. Linnell & Son, of Rugby, and amounts to £5,881 8*s*. 3*d*. The architects are Messrs. George Baines, F.R.I.B.A., & R. Palmer Baines, 5 Clement's Inn, Strand, London, W.C.

In future all repairs to barracks are to be carried out by the Royal Engineers instead of by contractors. Regimental workshops are to be opened, where sappers will form the staff, assisted by tradesmen from the infantry and ex-soldiers and reservists. In each command a surveyor's office will be established, and also an inspecting division, Royal Engineers. Each command will carry out its own repairs for estimates which individually are under 2,000*l*. The present division officers of the Royal Engineers and many of the civil assistants will cease to be employed.

THE seventh International Housing Congress will be held at Liège, Belgium, from August 7 to 10 next, in connection with the Universal and International Exhibition, under the presidency of the Director-general of the National Savings' Bank of Belgium. A special competition will take place in connection with the construction of workmen's dwellings—not in building materials. Twenty-five houses of different types are to be erected by building societies, industrial dwelling societies, &c., and these houses will be adopted as actual dwelling-houses after the exhibition has closed. The following subjects will be considered by the International Congress:—The action of national and local authorities in regard to the better housing of the working classes, and specially the housing of the poorest poor; the effect of local taxes and duties upon the rents of dwellings; the laws regarding sanitary inspection in various countries; the power of individual citizens to secure the better administration of the law; the better planning of all new housing areas—building on cleared sites, suburban developments, garden cities; consideration of the housing question in relation to public hygiene, public economy and social life; methods by which the more artistic designing of workmen's dwellings can be secured without a great increase in the cost; the value of workmen's gardens and allotments; legislation in various countries; the results obtained therefrom.

It is proposed to rebuild Steinway Hall and provide a new room designed to accommodate an audience numbering from 800 to 1,000 people, and containing a platform sufficiently large for a full orchestra.

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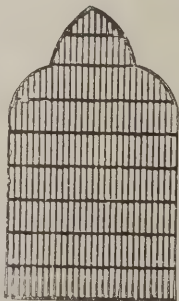


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They also invite the particular attention of the trade to their IMPERIAL PATENT BLIND LINES, which are very superior to anything yet offered.

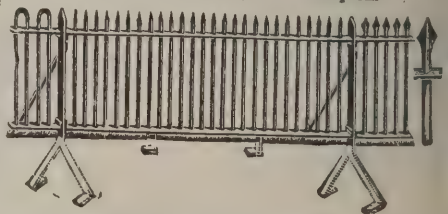
They can be obtained of all Rope-makers, Ironmongers, Merchants, Factors and Wholesale Houses in town and country. N.B.—Please note that all our goods, as advertised above, are labelled either inside or outside with our Trade Mark—"The Anchor."

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RAILING, GATES, &c.

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FULL LIST, and dates when they appeared
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published on Application to The Publisher.

b VARIETIES.

H. R. H. PRINCE FERDINAND OF BULGARIA honoured Messrs. Winsor & Newton's establishment in Rathbone Place, Oxford Street, with a visit during his stay in England.

CHELSEA town hall is to be extended at a cost of about 18,000*l.*, according to the designs of Mr. Leonard Stokes.

THE cleaning and lighting committee of Edinburgh Town Council recommend that 1,950 of the present gas-lamps should be converted into incandescent gas-lamps during the incoming financial year.

THE cost of painting the fences, covered and open seats, &c., upon King's Road, Junction Road and Marine Parade, Brighton, is estimated, by the borough surveyor at about 425*l.*

THE Swansea Harbour Trustees contemplate issuing stock amounting to 500,000*l.* to meet the cost of carrying on the construction of the new dock. It is believed that the present state of the money market is favourable to such issue.

THE King's Norton Urban District Council will apply to the Local Government Board for sanction to borrow an additional 1,000*l.* for the purposes of baths at Selly Oak. This increases the total amount of the application from 12,000*l.* to 13,000*l.*

THE Canadian Government has decided to instal in the cities of Toronto and Montréal an improved pneumatic tube system for the transmission of mails. The tube to be employed will be 10 inches in diameter. The system employed by the American Pneumatic Service Co. will be introduced.

THE Liverpool City Council will apply to the Local Government Board for a loan of 26,000*l.* in connection with a scheme for the erection of public baths and washhouses in Speke Road, Garston. The baths committee will, however, be instructed not to expend more than 15,000*l.* on the proposed baths without the sanction of the Council.

TENDERS have been received from contractors for the extension of the waterworks at Port Ellen, Islay, but the committee have delayed acceptance pending the result of the report of Mr. Hogg, of Messrs. Crouch & Hogg, C.E., Glasgow, who has been appointed by the Local Government Board to report on the scheme.

THE Russian Government has ordered a project to be drawn up for the construction of a canal to connect the Volga with the Caspian Sea, and to be cut independently of the delta. The estimated cost of the work is 1,170,000*l.*, but its execution will depend on the result of the war in the Far East.

As a protection of the sea banks and cliffs at Tynemouth against erosion it is proposed to instruct the borough surveyor to prepare a general plan of a sea-wall, including a low-level promenade and carriage road from the North Pier to the south end of the Long Sands, together with approximate estimates of the cost in separate sections.

THE Great Western Railway Company are rendering a service to travellers by supplementing the lines of railway by motor-car services. In the summer the cars will pass through some of the most picturesque districts in the South of England. The carriages are of a superior kind, and the enterprise is one which is quite in the spirit of I. K. Brunel, who made the Great Western the most comfortable of all railway lines for travellers.

THE Dartford Town Council have raised a loan of 93,000*l.*, at 4½ per cent., for the construction of the tram ways. Messrs. A. J. White, Ltd., when they have completed their contract, will take a lease of the undertaking, tenable at the option of the Council at the end of five, ten, or fifteen years. Under the lease the Council is to receive a payment equivalent to the interest and annual repayment of capital, and 20 per cent. of the surplus profits.

THE waterworks committee of the Leeds Corporation on the 14th inst. reduced the fifty-eight candidates for the appointment of waterworks engineer to four, for which the salary offered is 1,000*l.* The names are:—Mr. E. F. McCullough, waterworks engineer, Belfast; Mr. C. J. Batley, waterworks engineer, Oldham; Mr. W. Ratcliffe Barnett, engineer in connection with the Thirlmere waterworks scheme, Manchester; and Mr. Charles G. Henzell, resident engineer at the Catcleugh reservoir, Newcastle-on-Tyne.

THE finance committee of the Burnley Corporation recommend a municipal rate of 5*s.* 10*d.* in the pound, the same as last year. The estimates show a prospective loss of 4,000*l.* on the tramways, but the tramways com-

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STYLES.**

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LIBERAL TERMS
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mittee contend that with a reasonable charge for traction by the electricity committee the trams could be made to meet expenses and depreciation without any call upon the rates. The poor-rate will be increased 2d., so that the total rates will be 7s. 2d. in the pound, as compared with 7s. last year.

THE Chilean Congress have passed an Act authorising the construction of harbour works, at Valparaiso. The President of the Republic is empowered, for the term of two years, to enter into a contract for the construction of the works. Tenders are to be called for with at least one year's notice, and the cost is not to exceed 2,500,000/. The State may, however, put an end to the contract at any time by paying the still unpaid portion of the contract price with 10 per cent. added.

THE Eastern district committee of the Stirling County Council have approved of the plans and estimates for the reconstruction of the road bridge over the river Carron at Carron Ironworks. The plans showed a bridge 40 feet in width and 6 feet lower than the present bridge, the increased width being obtained by taking in the old waggon road immediately adjoining and connected with the bridge, and which the Carron Company had agreed to give free of charge. It was stated that the foundations of the present bridge could be utilised, and it was estimated that the cost of the reconstruction would be about 3,700/.

THE deepest mining shaft has been sunk to a little more than a mile in Cape Colony, and the deepest borehole has reached about the same depth in Silesia. It is said that there should be no insurmountable difficulties in carrying a shaft down twelve miles. An approximate estimate has shown that to reach a depth of two miles the cost would be 500,000/. Ten years would be required, and a rock temperature of 122 degs. Fahr. would be found; while to penetrate twelve miles would cost 5,000,000/. and would take eighty-five years, the rock temperature expected being 272 degs. Fahr.

THE Wolverhampton Board of Guardians were informed by the clerk at their last meeting that they had already borrowed from the Public Works Loan Commissioners 175,000/. for the new workhouse, but that body refused to lend them any more. The committee had negotiated with

the Ecclesiastical Commissioners, who required 3½ per cent. for a loan of 25,000/. The Board was 15,000/. overdrawn on the treasurer, and the architect had signed a certificate for a further 13,000/. due to the contractor for the new workhouse. It was decided to again approach the Ecclesiastical Commissioners with the view of obtaining their lowest rate of interest, as the matter is of serious importance to the ratepayers, the percentage asked for being in excess of other loans.

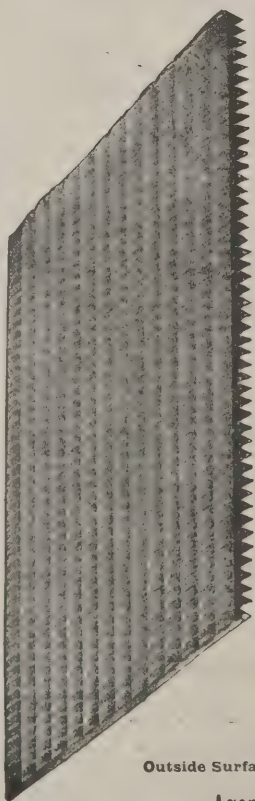
THE chief officer of the Glasgow Fire Brigade, in his report for 1904, estimates the total loss from fires within the city was 101,500/, which was less than half the estimated amount of the previous year. The malicious calls rung in from street fire-alarms showed the gratifying decrease of forty-five, the total recorded being thirty-three. In five cases street alarms failed to act, but the system had been well maintained and all faults promptly remedied. Fires due to defective building construction still bulked largely in the "causes" table, no fewer than 301, or 40.78 per cent., of the total within the city being due to this cause, thirteen only of these occurring in buildings erected since the passing of the Building Regulations Act, 1892. This percentage of fires caused by defective construction was the highest recorded during the past twenty years.

THE Borough Surveyor of Pontefract, in a letter to the Pulsometer Engineering Company respecting the breakdown at Roall Waterworks, says "the duplicate set of pumps both broke down within three days, causing what might have been a serious water famine in this district. Thanks, however, to the adaptability of the pulsometer, and the provision made by the Pulsometer Engineering Company, Limited, for meeting emergencies of the description, we were enabled—although the pumping station is five miles from a town—to have a complete temporary set of pumps at work in under fifty hours, thus averting a catastrophe. A larger pulsometer set was fixed a day or two later, and this efficiently maintained the water supply for over three weeks during the time the broken pumps were undergoing repairs."

THE housing of the working classes committee of the London County Council report that working-class dwellings, containing accommodation for 31,011 persons, have now been provided by the Council, and that in addition blocks

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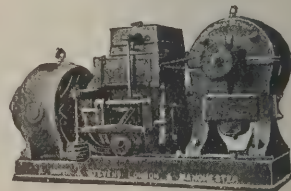
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of dwellings capable of accommodating 912 persons are almost ready for occupation. The gross rental receivable from the dwellings amounts approximately to 118,000*l.* per annum. The income from all the dwellings has hitherto been sufficient to meet all outgoings after making full provision for repairs and renewals, charging interest on capital outlay, and setting aside a sinking fund sufficient to replace the whole of the capital outlay within a period of sixty years. During the year ended March 1904 the interest and sinking fund charges amounted to 46,832*l.* The accumulation in the sinking fund amounted at the same date to 45,225*l.*, while a sum of 18,095*l.* stood to the credit of the repairs and renewals account, after paying for all repairs required up to date. All these charges have been met out of revenue from the dwellings.

A BILL to provide for the establishment of wages boards has been presented by Sir Charles Dilke, and supported by Messrs. Bell, John Burns, M'Kenna, Tennant and Trevelyan. The object of the measure is to provide for the establishment of wages boards, with power to fix a minimum rate of wages to be paid to workers in particular trades. It is left to the Home Secretary to say for what trades wages boards are to be appointed, so that, at all events in the first instance, wages boards need be appointed only for what are known as the "sweated industries," that is, industries in which outworkers are largely employed, and in which the rate of remuneration is low. A wages board will have power, if they think fit, to fix a minimum rate for any single kind of work or for any single class of workers in a particular trade. They will have the widest discretion as to fixing a time rate or a piecework rate, and as to varying the minimum according to the kind of work and class of persons employed. The Bill provides that a wages board shall be composed of representatives of employers and representatives of employed in equal numbers, with a chairman chosen by the members or nominated by the Home Secretary. It is proposed to entrust the enforcement of the payment of the minimum rate to factory inspectors.

The expenditure of 5,295*l.* on extensions at the municipal electrical works, Shrewsbury, has been sanctioned.

ELECTRIC NOTES.

An English syndicate has secured control of the Montreal Light and Power Company, which has a practical monopoly of the electrical power supply of Montreal, by the purchase of 20,000 shares of the Corporation stock, which gives them a majority holding.

THE Board of Trade have adopted the recommendations of their inspector, Colonel Von Donop, on the question of the distances at which the tramcars should be apart when running in Manchester. The cars in the central parts of the city may approach each other very closely. In the outer districts a distance of 25 yards is to be maintained.

THE ratepayers of Torquay have by a public poll expressed disapproval of the raising of a loan by the Town Council amounting to 42,000*l.* for a new electric-lighting and power station. A Local Government Board inquiry into the application took place some weeks ago. There were 5,069 votes against the project and 416 in favour of it.

THE Sheffield Corporation Electric Supply Department have fixed a new high candle-power arc lamp as a trial at the corner of Surrey Street and Pinstone Street, in front of the town hall. This lamp consumes only the same energy as the other lamps round the town hall, but in comparison gives a brilliant light. The same class of lamp is used round the Mansion House in London with great success.

THE Ormskirk Urban Council have adopted an electric-lighting scheme for the town at a cost of about 20,000*l.*, which sum, however, includes the provision of a refuse destructor to be worked in conjunction with the scheme. The Council have entered into a provisional agreement with the London Electrical Construction Company to carry out the works.

THE electricity committee of Glasgow Corporation recommend the appointment of Mr. W. W. Lackie, chief assistant, to succeed Mr. W. A. Chamen as chief engineer and manager of the electricity department at a salary of 800*l.*, to rise to 1,000*l.* It has also been agreed to recommend that Mr. Archibald Page, superintendent of the generating stations and sub-stations of the electricity department, be appointed chief assistant, in succession to Mr. Lackie, at a salary of 500*l.*

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ESTABLISHED OVER 200 YEARS.

The lighting of many of the streets of Dalkeith by electricity was inaugurated on the 11th inst. The private lighting was turned on twelve months ago. The installation of the Electric Supply Corporation consists of twenty-seven 10-ampere arc lamps, which are arranged in three circuits of nine lamps. The lamps are each of 1,000 candle-power, and are hung from columns of graceful design some 24 feet high.

The Metropolitan Asylums Board desire to obtain the consent of the Local Government Board to the inviting of tenders for the installation of proposed systems of electric lighting, telephones and fire-alarms at the Southern hospital from nine selected firms, and to their entering into a contract or contracts for the execution of the necessary works without, in the first instance, advertising for sealed tenders. The cost is expected to be about 9,000l.

The Louth Town Council have rejected a scheme prepared by Messrs. Handcock & Dykes, consulting engineers, for the installation of electricity within the borough. The total cost approximately was 13,010l., and oil had been decided on as the generating power; 2,430l. was put down for oil-engines and dynamos; 4,980l. for switches, switch-board, accumulators and other accessories; 4,000l. for mains and feeders; 1,000l. for public lighting; 800l. for services; 1,100l. fees and expenses; foundations and silencing pit, 130l.; and buildings, from 800l. to 1,000l.

At the meeting of the Aberdeen Town Council on the 7th inst., allusion was made to the fact that their electrical engineer was engaged to advise the Dunfermline Corporation regarding their proposed electric power order. Subsequently a member gave notice of motion to the effect that no Corporation official be allowed to engage officially in any work other than that connected with the Corporation unless with the consent of the Town Council; and, further, should any fee be charged for such work, the same to be fixed by the committee under which the official is employed.

"The Administrative County of London and District Electric Power Company Bill" has been referred for examination to a select committee of the House of Lords, consisting of the Earl of Camperdown (chairman), the Earl of Lytton, Lord Zouche, Lord Aberdare and Lord Estcourt. The committee will also have under consideration the East

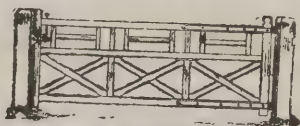
London and Lower Thames Electric Power Bill, the Charing Cross and Strand Electric Supply Corporation Bill, the City of London Electric Lighting Company Bill, the Metropolitan Electric Supply Company (Acton District) Bill, the Metropolitan Electric Supply Company (Various Powers) Bill, the North Metropolitan Electric Power Supply Bill, the Central Electric Supply Bill and the County of London Electric Supply Company Bill.

AN ARCHITECT'S TINDER-BOXES.

In an article on "Portable Fire" the *Birmingham Daily Post* says:—Our fellow-townsmen, Mr. Jethro A. Cossins, has a very fine collection of tinder-boxes, which was exhibited at the last conversazione at the Birmingham and Midland Institute, and attracted much attention. They comprised with very few exceptions a specimen of every kind known, although there are, as may be supposed, many varieties of pattern and detail. Some description of a few of the specimens may not be without interest.

A form that was once very common, but is now rarely seen, is a simple wooden box, 7 or 8 inches long and 4 or 5 inches wide, divided into two unequal parts, whilst the somewhat more expensive and portable box was made of sheet iron or tin. It was circular in form, about 4 inches in diameter and 2 inches deep. On the lid was a socket to hold a candle, and within a circular disc of tin to act as a damper and protector of the tinder. When not in use the flint and steel were preserved within the box. The tinder was made by charring a piece of linen rag until it became black and tender. The rag was held between a pair of tongs and set alight, and when sufficiently burnt was dropped into the box and extinguished by means of the damper. The steel was generally about 3½ inches long and 2¼ inches wide, shaped something like the capital letter "U" reversed. Almost any chipping of good black flint served to strike with, but to be conveniently held it should be about 2¼ inches long and have one edge rather thin. The sparks are tiny shavings of red-hot iron, which when dropped on the tinder immediately ignited it. On dexterously applying the point of a thin

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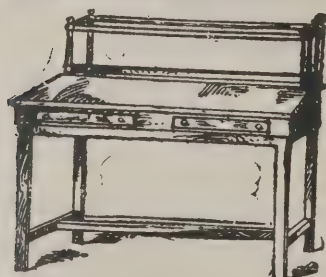


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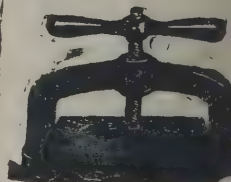
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sulphur match a flame is quickly and easily produced and can be at once transferred to the candle. The popular notion that to get a candle lighted by means of the flint and steel was a long and tedious process, generally resulting in barking the knuckles, is altogether erroneous. If the appliances are good and the tinder dry, it requires but little dexterity to get a flame in less than half a minute, as Mr. Cossins himself demonstrates. He, in fact, can secure a light almost as expeditiously as with a lucifer match. The forms referred to were those in use in farmhouses and cottages; but many of the tinder-boxes in the collection are made of brass, and some of them are beautifully embossed and ornamented.

Tinder-boxes for the pocket were also in demand. The favourite pattern was a strong, oval iron box, sometimes japanned and ornamented, bearing a resemblance to a common form of tobacco-box carried even now instead of a pouch. In some of these pocket tinder-boxes the lid was entirely removable, and the steel was rivetted to the inside, whilst others were hinged at the side, the steel lying loose inside with the flint and tinder. Another and even simpler form appears to have been not uncommon. This was a brass cylinder about an inch in diameter and three inches long, with a cover at one end and a sliding bottom at the other. The lid and sliding bottom were connected by a light brass chain which hung loosely. When the box was to be used the sliding bottom was forced up the cylinder by the finger until the plug of tinder appeared near the open end at the top. Sparks were then struck in the usual way, and when the light had been secured the sliding bottom was drawn back down the cylinder, the piece of flint placed inside and the lid put back into position. It is highly probable that in these pocket instruments the tinder used was a kind of tree fungus that had been steeped in a strong solution of saltpetre.

There are several examples that bear a striking resemblance to a pistol, a shape that may have had its origin from a very simple cause. It is said that in the days of the flint and steel muskets soldiers used the locks of their weapons for obtaining a light. A piece of tinder was placed in the pan, and the lock was then snapped. This would be a quick and ready means of securing the light, and what more natural than that it should suggest the

pistol-shaped tinder-box? The commonest kind of pistol tinder-boxes look like a pistol without a barrel. They are fitted with forked props to make them stand level, and have a socket for a candle screwed into the side. A little receptacle in the side of the stock serves to contain matches, and is closed by a lid with a hasp. A more expensive kind is of brass, with a short barrel like a pistol in which the matches were kept. Some small and highly-finished pistol tinder-boxes were also made for the pocket. Mr. Cossins has one of Japanese manufacture. It is beautifully chased and is fitted with a small spring lock, flint and steel, a piece of exquisitely-adjusted mechanism.

Tinder-boxes were in general use until about 1835, but were then supplanted by more expeditious and portable methods of securing a light. The writer remembers the first matches longer and wider than those now used, tipped with a chemical preparation covering about half an inch. They were ignited by drawing them quickly between a folded piece of chemically-dressed cardboard, hinged in the middle and closed on the match. The operation was frequently unsuccessful. If the card were pinched too tightly by the forefinger and thumb of the left hand whilst the match was withdrawn by the right it broke into two pieces. If the card were too loosely held the chemicals did not act. Then came matches more nearly resembling those now used, but when they were struck they made a considerable report. They were called Congreve matches, after the inventor of the rockets so much used at that time, and since, in British warfare. The clever manipulator of the flint and steel doubtless clung to them for a time, but ultimately the old tinder-box had to give way before the handy little match now so cheap and so perfect.

ASSOCIATION OF TEACHERS IN TECHNICAL INSTITUTES' BUILDING SECTION.

THE first ordinary meeting of the above section was held on Saturday, March 11, at the Marlborough Room at the Regent Street Polytechnic. Mr. Hugh Davies, head of the architectural and building trades' department, Northern Polytechnic, was in the chair.

A paper entitled "The Training of a Craftsman" was

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The paper reviewed the past training of the craftsman as set forth in the charters of several of the City companies, emphasised the entire lack of any systematic training at the present time, the difficulties of teachers and students under present conditions, and made valuable suggestions for the efficient training of future craftsmen. After remarks and criticisms by the Chairman, Secretary, Mr. Evans (South-Western Polytechnic), Mr. Purcher (Wandsworth), Mr. Firth (Tottenham), and Mr. Fitzgerald (Paddington), it was felt by all present that the subject was one of national and vital importance, and that it was not possible to adequately discuss the excellent paper in an impromptu manner. It was decided on the suggestion of Mr. Hobart Pritchard, of the Regent Street Polytechnic, to adjourn the discussion to the next meeting of the section on April 1, and that in the meantime the paper be printed and circulated in order that members might give the matter careful consideration.

The meeting was of the opinion that some practical scheme would be evolved as the result of the discussion, and which, taking into account the personnel of the section, would be a valuable contribution towards the solution of a very difficult problem. A vote of sympathy with Mr. C. F. Mitchell, head of the technical school, Regent Street Polytechnic, in his present serious illness, was passed unanimously.

NATAL ARCHITECTS' INSTITUTE.

THE annual meeting of the Natal Institute was presided over by Mr. Cathcart W. Methven, who delivered the following address:—

Colleagues and gentlemen,—Before moving the adoption of the report and balance-sheet which we have just heard, I would beg to submit a few remarks upon the more important events of the past year, my first as President of the Natal Institute of Architects. First of all, I would most heartily thank my colleagues for the honour done to me in electing me President of the Institute, an honour which I appreciate all the more, coming as it does from my brother architects. It was, however, with many misgivings that I entered upon the duties, following as I did a

man of such exceptional popularity and of so many good points as our late respected chief, William Emery Roberts. His works in Durban are so well known and numerous that it can with truth be said of him, "Si monumentum requiris circumspice." To him is due the honour of founding the Institute, and of getting it incorporated by Act of Parliament. It is therefore with all the more satisfaction that we are able to report a certain amount of work done by the Institute which we know, from his expressed views on the subject, to be exactly on the lines he would have adopted. It is some gratification to have secured the excellent portrait of our late President which you see hanging on the wall. The thanks of the Institute are due to the hon. secretary, Mr. Ritchie, the donor of the handsome and appropriate gift.

I regret to have to record the death, under circumstances so tragic as to be unparalleled in the history of the colony, of Frank M. Kent, of Maritzburg, one of the foundation members of the Institute. An able and talented architect and an exceptionally clever draughtsman, he has left throughout the colony many examples of his skill. In Durban his best known works are the Girls' Model School, Gale Street, won in competition, and the Brewery Buildings in West Street.

A subject which has demanded considerable time and trouble from your sub-committee appointed for the purpose has been the preparation of a model set of conditions of contract between building owner and builder. This has been done largely in conjunction with a sub-committee from the Master Builders' Association and is now completed, and we hope to the satisfaction of everyone. Hitherto the conditions of contract in use have been so many and so varied as to be quite perplexing. The desirability, therefore, of having a uniform set of conditions to be used by all the members of our Institute can hardly be over-estimated, alike to building owners, architects and builders.

The classes for building construction and mathematics, conducted by Mr. Cunningham in the Boys' Government School, Durban, under the patronage of the Institute, seem to be meeting a long-felt want and to be making good progress. Last session the pupils were examined by the Council, and book prizes and certificates were awarded

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by the Institute to the best pupils. At the prize-giving, Mr. Delaney, Government inspector of schools for the coast district, took the opportunity of publicly thanking the Institute for its help in assessing the work of the students in subjects of which none of the Government officials had sufficient knowledge to enable them to do so. While on the subject of technical education I would mention that your President was requested to appear before the Government Commission on technical education and state his views on the subject. This I did, when I put before the Commission what, in my opinion, should be done in the matter by Government for a town of the size of Durban.

During the past year the Institute has been increasingly recognised by building owners, builders and legal practitioners, requesting me, as your President, to act as arbitrator, assessor and valuator, and to give expert evidence in the courts of law. While this class of work is largely non-remunerative owing to the amount of time involved, I have attempted to do my best to give satisfaction, in order to encourage what doubtless is intended as a compliment to your Institute.

At last we have made a definite start with what, to my mind, is the most important matter of all affecting the interests of our profession. I allude to the registration or statutory qualification of architects, a subject upon which our late President had very decided opinions. Many people are ignorant of the fact, and when informed of it are quite incredulous, that any person whatsoever can by paying 5*l.* per annum obtain a Government license to practise as an architect and "no questions asked." Such, however, is the melancholy fact—a fact, alas! too painfully demonstrated by some of the buildings which disfigure the streets of our towns. While doctors, lawyers, dentists, chemists and conveyancers are all protected by Government, the poor architect is exposed to the competition of a host of charlatans who usurp his title, filch his commissions and bring discredit on his craft. In most other countries than ours the public and the profession are protected from unqualified and unprincipled practitioners. Then why not here? The building operations of any community affect not only its financial interests, but also its physical well-being, aye, even in cases, its very life. Surely the public have a right to demand that those to whom the supervision

of these building operations is entrusted are properly trained and qualified to undertake them. There are, it is true, a few architects who are not in favour of registration. They say that an architect is an artist, and that one cannot examine or test art, but surely while maintaining the highest ideals it must be possible to exclude those who under reasonable tests show that they altogether lack either any aptitude for architecture or adequate training. In Germany and America the universities grant degrees in architecture, artistic knowledge and design, as well as in the science of building construction. This fact supports the contention that artistic acquirements can be tested by a qualifying not a competitive examination. Then, again, others object and say that registration would have the effect (since all existing practising architects would have to be put on the register) of stamping with the seal of official approval the lowest ranks of practising so-called architects. True, but every year that qualification is postponed the situation gets worse and worse, for the immediate effect of a Registration Act would be to put a stop to any further increase in the number of incompetents, and thenceforward they would naturally be a gradually diminishing quantity. Of course, it is principally the younger generation of architects which would benefit, and, as I told the Government Commission, technical education would then be not only desirable but an absolute necessity. A sub-committee of five has been formed to push this matter ahead, and bring it before Government. We confidently look for the support of not only all the members of the Institute, but also of the public, and so help to give our profession a recognised status, and raise the standard of architectural education and training throughout the colony.

We meet this year under the cloud of severe commercial depression, which, of course, brings building practically to a standstill. As old commissions get completed, and very few new ones are forthcoming to take their place, we are face to face with a situation which has been unparalleled in Durban for the past fifteen years. We are told that trade will soon revive, but I fear that there is a lot of leeway to make up. Trade will have to revive considerably before even the buildings that are completed are all occupied, let alone building any new ones. Two important municipal buildings have been practically completed, viz: the Central

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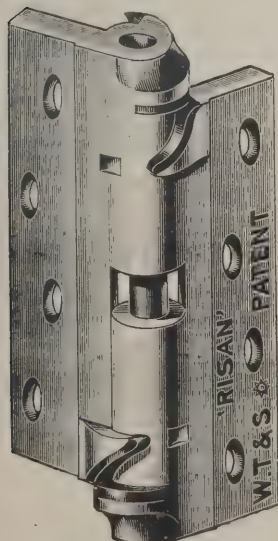
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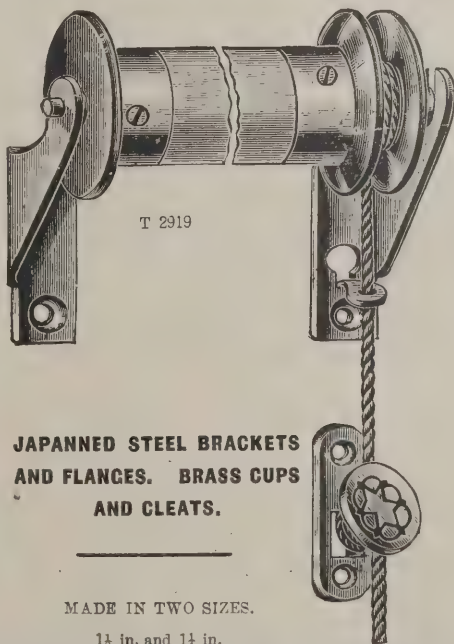
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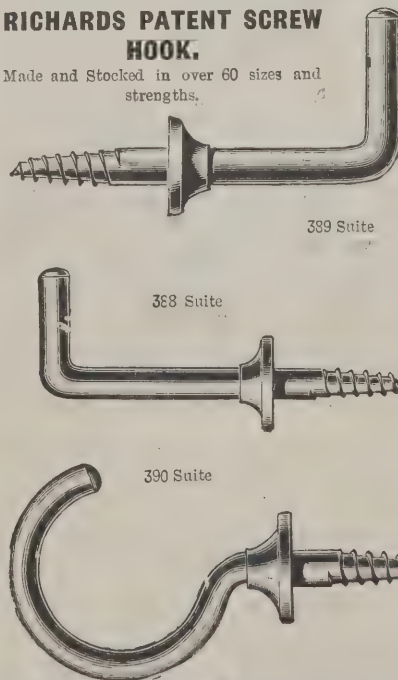
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Fire Station (Ing & Anderson) and Telephone Exchange (Stott & Kirkby), both won in competition, assessed by our late President. A great many business premises have been completed during the year under review, and there are still more approaching completion. Many of these show a distinct advance in the character of the building to what we have been hitherto accustomed in Durban, by the more or less liberal use of granite, stone, terra-cotta, tiles and fire-resisting construction. Many of the new buildings are distinct ornaments to the town, but, alas! how many are not. While we know that the municipal authorities do a little towards trying to preserve the architectural amenities of our principal thoroughfares, it is thought by many that they could and ought to do more, and defend us from some of the hideous sights which force themselves upon us. Happily the building public seem to be slowly awakening to the fact that good architecture has a commercial value of its own; for they can hardly fail to note that where a building is well planned and artistically treated, it is more eagerly sought after and its value correspondingly enhanced.

Before closing this already too lengthy epistle, I would urge you to try and use more frequently the comfortable premises which we now possess in Hermitage Street. All the best professional papers are to be found there for perusal as opportunity offers, and it has also been suggested that, say, monthly meetings should be held (at any rate, during the winter months), when papers could be read and discussed to our mutual edification. Throughout the year your Council have always been ready with their valuable advice, and supported me with unswerving loyalty. I desire to record my heartiest thanks to them.

FAILURES OF CONSTRUCTION.*

In presenting to you the problem of this evening's talk I shall not try to touch upon every point in which construction may be said to have failed, and the point of view

* A paper by Mr. F. Elliot Cabot, assistant secretary of the Boston Board of Fire Underwriters, read before the Boston Society of Architects, and published in the *American Architect*.

is perhaps more correctly described as that of the insurance engineer than that of the underwriter. I should have chosen the term "insurance engineer" rather than "underwriter" were it not for the fact that the insurance engineer as a factor in our improved knowledge of construction is comparatively new, and that to most people the term fire-underwriter expresses more definitely the idea I am here to represent.

Of the types of construction which have been most prominent of late in the minds of the public there are two which probably are to-day better known than others. These are "mill" construction—so-called because it was supposed at least to be patterned on the standard of the best types of construction for manufacturing plants—and the so-called "fireproof" construction.

Both of these types have been presented to the public as panaceas for the enormous fire-loss of this country (a destruction of property which is as truly a loss as if the money value represented by it had been thrown into the sea), and both of them have, in some forms of their development, failed entirely to prevent this loss.

The reasons for these failures are matters of careful study by active-minded men, trained for the purpose, and once understood will be as surely overcome as other engineering problems have been.

In the case of the so-called "mill" construction the error seems to have been twofold: first, in the application of this construction to work for which it was not intended; and secondly, in a failure to carry out fully and properly the principles upon which this form of construction was based.

This type of building was originally designed to cover in and protect from the weather large manufacturing establishments in which strength and not beauty was the leading requisite. It was designed to remedy certain defects which had appeared in the earlier type of building used for manufacturing purposes, such as concealed hollows in walls and floors, unduly combustible roofs and passages for fire, but not for firemen, from one part of the building to another, and it did overcome such difficulties to a very reasonable extent. It also improved the lighting, heating and ventilation of buildings for such work, and, in combination with the probable contents and the very



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cellent fire-fighting apparatus which was provided, succeeded largely in furnishing a satisfactory substitute (for mill building) for the "combustible architecture" which had preceded it. It must, however, be kept in mind that compared to the city building to be used for the "storage and sale of merchandise" the mill, even the cotton-mill, contains but little combustible contents, and that the mill, though often containing large unbroken floor-areas, is of comparatively slight height.

When, therefore, the success of this construction (which was really the first work of the insurance engineer) in reducing the fire-loss in mills brought it to public notice, and the attempt was made to adapt it for use in stores and warehouses, no adequate provision was made for the changed conditions. The requirements of trade called for offices and counting-rooms; they were partitioned off with hard-pine sheathing. The shape and size of city lots made difficult to put the stairways and elevator-shafts in separate brick towers, as they are in the best built mills, so the stairways and elevators were put inside the main walls of the building, and were left unenclosed or only partially cut off. The desire to have attractive salesrooms led to the use of varnish in place of plain wood, or, better still, well whitewashed surfaces. The necessary crowding together of buildings in cities makes thorough protection of outside openings most important. But shutters interfere with light, and require attention which, without mill discipline, was not easily secured, so shutters were neglected or often omitted.

The use of such buildings to house several tenants under one roof made the mill discipline impossible and increased materially the danger of fire from rubbish, from careless use of matches, from many other well-known causes. The lack of skilled mechanics as a part of the working force of such a building was no doubt a reason that proper fire-fighting facilities, as a part of the equipment of the building, were not more commonly provided. In short, there was an attempt to use "mill" construction for warehouses and stores without keeping in mind its essential features, which briefly are:—No "vertical openings," no "concealed spaces," the minimum of "combustible finish," with ample facilities for extinguishing fire at its discovery, and ample protection from outside exposure. Under these circum-

stances it is not surprising that "mill" construction did not for city warehouses fulfil all expectations. Yet I do not feel that the construction was to blame but the use made of it. Railroad semaphores are a necessary part of railroad equipment, and especially so in these days of fast trains, yet I once heard a first-class engine-driver say that "they got in the way like thunder when you wanted to make time," and I fear that this is the feeling of many merchants and owners of buildings as to the essentials of mill construction.

In the case of "fireproof" construction difficulty seems to have come from a different cause. As in many other matters the American tendency to go to extremes has resulted in undertaking the construction of enormous buildings, limited only by the strength of materials as to height and by the ground available as to area. In constructing such vast buildings it has been assumed that because a material would not under ordinary conditions burn it was therefore "fireproof," or at least reasonably "fire-resisting." The enormous expense required by such construction has led to economies which have proved dangerous and to methods which fire has tried and found wanting. No one who saw the United States Government Warehouse, at Baltimore, soon after the awful conflagration of last year, can have any doubt that it is possible to build a warehouse of reasonable size which would, even under the terrible strain of such a fire as that, be a protection to the merchandise within its walls. If it had not been for the alteration in its original form made necessary by the introduction of a modern elevator, I doubt whether the expense of repairing that building would have been more than the cost of glass for the windows and a little paint and putty.

It may be said that this building was not exposed to the extreme test of those awful hours. Yet buildings all round it were totally wrecked, and it stands to-day in practically its original form, except in the substitution of brick for granite for its interior columns.

And this leads me to a digression from the main thread of my argument. For thirty years every engineer, every architect, every builder of repute has known that stone, especially granite and marble, while not in themselves combustible, are destroyed by fire almost as readily as

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wood. If anyone had doubted it before last winter, the Baltimore fire proved it beyond any doubt. Yet I venture to say that there is not to-day a large city in this country in which there will not be during the year 1905 a large amount of marble or granite used in fireproof buildings, and in parts of such buildings so high above the street that the use of water to protect them from fire will be, so far as fire-departments are concerned, physically impossible.

Is it possible that the American brain, so fertile in every other direction, is unable to cope with the problem of designing and erecting an attractive and suitable exterior for a building which is designed to resist fire?

And now let us return for a moment to the false economies which so often confront the underwriter who, from the business point of view, is endeavouring to fix a proper price for the indemnity which he has for sale.

One of the commoner forms is the slighting or the deliberate reduction of the protection for the steel framing which is the skeleton of all these great buildings. The records of the cost of construction of some of the larger office-buildings destroyed in the Baltimore fire show that the marble wainscoting and flooring of the halls in these buildings cost more than the protection of the steel frames, and we know that in one building, at least, a form of floor construction which was proved to be satisfactory was given up and a cheaper and, as it proved, entirely unreliable form substituted at a saving of 1 or 2 per cent. of the cost of the building.

Surely such work as this is not worthy of respect, and is not and cannot be remunerative in the long run.

We are asking these steel frames to carry enormous loads, to withstand great strains, and yet we grudge them the slight additional cost of a reasonable protection against fire, not only against a conflagration, but against such fires as have and will occur within the building or its immediate neighbours, and we spend twice the money which the proper protection would cost on decoration which may or may not be good art.

Again, it is a common practice to set interior partitions on top of combustible wooden floors, even when the partitions are made wholly of incombustible material, and as a result a slight damage to the wooden floor wrecks twice its value in partitions and their finish.

We use iron face-plates on the fronts of these buildings and let the adjoining brickwork rest upon them so that a slight expansion of the iron displaces many feet of brick facing. Does it pay? Is it good work? Does the result justify it? Surely not.

In the fireproof building, too, we seem to depart from the construction which is justifiable for such work by the great expanse of unprotected windows.

Of course, light and air are most desirable, but from the underwriter's point of view it is fair to expect protection from more than the weather in the best type of building.

Vertical openings, too, have been quite a factor in the destruction of several buildings of this type, especially in those of a great height, as they almost invariably act as a flue to draw the fire from one storey to another. If a large office-building is to be regarded simply as a stove which will from time to time be burnt out, it is perhaps sufficient to provide for protection to the building itself, but if it is to provide protection for its contents then the vertical openings and the exposed windows need protection.

I have tried briefly to state why these forms of construction have not been as successful as they ought to have been, and I will endeavour briefly to give the insurance-engineer's hope of what may be done to overcome these difficulties.

Considering first the "mill" form of construction, I believe the automatic sprinkler, the fire-door and the fire-shutter, with a restricted use of combustible finish, will solve most if not all of our difficulties in this direction. I wish architects and engineers would make themselves more familiar with the use of sprinklers, because so much may be done in the construction of the building to make sprinklers thoroughly effective. A smooth ceiling or one with panels approximately 10 feet by 10 feet or 5 feet by 10 feet will give sprinklers the best chance to distribute the water to the best advantage.

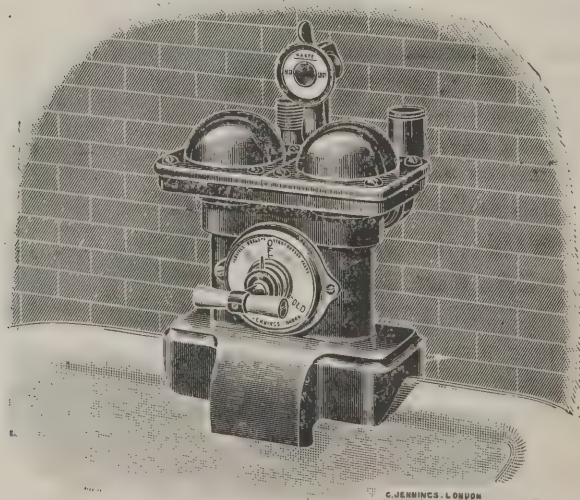
For the "fireproof" building I must, at the risk of being called a crank, urge the use of "wire-glass" in metal frames, both for exterior use and where it is necessary to light stair and elevator wells.

Cut off the vertical openings, protect the steel frames everywhere and protect exposed windows, then "fireproof" buildings will come nearer to deserving their name.

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EDITORIAL NOTICES.

In view of the many difficulties which are certain to arise in connection with the law, practice rules and procedure under the Workmen's Compensation Act, we have added to our staff A VERY EMINENT BARRISTER, who has made the subject a special study, and will be glad to answer in the columns of this paper any questions relating to the complicated matters arising from the provisions of this difficult Act. Our LEGAL ADVISER will further answer any legal question that may be of interest to our readers. All letters must be addressed "LEGAL ADVISER," Office of "The Architect," Imperial Buildings, Ludgate Circus, London, E.C.

The Editor will be glad to receive from Architects in London and the Provinces results of Competitions and Tenders and other particulars of Works in progress in which they may be interested.

The authors of signed articles and papers read in public must necessarily be held responsible for their contents.

No communication can be inserted unless authenticated by the name and address of the writer—not in every case for publication, but as a guarantee of good faith.

Correspondents are requested to make their communications as brief as possible. The space we can devote to Correspondence will not usually permit our inserting lengthy communications.

TENDERS, ETC.

*** As great disappointment is frequently expressed at the non-appearance of Contracts Open, Tenders, &c., it is particularly requested that information of this description be forwarded to the Office, Imperial Buildings, Ludgate Circus, London, E.C., not later than 2 P.M. on Thursdays.*

COMPETITIONS OPEN.

COLCHESTER.—April 13.—For school in Mill Road, Mile End. Block plan to be obtained from Mr. C. E. Denton, Educational Offices, Colchester.

KING'S NORTON.—April 26.—For the erection of a public library in Church Hill, King's Norton.—Architects must be resident in King's Norton or practising in Birmingham. Particulars may be obtained from Mr. A. W. Cross, surveyor, 10 Newhall Street, Birmingham.

LAMBETH.—March 30.—For municipal buildings at Brixton Hill. Particulars from Mr. H. J. Smith, Town Hall, Kennington, S.E.

RADCLIFFE.—April 29.—For the erection of a free public library. Premiums of 50*l.*, 30*l.* and 20*l.* will be awarded. General conditions and instructions, with an outline plan of site, may be obtained from Mr. S. Mills, clerk, Council Offices, Radcliffe, Manchester.

ROCHESTER.—May 15.—For the erection of a municipal technical institute at Rochester. Three premiums of 50, 20 and 10 guineas will be awarded. Copies of the instructions and a plan of the site can be had from Mr. W. Banks, surveyor, Guildhall, Rochester.

SWINDON.—April 14.—The education committee of the Town Council of Swindon propose to erect a public elementary school with accommodation for 840 scholars, and invite plans from architects. Mr. W. Seaton, Secretary to the Education Committee, Education Office, Town Hall, Swindon.

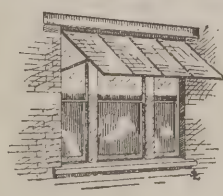
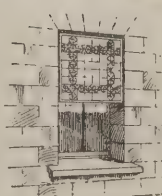
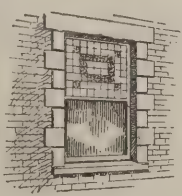
CONTRACTS OPEN.

ALLENDALE TOWN.—March 31.—For the erection of a temperance hall at Allendale Town, Northumberland. Messrs. Badenoch & Bruce, Emerson Chambers, Blackett Street, Newcastle-on-Tyne.

ASHTON-IN-MAKERFIELD (LANCS).—April 18.—For the erection of a new administrative building, scarlet-fever and diphtheria pavilions, laundry, disinfectory, stables and mortuary buildings, and other work at existing hospital buildings, for the Ashton-in-Makerfield Urban District Council. Messrs. Heaton, Ralph & Heaton, architects, Wigan.

BARNSELY.—March 30.—For the erection of a house in Derby Street, Dodworth Road, Barnsley. Messrs. R. & W. Dixon, architects, 5 Eastgate, Barnsley.

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BATLEY.—April 5.—For the masons', joiners', plumbers', plasterers', slaters', painters', heating engineers' and electrical engineers' work respectively in the erection of the Carnegie free library. Messrs. W. Hanstock & Son, architects, Branch Road, Batley.

BELFAST.—April 4.—For building a chancel, vestry, &c., All Saints Church, University Street, Belfast. Mr. William J. Fennell, architect, 2 Wellington Place, Belfast.

BEWCASTLE.—April 3.—For erection of a stone bridge across the Kirk Beck at Shopford, Bewcastle. Mr. James Murray, district surveyor, Kirklington, Carlisle.

BLACKBURN.—March 28.—For erection of public baths at Belper Street. Mr. William Stubbs, borough engineer, Municipal Offices.

BOSTON.—April 15.—For erection of a new infirmary, laundry, boiler-house and mortuary at the workhouse, Boston, Lincs. Mr. James Rowell, architect, Church Lane, Boston.

BRENTWOOD.—April 1.—For the erection of a new mortuary building at the Essex County lunatic asylum, Brentwood. Mr. F. Whitmore, county architect, Duke Street, Chelmsford.

BRIDLINGTON.—March 28.—For the erection and completion of a detached residence. Mr. J. Earnshaw, architect, Carlton House, Bridlington.

CARDIFF.—April 6.—For the erection of a filter-house and meter-house at the Heath filter-beds, near Cardiff. Mr. C. H. Priestley, waterworks engineer, Town Hall, Cardiff.

CARLISLE.—April 3.—For the erection of two stone bridges of 20 feet and 30 feet spans respectively, across Glencoyne and Aira Becks, Greystoke and Patterdale. Mr. George Joseph Bell, county surveyor, The Courts, Carlisle.

CARLISLE.—April 4.—For the erection of a Dutch barn at the Carlisle cemetery. Clerk's Office, 27 Lowther Street, Carlisle.

CATTAL.—March 31.—For the erection of two sets of refractory cells in connection with the inebriates' reformatory at Cattal, near York. Mr. J. Vickers Edwards, architect to the committee, Wakefield.

CONSETT.—April 5.—For the erection of additions to the Travellers' Rest inn at Consett, Durham. Messrs. G. Dickinson & Son, architects, 5 Houndgate, Darlington.

CUDWORTH.—March 27.—For extension of the Cudworth engine-shed, for the Hull and Barnsley Railway Company. Mr. R. Pawley, engineer, 9 Charlotte Street, Hull.

DEAL.—March 27.—For the erection of two small one-storey shops in Broad Street. Borough Surveyor's Office, 23 Queen Street, Deal.

DERWENT.—March 27.—For the construction of the Grindleford to Rowsley section of the Derwent aqueduct, in the county of Derby. The work will comprise—tunnels, about $\frac{1}{2}$ mile; cut and cover, about 4 miles; 45-inch pipe-laying, about $4\frac{1}{4}$ miles, with valve-houses, stream crossings, &c. Mr. Edward Sandeman, engineer, Bamford, near Sheffield.

EAST FEN.—April 3.—For the erection of a barn in the East Fen, Lincs. Mr. G. E. Clark, borough surveyor, Municipal Buildings, Boston.

ELGIN.—March 31.—For the mason, carpenter, slater, plumber and painter and glazierwork of new church, Elgin. Mr. W. C. Reid, architect, Elgin.

EXETER.—March 25.—For new parish institute for St. David's, Exeter. Mr. Harbottle Reed, architect, 12 Castle Street, Exeter.

GOOLE.—April 3.—For the erection of public swimming-baths in Pasture Road, Goole. Mr. E. Hazeldine Barber, surveyor, Council Offices, Goole.

GRANGE-OVER-SANDS.—March 31.—For the mason, joiner, slater and plasterer, plumber and painter's work in the erection of a detached residence at Aynsome, Grange-over-Sands. Messrs. Harrison, Hall & Moore, architects, Lancaster.

GUILDFORD.—March 27.—For the erection of brick and concrete piers to carry a girder bridge across the mill stream at Rickford, with all hauling, hoisting, scaffolding and labour in connection with the erection of the bridge. Mr. John Austee, engineer, Council Offices, Guildford.

HEIGHINGTON.—For alterations and improvements to property at Heighington, Durham. Mr. John Richardson, Front Street, Wingate.

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HEREFORD.—March 31.—For the restoration of the tower of St. Peter's Church, Hereford, and other works. Messrs. Nicholson & Hartree, architects and surveyors, Hereford.

HERNE BAY.—March 31.—For the supply, installation and fixing in the town hall of a heating apparatus on the principle of the low-pressure hot-water system. Mr. F. W. J. Palmer, surveyor, Town Hall, Herne Bay.

HIPPERHOLME.—March 27.—For the erection of four houses, &c., at Whitehall, Hipperholme. Yorks. Mr. Raymond Berry, architect, Commercial Street, Halifax.

IRELAND.—March 31.—For additions and alterations to 52 South Mall, Cork. Messrs. W. H. Hill & Son, architects, 28 South Mall, Cork.

IRELAND.—April 10.—For making alterations and additions to premises in Church Street, Antrim. Mr. William J. Fennell, architect, 2 Wellington Place, Belfast.

IRELAND.—April 10.—For making alterations and additions to two cottages at Ballywalter, co. Down. Mr. William J. Fennell, architect, 2 Wellington Place, Belfast.

KING'S HEATH.—April 4.—For the erection of a public library at King's Heath, near Birmingham. Mr. Ambrose W. Cross, surveyor, 23 Valentine Road, King's Heath.

LAMORRAN.—April 1.—For the erection of a wain-house at Tregenna, Lamorran, Cornwall. Mr. George Gow, Tregothnan Office, Truro.

LANGLEY PARK.—March 29.—For the erection of ten houses at Langley Park, co. Durham. Mr. Geo. Thos. Wilson, architect, 22 Durham Road, Black Hill, co. Durham.

LEEDS.—March 29.—For the laying of a concrete bed and new wood and stone paving at the workhouse premises. Messrs. T. Winn & Sons, architects, 92 Albion Street, Leeds.

LONDON.—March 28.—For (a) erection of artisans' dwellings at Magnolia Road, Strand-on-the-Green, Chiswick, and (b) street improvement works at Belmont Road, Chiswick. Mr. John Barclay, surveyor to the Council, Town Hall, Chiswick.

LONDON.—March 29.—For the erection of a receiving house for children in Acton Lane, Willesden, N.W. Mr. Alfred Saxon Snell, architect, 22 Southampton Buildings, Chancery Lane, W.C.

LONDON.—March 29.—For the erection of a branch library in Lillie Road, for the Fulham Borough Council. Mr. Francis Wood, borough engineer and surveyor, Town Hall, Fulham, S.W.

LONDON.—March 30.—For the execution of alterations and additions to the medical superintendent's house at Southwark infirmary, East Dulwich Grove, S.E. Mr. G. D. Stevenson, architect, 13 and 14 King Street, E.C.

LONDON.—March 31.—For additions and alterations to the Alexandra schools, Western Road, Wood Green. Mr. C. J. Gunyon, architect, Town Hall, Wood Green.

LYDD.—March 25.—For the erection of four cottages at Lydd. Mr. Albert E. Lacey, architect and surveyor, Ashford, Kent.

MACCLESFIELD.—For the erection of a new carding and winding mill, together with weaving-shed extensions, at Macclesfield. Mr. Ernest W. Dyson, architect and surveyor, 14 Market Hill, Barnsley.

MACCLESFIELD.—March 31.—For sanitary blocks to male ward No. 5 at the Parkside asylum, Macclesfield. Mr. H. Beswick, county architect, Newgate Street, Chester.

MANCHESTER.—March 27.—For alterations and additions to the Lloyd Street and Mulberry Street municipal schools, Hulme, Manchester. The Education Offices, Deansgate, Manchester.

MITCHAM.—April 4.—For the construction of a brick-built gasholder tank at Mitcham, Surrey. Mr. Benjamin Green, secretary and manager, the Works, Mitcham.

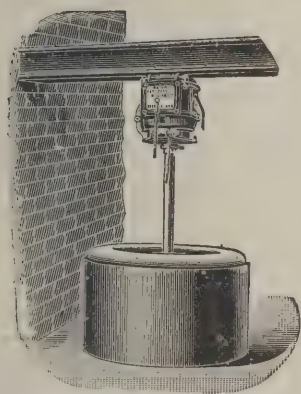
MORLEY.—March 29.—For alterations and additions to mill premises, Grove Mills, Morley, Yorks. Messrs. T. A. Buttery & S. B. Birds, architects, Queen Street, Morley.

NEWARK.—March 30.—For the erection of infectious and small-pox hospitals and appurtenant works in Barnby Road, Newark. Mr. George Sheppard, borough surveyor, Town Hall, Newark.

NOTTINGHAM.—March 28.—For the erection of a new dormitory at the city asylum. Mr. Frank B. Lewis, city architect, Guildhall, Nottingham.

OLDHAM.—March 27.—For the erection of new schools at Clarksfield. Mr. Harold Cheetham, architect, Prudential Buildings, Union Street, Oldham.

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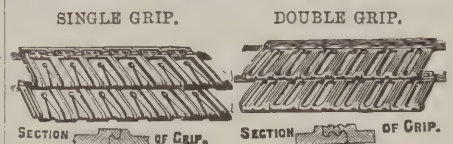
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ORPINGTON.—April 7.—For the erection of a small-pox hospital in Croton Heath Wood, Orpington, Kent. Mr. John Ladds, 93 Pemberton Road, Harringay, London, N.

OVENDEN.—March 28.—For the erection of pair of semi-detached villas on the Moor Lane building estate, Ovenden, Yorks. Mr. W. Clement Williams, architect, 29 Southgate, Halifax.

PORTSMOUTH.—March 28.—For constructing a new wing and an extension of the boundary wall at the infectious diseases hospital at Milton. The Borough Engineer's Offices, Town Hall, Portsmouth.

RADCLIFFE (LANCS).—April 5.—For the erection of registrar's house and mortuary chapel and other works, on the cemetery site, Radcliffe. Mr. W. L. Rothwell, engineer to the Council.

RADCLIFFE COLLIERY.—March 29.—For the erection of the Hauxley Radcliffe Colliery (infants') school, Northumberland, for 200 children. County Surveyor's Office, The Moothall, Newcastle.

READING.—April 7.—For rebuilding York Pool bridge at Shinfield, near Reading. Mr. J. Morris, county surveyor, Broadway Buildings, Reading.

RHOSTYLEN.—March 31.—For the erection of a new chapel at Rhostyllen, near Wrexham. Mr. Samuel Thomas, High Street, Rhostyllen.

RUGBY.—March 31.—For constructing sewers and out-fall works at Bilton, according to plans and specifications which may be inspected on application to Mr. T. W. Willard, surveyor to the Council, Rugby.

RYHILL.—March 27.—For the erection of six houses at Ryhill, near Barnsley. Mr. Ernest W. Dyson, architect and surveyor, 14 Market Hill, Barnsley.

St. MERRY.—April 8.—For building a new Wesleyan chapel at St. Merry, Cornwall. Messrs. J. Ennor & Son, architects, Central Square, Newquay.

SCARBOROUGH.—March 27.—For additions and alterations to the Falsgrave school. Mr. Charles Edeson, architect and surveyor, 25 Huntriss Row.

SCOTLAND.—March 27.—For rebuilding breast wall, south side of New Quay, Campbeltown. Mr. James Fullarton, master of works, Campbeltown.

SCOTLAND.—March 28.—For supply of furnishings and for making and altering fittings for the town hall, for the Fraserburgh Town Council. Burgh Surveyor's Office.

SCOTLAND.—March 31.—For the mason, carpenter, slater, plumber, plasterer, painter, glazier and bell-hanging works of an infectious diseases hospital to be erected in Alvie for the Inverness-shire County Council. Mr. Alexander Cattanach, architect, Kingussie.

SCOTLAND.—April 3.—For the erection of a new bridge constructed of steel girders and masonry over the river Bogie at Smithson, near Gartly. Mr. James Barron, engineer, Central Chambers, 216 Union Street, Aberdeen.

SEATON BURN.—March 27.—For alterations and additions to cottages, Seaton Burn, Northumberland. Mr. J. G. Crone, 21 Grainger Street West, Newcastle.

SHEFFIELD.—March 29.—For alterations and additions to the administrative block at the workhouse hospital, Fir Vale, Sheffield. Mr. H. I. Potter, 24 Norfolk Row, Sheffield.

SHILBOTTLE.—March 31.—For two dwelling-houses at Shilbottle, Northumberland. Mr. M. Temple Wilson, architect and surveyor, Alnwick.

SHOTLEY BRIDGE.—March 29.—For the erection of detached villa near Shotley Bridge Station. Mr. Geo. Thos. Wilson, architect, 22 Durham Road, Blackhill, co. Durham.

SOUTH BRENT.—March 30.—For erection of farmhouse at Mann Aish, South Brent, Devon. Mr. Kingwell, Mann Aish.

TEIGNMOUTH.—March 27.—For building a new police station at Teignmouth. Mr. E. H. Harbottle, county surveyor, Queen Street, Exeter.

TETBURY.—March 28.—For proposed alterations and additions to the workhouse, Tetbury, Glos. Mr. V. A. Lawson, architect, 17 Rowcroft, Stroud.

TUNBRIDGE WELLS.—April 10.—For (Contract No. 9) erection of an engine-house and other works incidental thereto, in connection with the Paddock Wood sewerage and sewage-disposal works. Mr. Frank Harris, engineer to the Council, Broadway, Southborough, Tunbridge Wells.

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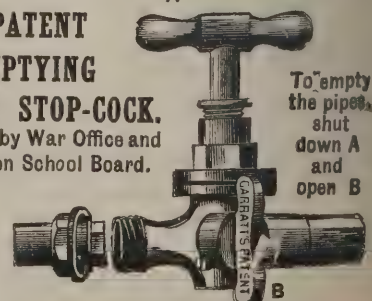
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WAKEFIELD.—March 27.—For the rebuilding of the Horse and Groom public-house, Heath Common; also for alterations to the College hotel, Northgate, Wakefield; and also for building two houses in Howard Street, Wakefield. Mr. A. H. Newbald, architect and surveyor, 21 King Street, Wakefield.

WALES.—For the erection of two magazines at Cefn On, near Caerphilly. Mr. Duncan S. Reed, 102 St. Mary Street, Cardiff.

WALES.—March 25.—For the erection of a new chapel-house and schoolroom, for the Nazareth C.M. chapel committee, Pontrug. Mr. Ellis F. White, architect, 27 Bangor Street, Carnarvon.

WALES.—March 25.—For the erection of about sixty-five cottages at Ynshir, for the Standard View Building Club. Messrs. Teather & Wilson, architects and surveyors, Andrews's Buildings, Queen Street, Cardiff.

WALES.—March 25.—For alterations and additions to the Ferndale Working Men's Conservative Club. The Secretary, 14 North Street, Ferndale.

WALES.—March 27.—For the erection of a power station at Llwynypia. Messrs. A. O. Evans, Williams & Evans, architects and engineers, Pontypridd.

WALES.—March 27.—For the erection of a new minister's house, &c., Moeltryfan. Mr. Ellis F. White, architect, 27 Bangor Street, Carnarvon.

WALES.—March 27.—For a surgery and dwelling-house at Park Place, Tredegar. Mr. W. S. Williams, architect, Tredegar.

WALES.—March 30.—For the erection of two shops and dwellings at Margaret Street, Ynysmeurig Estate, Abercynon. Mr. Arthur L. Thomas, engineer and architect, Pontypridd.

WALES.—March 30.—For the erection of new offices at Risca collieries, Cross Keys, Mon. Secretary, the United National Collieries, Ltd., Exchange Buildings, Cardiff.

WALES.—March 31.—For building a new chapel at Cwmfelin, Monach, near Llanboidy. Messrs. George Morgan & Son, architects, Carmarthen.

WALES.—March 31.—For the erection of a new chapel at Rhostyllen, near Wrexham. Mr. Samuel Thomas, High Street, Rhostyllen.

WALES.—March 31.—For erection of about 10 pairs of villas at Sketty (Swansea). Mr. B. C. Deacon, architect, Central Buildings, Liverpool.

WALES.—March 31.—For the erection of 90 to 100 houses at New Tredegar, for the Powell Duffryn Workmen's Building Society. Mr. Geo. Kenshole, architect and surveyor, Station Road, Bargoed.

WALES.—April 3.—For alterations and additions, together with certain jobbing works, at the Rassau Council schools, Beaufort, and for additions and alterations at the Briery Hill Council schools, Ebbw Vale. Mr. Henry Waters, architect, Beaufort.

WALES.—April 4.—For erecting a caretaker's house, with boundary wall and outbuildings, at Ebbw Vale. Mr. T. J. Thomas, town surveyor.

WALES.—April 4.—For alterations and additions to Cwmdare hotel, Cwmparc, near Treorchy. Mr. W. D. Morgan, architect, Victoria Chambers, Pentre, Rhondda Valley.

WALES.—April 7.—For the erection of a stone bridge at Cwmyglo, Llanarthney, Carmarthen. Mr. John Saer, clerk, 7 Hall Street, Carmarthen.

WALES.—April 10.—For the erection of one detached and two semi-detached villas in Clare Road, Ystalyfera. Mr. Arthur S. Williams, architect, Llandilo.

WALES.—April 11.—For the erection of a waiting-room and platform coverings at Mountain Ash station, near Aberdare, for the Great Western Railway Co. The Engineer, Neath Station.

WALES.—April 15.—For erection of a mixed school and the execution of works connected therewith at Abertaf, Abercynon. Mr. W. G. Thomas, architect, Public Offices, Mountain Ash.

WATH BROW.—April 1.—For building a reading-room at Wath Brow, Cumberland. Mr. A. J. Thompson, secretary, 1 King Street, Wath Brow.

WELLINGTON.—March 28.—For building a Catholic church and presbytery at King Street, Wellington, Salop.



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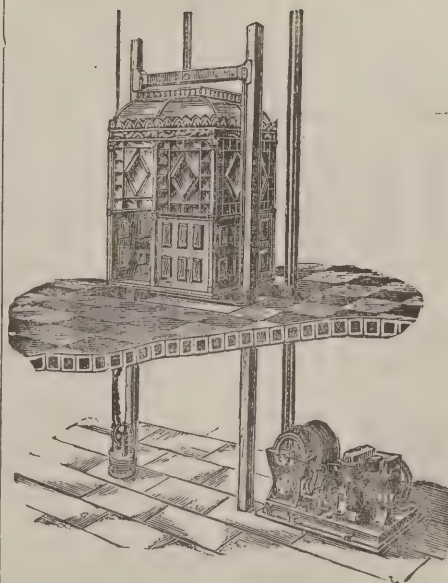
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J. Thomasson & Sons, Bolton	...	Loss	£48.
(Acted ten minutes before sprinkler)	...		
Oleington Spinning Co., Dundee	...	No claim.	
H. Jenkinson, Leeds	...	Loss	£10.
Do. do.	...	Loss	£60.
J. Ireland & Sons, Dundee	...	Loss	£25.
Name withheld by request, Glasgow	...	No claim.	
(Signalled and fire put out; sprinkler did not act)	...		
Shaw, Walker & Co., Glasgow	...	Loss	£225.
Aberdeen University Press	...	No claim.	
Olark & Co. (Ltd.), Anchor Mills	...	Under	£50.
S. Henderson & Sons, Ltd., Edinburgh	...	Under	£50.
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Mr. Myles Morley, architect, Charlton House, Church Street, Wellington.

WHITEHAVEN.—April 3.—For the erection of the Carnegie public library. Messrs. Greig, Fairbairn & Macniven, architects, Edinburgh.

WIDNES.—March 27.—For the enlargement of West Bank Council school. Mr. F. U. Holme, architect, Westminster Chambers, 1 Crosshall Street, Liverpool.

WOKING.—April 1.—For excavating ground and constructing concrete foundations for gasholder, together with sheet-piling around the foundation. Mr. Arthur Valon, engineer, 140 Temple Chambers, London, E.C.

WOODLEIGH.—March 25.—For the erection of a farmhouse at Woodleigh, Devon. Mr. Alfred Steere, architect, Aveton Gifford.

FIRE PROTECTION.

WHAT might have been a very serious fire occurred early on Tuesday morning at the premises of Messrs. W. & C. Pantin, wholesale provision merchants, Upper Thames Street, London, E.C. The fire apparently originated in the basement, near the bottom of the lift, which runs throughout the entire height of the building. Strange to say, the place of the origin of the fire was preserved almost intact, a very fortunate thing, as the floors above were heavily stacked with cases of provisions. The upper portions were very considerably damaged and the lift-well entirely destroyed. On looking round the basement we found that this was lined throughout with Uralite, the new fireproof material, and there is no doubt that if the ground floor had caught the whole place would have been gutted.

THE Mersey Docks and Harbour Board have approved of a recommendation for the construction of a new dock on the site of the Victoria Wharf, Birkenhead. The original plans have been modified. The new dock would be 1,450 feet long, 300 feet wide, with an entrance of about 100 feet, and it would accommodate five or six modern East India ships.

TENDERS.

AUDLEM.

For alteration of hunting stables, Woodhouse Lane. Mr. R. MATTHEWS, architect, Nantwich.

Williams & Sons	£730	0	0
Manley	665	0	0
Wright & Son	600	0	0
Cox & Vaughan	598	0	0
Wood & Sons	590	0	0
Healey	590	0	0
Gresty	590	0	0
Garratt	525	0	0
Stretton & Gibson	510	13	0
Kendal	497	10	0
W. MOULD, Trentham (accepted)	447	10	0

BRANSCOMBE.

For alterations at Higher Bulstone farm. Mr. HARBOTTLE REED, architect, Exeter.

Heath	£284	0	0
Parker	266	0	0
ELLIS & SONS, North Tawton (accepted)	259	10	0

BURTON-UPON-TRENT.

For alterations to the town hall. Mr. HENRY BECK, architect.

J. & J. Hunter	£3,950	0	0
Edwards	3,897	0	9
HODGES (accepted)	3,765	0	0

COUNDON.

For the erection of a Roman Catholic elementary school at Bishop Auckland. Mr. J. KEENAN, architect.

Hope & Son	£2,176	15	0
Scott	1,964	10	7
Hudson	1,811	18	1
Walton	1,839	0	0
Walton Bros.	1,737	12	9
T. MANNERS, Bishop Auckland (accepted)	1,707	16	9
Atkinson, mason, excavator and bricklayer,	£881	12s.	9d.

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For the supply of pipes, &c.			
STAVELEY COAL & IRON CO. (accepted)	5,085	11	7

ETWALL.

For alterations and additions to the County schools. Mr. ARTHUR EATON, architect, Derby.

Radford & Greaves	£1,892	0	0
Vernon	1,580	0	0
Goodwin	1,579	0	0
Parker & Son	1,529	0	0
Dickinson	1,528	0	0
Wood	1,500	0	0
Kershaw	1,500	0	0
Walker & Son	1,465	0	0
Chattle	1,460	0	0
Warner Bros.	1,443	6	0
Walker & Slater	1,450	0	0
Ford & Co.	1,399	0	0
Brown & Son	1,398	0	0
Derby Builders, Ltd.	1,391	2	6
PEGG & BAILEY (accepted)	1,265	7	9

LONDON.

For the erection of stables, Greenmore Wharf, Bankside, S.E., for the Southwark Borough Council. Mr. ARTHUR HARRISON, borough engineer.

Johnson & Co.	£6,690	0	0
R. & F. Evans	6,417	0	0
Ford & Co.	6,374	0	0
Burman & Sons	6,290	0	0
Hoare & Son	5,982	0	0
Marsland & Sons.	5,979	0	0
Renshaw	5,891	0	0
Wallace	5,884	0	0
Wisdom Bros.	5,870	0	0
Neal	5,856	0	0
Holliday & Greenwood	5,816	0	0
Parker	5,790	0	0
F. & H. F. HIGGS, Herne Hill (accepted)	5,790	0	0
Coles	5,594	0	0

LONDON—continued.

For enlargement of sorting office, Willesden, for H.M. Office of Works.

Clayton	£1,945	10	0
Neal	1,832	0	0
Snewin Bros. & Co.	1,740	0	0
Johnson & Son	1,668	0	0
Ansell	1,650	0	0
King	1,604	16	0
Nightingale	1,590	0	0
General Builders, Ltd.	1,589	0	0
Norton	1,580	0	0
Pollard & Brand	1,580	0	0
Christie	1,574	10	0
Speechley & Smith	1,570	0	0
Banyard & Son	1,558	0	0
Chinchen & Co.	1,544	0	0
Aldridge & Son	1,515	0	0
Martin, Wells & Co.	1,498	0	0
Roome & Co.	1,495	0	0
Pearce	1,490	0	0
Wiggs	1,486	0	0
Cowley & Drake	1,391	16	3
Simmons	1,367	0	0
SHELBOURNE & CO. (accepted)	1,316	0	0

For the erection of factory premises at Mountford Place, Kennington. Mr. A. W. TRIBE, architect.

Brittain	£1,495	0	0
Hoare & Son	1,489	0	0
Smith & Sons	1,475	0	0
Parsons	1,474	0	0
Hibberd Bros., Ltd.	1,450	0	0
F. & H. F. Higgs	1,423	0	0
RICE & SON (accepted)	1,333	0	0

For painting interior of Hanbury Street school, White-chapel.

Bouneau	£232	10	0
Holliday	223	0	0
Woollaston & Co.	186	0	0
Haydon & Sons	175	14	0
Sheffield	138	0	0
Vigor & Co., Poplar (recommended)	127	10	0

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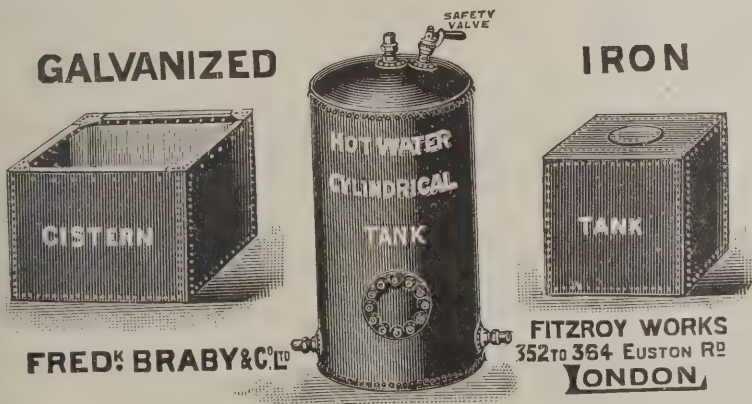
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LONDON—continued.

For painting interior and exterior of Oxford Gardens school, Kensington.

Neal	£719	0	0
Sole & Co.	670	18	6
Clifton	638	0	0
Peattie	543	0	0
W. R. & A. Hide	439	15	0
Bristow & Eatwell	425	0	0
Sealy	419	10	0
Polden	393	0	0
Brown & Sons	392	4	3
Thompson & Beveridge	388	0	0
Chinchen & Co. (recommended)	344	0	0

For painting interior and exterior of George Street school, Camberwell.

Green	£689	0	0
Williams	642	12	0
Ford	527	0	0
Lathey Bros.	501	0	0
Goad	477	0	0
Sims	457	10	0
Maxwell Bros., Ltd.	451	3	4
J. & C. Bowyer	411	0	0
W. King & Son (recommended)	394	0	0

For painting interior and exterior of Webb Street school, Bermondsey.

Williams	£408	0	0
Hayter & Son	374	10	0
Banks	372	19	0
Seager & Son	318	10	0
Proctor	223	0	0

For painting interior of Surrey Square school, Walworth.

Ford	£443	0	0
Appleby & Sons	393	0	0
Williams	378	0	0
Holliday & Greenwood, Ltd.	325	0	0
Triggs	310	0	0
Maxwell Bros., Ltd.	304	9	0
G. Brittain (recommended)	285	0	0

LONDON—continued.

For painting interior of Trundley's Road school, Deptford.

Holloway	£271	0	0
Leng	247	0	0
Banks	224	0	0
Musgrove	192	10	6
Howie	189	0	0
Hayter & Son	188	7	6
H. Groves	185	0	0

For painting interior of old portion and cleaning interior of new portion of Randall Place school, Greenwich.

Harris	£362	0	0
Woollaston & Co.	340	0	0
Holloway	339	0	0
Leng	308	0	0
Banks	287	18	6
Jones	281	0	0
Musgrove	277	17	0
Howie	275	0	0
W. Hayter & Son (recommended)	265	9	6
Groves	254	0	0

For painting interior and exterior of Rockingham Street school, Newington.

Green	£567	0	0
J. Appleby & Sons	552	0	0
Goad	516	0	0
Sims	496	0	0
Holliday & Greenwood	447	0	0
Triggs	399	0	0
W. Sayer & Son	395	0	0
H. Leney & Son	392	10	0
G. Brittain (recommended)	356	0	0

For painting interior and exterior of Pritchard's Road school, Bethnal Green.

Porter	£678	0	0
Derby	618	0	0
Barrett & Power	600	0	0
Shurmur & Sons, Ltd.	574	0	0
Silk & Son	558	0	0
Stevens Bros.	548	0	0
Haydon & Sons (recommended)	520	0	0

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SIDE, DRIES IN ABOUT
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LONDON—continued.

For painting interior and exterior of Lant Street school, Southwark.			
Lathey Bros.	£606	0	0
Derby	572	0	0
Brown & Sons	536	3	6
Hornett	513	5	0
J. Greenwood, Ltd.	512	0	0
Leney & Son	489	10	0
Sayer & Son (recommended)	472	0	0
Brittain	458	0	0

For rebuilding 171 Strand, W.C. Messrs. THOMSON & POMEROY, architects, Wimbledon.

Imperial Tobacco Co. Works Department	£5,968	10	0
Howard & Co.	5,300	0	0
Holloway Bros., Ltd.	5,200	0	0
Lorden & Son	5,089	0	0
Carmichael & Co.	5,078	0	0
Higgs & Hill	4,984	0	0
Perry Bros.	4,857	0	0
T. HOLLOWAY (accepted)	4,559	0	0
Patman & Fotheringham	4,553	0	0

For painting interior of Wenlock Road school, Hoxton.

McCormick & Son	£451	0	0
Harris & Co., Ltd.	400	0	0
Stewart	399	10	0
Grover & Son	376	0	0
Bouneau	353	14	0
Vigor & Co.	335	0	0
Stevens Bros., Yonge Park (recommended)	328	0	0

For painting interior of the Victoria school, Hammersmith.

Neal	£519	0	0
W. R. & A. Hide	443	0	0
Chidley & Co., Ltd.	420	10	0
Polden	359	12	0
Brown & Sons	328	13	6
Hornett	328	0	0
General Builders, Ltd.	298	0	0
Bristow & Eatwell	287	0	0
Sealy (recommended)	268	10	0
Chinchen & Co.	254	0	0

LONDON—continued.

For painting interiors and exteriors of schools, Capland Street, Marylebone.

Peattie	£596	0	0
Cruwys	496	0	0
Densham & Sons	420	0	0
Foxley	418	0	0
F. Chidley & Co., Ltd.	410	0	0
Holloway Bros., Ltd.	409	0	0
Thompson & Beveridge	398	0	0
W. Johnson & Co.	339	0	0
Chappell	310	0	0
F. T. Chinchen & Co., Kensal Green (recommended)	288	0	0

For painting interior of Hanover Street school, Islington.

Patman & Fotheringham, Ltd.	£535	0	0
L. H. & R. Roberts	527	0	0
Harris & Co., Ltd.	520	0	0
Williams & Son	492	0	0
McCormick & Sons	484	0	0
Marchant & Hirst	396	0	0
Grover & Son	387	0	0
Stevens Bros.	372	15	0
Porter	355	0	0
Chappell	340	0	0
Barrett & Power (recommended)	310	0	0

LEITH.

For the ironwork, &c., for the roof of the new tramways depôt.

A. FINDLAY & Co., Motherwell (accepted)	£2,220	0	0
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PURTON (WILTS).

For the erection of dwelling-house at the Butts, for Mr. A. C. Mussell. Messrs. DREW & SONS, architects, Swindon.

Flewelling	£397	17	6
Barnes & Sons	340	0	0
Lay	275	10	0
LITTLE BROS., Purton (accepted)	227	10	0

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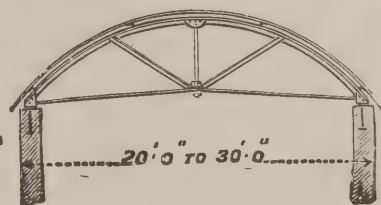
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MANCHESTER

TRAFFORD PARK.

MALDON.

For the supply of a new fire-engine, Maldon, Essex.

MERRYWEATHER & SONS (<i>accepted</i>)	£210	0	0
Shand, Mason & Co.	200	0	0

REDBOURN.

For alterations to Cumberland Cottage, Crown Street. Mr.

H. F. MENCE, architect, St. Albans.			
Vail & Williamson	£549	0	0
Miskin & Sons	535	0	0
H. SALISBURY & SON, Harpenden (<i>accepted</i>)	449	0	0

For the erection of new stables with coachman's residence.

Mr. H. F. MENCE, architect, St. Albans.

Salisbury & Son	£772	0	0
Miskin & Son	700	0	0
BOFF BROS., Park Street (<i>accepted</i>)	665	0	0

SHEFFIELD.

For the erection of first portion of workshops, blacksmiths' shop, &c., for the Midland Manufacturing Co. Messrs. HALL & FENTON, architects, Sheffield.

Fidler, Ltd.	£3,516	0	0
Charlesworth	3,494	12	0
O'Neil & Son	3,393	0	0
Eshelby & Son	3,385	0	0
Mastin & Son	3,359	0	0
Powell & Son	3,267	0	0
Ashton & Biggin, Ltd.	3,220	0	0
Hollingworth & Bedford	3,212	2	7
Martin & Hughes	3,180	0	0
Carr	3,165	0	0
White & Son	3,150	0	0
Mears	3,150	0	0
Brumby & Son	3,140	0	0
Freckingham	3,125	0	0
Wilkinson & Son	3,083	0	0
Margerrison	3,050	0	0
BOOT & SON, Sheffield (<i>accepted</i>)	3,030	0	0
White	2,981	0	0

For the erection of a nursery block at the workhouse.

J. VASEY & SON (<i>accepted</i>)	£5,160	16	0
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SCOTLAND.

For sewage purification works at Auchenrath, for the Hamilton Town Council. Messrs. WYLLIE & BLAKE, engineers, Glasgow.

Accepted tenders.

Contract No. 1, embracing the special valves, fittings and alternating gear, to be supplied by the Septic Tank Company, Ltd.	£1,930	0	0
Contract No. 2, septic tanks and bacteria filters, James Johnstone, Bellshill	5,449	4	1
Contract No. 3, for boundary fence, A. J. Main & Co., Glasgow	592	11	4
Contract No. 4, for concrete pipes, J. A. M'Taggart & Co., Glasgow	234	0	0
Contract No. 5, for filtering material, Shanks & M'Ewen, Glasgow	753	13	4
Total cost	8,959	3	9
Estimated cost	13,000	0	0

SUTTON.

For the construction of a covered service reservoir. Mr. W. VAUX GRAHAM, engineer, Westminster.

R. Jones & Son	£4,935	0	0
Neal, Ltd.	4,723	0	0
Bull & Esdaile	4,599	0	0
Pedrette	4,541	5	2
W. Johnson & Son, Ltd.	4,255	0	0
Mayoh & Haley	4,114	1	10
Catley	3,946	0	0
Jackaman & Son	3,925	0	0
Lawson	3,909	0	0
Kirk & Randall	3,877	0	0
W. Cubitt & Co.	3,866	17	6
Trimm	3,849	0	0
Potter	3,813	0	0
A. H. Ball & Co.	3,812	14	0
Moran & Son	3,780	4	1
G. E. Wallis & Son, Ltd.	3,760	0	0
Nunn	3,617	12	8
Roll & Taylor	3,595	0	0
Yorkshire Hennebique Contracting Company, Ltd.	3,436	14	8
Pethick Bros.	3,414	0	0

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ST. AIDAN'S CHURCH, BASFORD, NOTTINGHAM.

CHURCH AT GOTHEN, IN THE ISLAND OF GOTHLAND, SWEDEN.

SUTTON—continued.

Ford	£3,397	0	0
Harrison & Co.	3,353	0	0
Bell	3,348	0	0
Cunningham, Forbes & Co.	3,341	4	1
Peerless, Dennis & Co.	3,337	0	0
Muirhead, Grieg & Matthews	3,332	17	8
Kavanagh & Co.	3,264	7	0
J. A. EWART, Westminster (accepted)	3,262	12	6
Rogers & Wood	3,131	2	0

WALES.

For erection of Primitive Methodist chapel and schoolroom, Aberbeeg, Mon. Mr. R. L. ROBERTS, architect, Abercarn.			
Gaen Bros.	£1,753	16	0
Tudor	1,685	0	0
M. ADAMS, Abertillery (accepted)	1,364	11	0
Jenkins	1,360	0	3
Powell	1,218	3	0

WALSALL.

For the erection of a senior mixed department for 300 children, with a new classroom for fifty infants as an addition to the present infants' school, and sundry alterations to the present boys and girls' schools. Messrs. BAILEY & MCCONNAL, architects, Bridge Street, Walsall.			
Hadley & Sons	£5,476	0	0
Jones	5,292	0	0

WALSALL—continued.

Meredith	£5,271	0	0
Sapcote & Sons	5,157	0	0
Harley & Son	5,137	0	0
Dallow	4,900	0	0
Wistance	4,886	0	0
Mallin	4,880	0	0
Willcock & Co.	4,843	0	0
J. Hall & Son	4,841	0	0
W. & J. Webb	4,824	0	0
J. Herbert	4,783	0	0
Oakley & Coulson	4,781	0	0
Brockhurst & Wood	4,731	0	0
Gibbs	4,723	0	0
Round	4,699	0	0
Giles & Son	4,681	0	0
Lynex	4,660	0	0
Insley	4,633	0	0
Marshall	4,599	0	0
Kendrick & Sons	4,573	0	0
Hardy	4,563	0	0
Gowing & Ingram	4,557	0	0
Jackson	4,498	0	0
Wootton	4,496	0	0
Mason	4,481	0	0
Tildesley	4,444	0	0
Speake & Sons	4,284	0	0
Bishop	4,264	0	0
H. GOUGH, Wolverhampton (accepted)	4,175	0	0

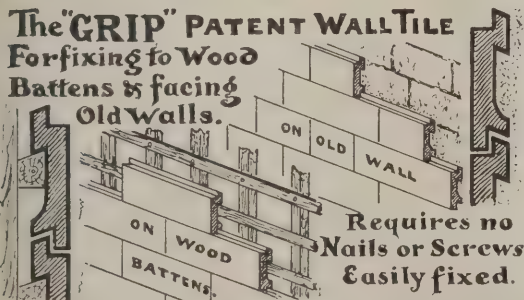
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LONDON.

For taking-up and relaying the wood-block floors in rooms A and B in the infants' department of the Smeed Road school and also in the babies' room.			
Derby	£240	0	0
Acme Flooring and Faving Co.	149	0	0
Bouneau	140	0	0
Vigor & Co.	131	10	0
Parrett & Power	117	0	0
J. T. Robey, Bow Road (recommended)	93	0	0

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Battens & facing
Old walls.



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LONDON SHOWROOMS 2 & 3 NORFOLK ST STRAND W.C.

GLEMSFORD.

For the construction of waterworks, for the Glemsford Urban District Council. Mr. JOHN T. EAYRS, engineer, Birmingham.

Contract 2—Cast-iron pipes and specials.

Watson, Gow & Co.	£806	17	0
Cochrane & Co.	769	9	6
Edward Tabor	768	9	0
Biggs, Wall & Co.	751	15	0
Thurman	744	3	3
Cloake	738	16	9
Alfred H. Ball & Co.	736	8	9
Staveley Coal and Iron Co.	734	17	5
Jackson	734	11	1
Claycross Co.	730	19	6
Stanton Ironworks Co.	723	2	6
Oakes & Co.	710	0	0
HOLWELL IRON CO., Melton Mowbray (accepted)	702	15	1

Contract 3—Laying and jointing water mains.

W. Hodge & Sons	619	12	1
Langley & Westmoreland	564	18	5
A. H. Ball & Co.	530	18	7
Thurman	519	4	3
Jarvis	494	12	3
Tabor	482	19	0
Rogers & Wood	459	16	6
APPLEBY, Leyton, Essex (accepted)	399	1	4

Contract 4—Water-tower and pumping station.

Brown	881	2	7
G. Grimwood & Sons	789	10	0
McKay	693	10	0
Thurman	663	7	1
Spencer, Santo & Co.	650	14	11
Rogers & Wood	617	7	5
Tabor	613	10	3
LANGLEY & WESTMORELAND, K'ron Lincolnshire (accepted)	563	0	11

GLEMSFORD—continued.

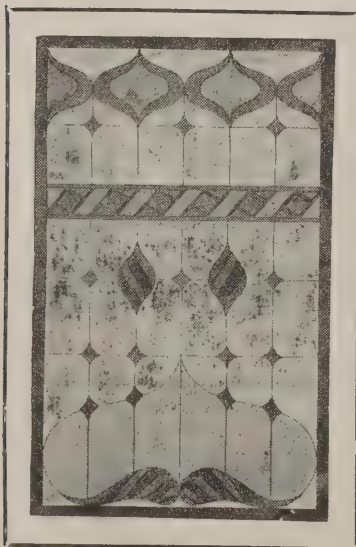
Contract 5—Oil-engine and pump.

The National Gas Engine Co., Ltd.	£669	17	6
Ruston, Proctor & Co.	581	6	6
Gimson & Co.	565	16	0
Glenfield & Kennedy	565	1	6
Hornsby & Sons	548	3	6
Hayward, Tyler & Co.	546	10	3
Edward Tabor	529	7	6
Timmins & Sons	492	13	6
Crossley Bros.	487	2	6
Waller & Son.	458	9	6
Tangyes, Ltd.	457	17	6
Pollok, Whyte & Waddel	442	12	6
Dougal & Co.	439	13	6
Bailey & Co.	437	7	6
Pearn & Co.	429	19	6
The Britannia Engineering Co.	417	1	2
THE CAMPBELL GAS ENGINE CO., Halifax (accepted)	400	0	0
Mather & Son.	391	11	6
Blackstone & Co. (engine only)	159	7	6

Contract 6—Circular steel tank, 20 feet 3 inches diameter by 15 feet 6 inches deep, for water tower.

Lancaster & Co.	877	17	6
Dodman & Co.	568	16	6
Danks & Co.	559	9	0
Tabor	498	0	4
Mechan & Sons	435	0	0
Hanna, Donald & Wilson	430	10	0
Morton & Co.	427	16	9
Wheeler.	365	7	6
The Barrowfield Ironworks	352	17	10
R. & J. Dempster, Ltd.	338	10	0
Heenan & Froude	335	11	6
Piggott & Co.	334	0	0
Gimson & Co.	332	19	6
Newton, Chambers & Co.	270	8	6
WESTWOOD & WRIGHTS, Brierley Hill (accepted)	266	6	0

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WHAT USERS SAY.

Messrs. J. Thomasson & Sons, Spinners, of Bolton write:—“A small fire occurred on our premises. The May-Oatway Alarm worked satisfactorily, 10 minutes before the Automatic Sprinkler went off.” Loss £45. What have you done to limit your loss?

Messrs. S. Henderson & Sons, Ltd., Biscuit Works Edinburgh, write:—“A fire broke out in our factory during the dinner hour on January 13, 1905, when the May-Oatway installation (put in since our previous fire saved a very serious loss. We now have a pleasing sense of security in having an automatic system which not only gives immediate warning to our own staff, but calls the Fire Brigade as well.” Loss under £50.

MAY-OATWAY FIRE ALARM.—Rt. Hon. Richard Seddon, P.O., Premier, writes:—“This system has been largely adopted in New Zealand, and has given the greatest satisfaction.” (The Government are the largest users protecting Schools, Asylums, &c.)

Mr. H. Jenkinson, Printer, Leeds, writes:—“Fire March 16 and December 12. Both instantly signalled to Fire Station by the May-Oatway Fire Alarm, and resulting in comparatively little loss.” Claims paid, £10 and £80 respectively. What have you done to limit your loss?

Send for circular, or call and inspect 94 Paul Street E.C.; Glasgow, Liverpool and Manchester.

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PENISTONE.

For the works in connection with the Bridge End sewage scheme. Messrs. SPINKS & PILLING, engineers.
SUTCLIFFE BROS., Sowerby Bridge (accepted) £1,365 16 3

SMETHWICK.

For the erection of a steel skew bridge over the canal.
E. C. & J. KEAY (accepted) £2,189 0 0
For the construction of an elevated railway ending at Soho, in connection with the gasworks.
E. C. & J. KEAY (accepted) £2,626 0 0

ELECTRIC NOTES.

The Barnsley municipal electricity works will be enlarged at a cost of about 4,500*l*.

The Clonmel asylum is to be lighted by electricity according to the scheme prepared by Mr. Lawless, Dublin.

MESSRS. BRUCE PEEBLES & Co., LTD., Edinburgh, have received the contract from the Lancashire Electric Power Company for the supply of large alternating current motors.

The negotiations between the Arbroath Town Council and the Empire Electric Light and Power Company, London, for the introduction of the electric light into Arbroath have come to a deadlock. It appears that the Town Council wished the company to pay over 75*o*l. as the price of the provisional order obtained by the Town Council a year or two ago. This order was to be transferred to the company on payment of the above sum, which was to be retained by the Council in the event of the company failing to satisfy the Board of Trade that they were in a position to discharge fully and efficiently the duties and obligations which would be imposed upon them by the order and the deed of transfer. The company have refused to pay the 75*o*l. on these terms, and after more than a year's negotiations the company have intimated that they are not prepared to go on with the matter.

The British South Africa Company exhibited recently at their London offices a portion of the cable which has been

thrown across the Zambesi river at the site of the Victoria Falls Bridge, together with a photograph of this cableway at work. The cable consists of a steel rope of about 870 feet long, composed of six strands each of thirty-seven wires, and is 8½ inches in circumference, its breaking strain being 275 tons. Owing to the geological formation below the Victoria Falls no scaffolding could be erected for building the bridge, and it was decided to erect an aerial cableway, by which the material could be transported across the Zambesi, so that the bridge could be constructed from each bank simultaneously. The cable is suspended between two steel supports, one oscillating and the other a fixed standard "anchored," and a trolley or conveyer runs along the rope and carries the material over the river. The motive-power for working the trolley is electricity generated by a dynamo on the south bank of the Zambesi, and the whole is worked by a man who rides in the machine and controls the operations. The cableway was constructed in this country. In addition to the bridgework all the permanent way material, rolling stock and stores necessary for the extensions of the railway on the other side are being conveyed across the river by the cableway. Eight hundred tons can be taken across the Zambesi in a single day.

BUILDING AND BUILDERS.

The Smethwick Town Council have approved the plans for the erection of a joint infectious hospital at Holly Lane by the Smethwick and Oldbury Councils at an estimated cost of 19,525*l*.

The War Department have approved of the plans and estimates for rebuilding the Royal Artillery Theatre, Woolwich, recently destroyed by fire. The estimated cost is 5,800*l*.

The Brighton town clerk has informed the various firms who tendered for the execution of alterations at the Aquarium that owing to the refusal of the Local Government Board to sanction a loan of £16,000*l*. for the purpose none of the tenders can be accepted.

CHEDDLETON asylum, near Leek, was erected in 1899, with accommodation for 600 patients. On Tuesday the Staffordshire County Council authorised an expenditure of

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92,000*l.* for the accommodation of 400 additional patients. It was stated that the total indebtedness of the county, amounting to fully 400,000*l.*, is almost entirely owing to the expenditure upon asylums.

It is stated that negotiations were concluded on Tuesday afternoon for the erection of a huge motor-car works at Alexandria, Dumbartonshire. The works proper will cover 20 acres, while 30 acres will be devoted to the building of workmen's dwellings. The capital of the motor company is half a million, and has been twice subscribed for. The works will give employment to over 1,000 persons.

THE Tower Bridge police court will be used for the first time on the 25th inst. The site was purchased for 19,000*l.* The cost of the court, together with the adjoining police station, has been 45,000*l.* The materials used for the exterior are granite, red bricks and Portland stone. The buildings were erected according to the designs of Mr. J. Dixon Butler, police surveyor, and are the first to be carried out under the direction of the Receiver of Metropolitan Police.

THE accounts prepared by the War Office under the provisions of the Military Works Act, showing the amount expended and borrowed to March 31, 1904, have been presented to Parliament. The amount issued to the War Office was 20,810,500*l.*, and the amount expended 10,256,729*l.* This sum has been expended as follows:—On defence works, 2,193,414*l.*; barracks, 5,714,464*l.*; ranges, 1,924,721*l.*; staffs, 424,129*l.* The defence works which were carried out at home stations cost 1,337,811*l.*, and foreign stations 854,770*l.* The outlay on barracks shows that 655,627*l.* was spent on the Aldershot district, 1,100,607*l.* on the south district, 498,706*l.* on Ireland, 586,303*l.* in the east district, 44,803*l.* in the north-eastern district and 25,404*l.* in Scotland.

THE London County Council have rejected a recommendation of the Building Act committee that leave should be granted for the erection of a row of shops 9 feet in advance of the present building line of the north side of Kensington High Street. The owner desired to partly cover the space now used as a garden.

VARIETIES.

THE Town Council of Langholm have selected Messrs. D. Balfour & Son, of Edinburgh, to report on a scheme of sewage disposal for the burgh.

Courts's old premises on the south side of the Strand, having been acquired by the London County Council, will be partly used by that body for offices. The ground floor will be let as shops.

A SYNDICATE has acquired property in Home Street, Edinburgh, for the purpose of erecting a theatre. The building is to accommodate 3,000 people. All the tenants have, it is understood, been warned, and operations will begin after the Whitsunday term.

THE Edinburgh School Board have approved of sketch plans prepared by Mr. Carfrae, the architect, of the school to be erected on the site acquired by the Board in Gillespie Street. The plans show a building capable of providing accommodation for 1,524 pupils.

THE Guildford education committee are considering the plans prepared by Messrs. Jarvis & Richards, architects to the Surrey County Council, for the technical school which it is proposed to erect in Park Street, Guildford, at a cost of 6,500*l.*

THE parks and baths committee of the Preston Corporation have decided to construct, at a cost of 650*l.*, an open-air swimming bath in Moor Park. It will be 100 feet in length and 60 feet in breadth, and its depth will vary from 3 feet to 4 feet 6 inches.

THE new War Office in course of erection in Whitehall is expected to be ready for use early in 1906. The contract with Messrs. Foster & Dicksee amounted to 447,000*l.* The work, which was designed by the late Mr. W. Young, is being carried out under the supervision of his son, Mr. C. Young, and Sir J. Taylor.

THE Aberdeen improvements committee have recommended the Town Council to proceed with the widening of Union-bridge from its present width of 40½ feet to 60 feet, granite to be the material employed. It is also recommended that, as proposed by Mr. Dyack, burgh surveyor, the top of the existing structure should be made watertight. The total cost of the scheme is estimated at 15,800*l.*

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A SPECIALTY.

MATHER & PLATT, Ltd.
ENGINEERS,

Park Works, Newton Heath, **MANCHESTER.**

Queen Anne's Chambers, Westminster, **LONDON.**

A PUBLIC meeting held in Edinburgh last week approved of the project for the promotion of "an exhibition Edinburgh in 1907 of arts, science, industries, inventions, literature, produce and manufactures." The intention to illustrate the progress of the Scottish people from time of the Union with England in 1707. A site of acres is procurable at Murrayfield at a rent of 10s. an acre.

THE Brighton Council have approved of the scheme for paving of a portion of Madeira Road with tar, macadam of length of 1,100 yards. It is proposed to lay it in two thicknesses, with a thin coating of fine stuff on the top, which, when rolled and consolidated, should maintain a uniform thickness of 4 inches. The work has special reference to decision of the Automobile Club to go to Brighton for their motor week.

AN extensive sewerage scheme has been in progress at Cudworth, Yorkshire. The work includes the laying of pipes and the construction of outfall works. Since the laying of the pipes commenced the ground has in various places subsided from 1 to 2 feet, owing to the colliery workings underneath. The work has had to be stopped, and the engineer is instructed to make the best terms he can with the contractors.

At the Surveyors' Institute, Mr. A. L. Ryde sat as president, with Messrs. Henry Drew and C. W. Stephenson (secretaries) in a claim brought by Mr. Rendle against the Secretary of State for War for compensation in respect of compulsory acquirement by the Army Council of several thousand acres of land at Lydford for military purposes, including the formation of a camp. The usual notices to quit were served, but the holders claimed considerably more than was offered, and the present proceedings resulted. The amount claimed was about 150,000l.

DURING a discussion by the Wrexham Town Council the Brymbo sewage works it transpired that the outfall works had been placed on a farm and a twenty-one years' lease secured, but that time had expired, and under the terms of the lease all the works became the property of the landlord. Thus the Council had a thorough scheme of drainage, but no outfall. It was decided that steps be taken at once to purchase land on which to erect new outfall works.

At Carpenters' Hall on Thursday evening, the 16th inst., a lecture was delivered before a large audience by Mr. H. Phillips Fletcher, F.R.I.B.A., on "The St. Louis Exhibition, 1904." The chair was occupied by Viscount Dillon, and there were also present, among others, the Master (Mr. F. A. Crisp), the wardens (Messrs. A. B. Hammond and W. Robertson), Mr. J. C. Preston, Mr. J. Willson, J.P., Mr. Walter Smith, Mr. Percy Preston and the clerk, Mr. J. Hutton Freeman. The lecture proved thoroughly interesting, and was illustrated by a number of very fine lantern views, so that a realistic idea was conveyed of the varied extent of this wonderful show.

MESSRS. DAVID ROLLO & SONS, engineers, Liverpool, have offered to take two engineering students from Liverpool University into their works every year, allowing them to count the time spent at the University towards their apprenticeship. The condition laid down is that the students must have graduated as bachelors of engineering, preferably in honours. Thus a full apprenticeship can be served by three years at the University and two years with Messrs. David Rollo & Sons, making a total of five years. This arrangement will also satisfy the Board of Trade requirements, the Board having undertaken to recognise the time spent at the University under the faculty of engineering in the proportion of two years for every three years, but a total of four years' apprenticeship only is required by the Board.

TRADE NOTES.

THE new union infirmary, Poole, is being warmed and ventilated by means of Shorland's double-fronted patent Manchester stoves with descending smoke flues.

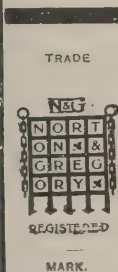
OUR contemporary, the *Timber Trades Journal*, has sent us a copy of their thirty-second annual special issue. It is a huge number, well printed, and containing much of interest to those interested in the building trades.

MESSRS. W. SUMMERSCALES & SONS, LTD., of Phoenix Foundry, Keighley, have been selected to supply the laundry machinery to the sanatorium now being erected for His Majesty the King at Midhurst, Sussex.

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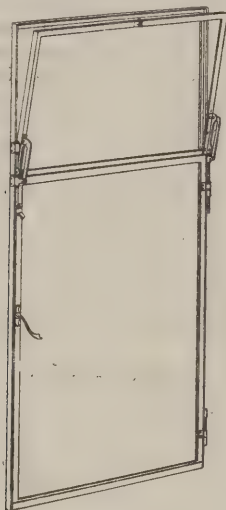
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THE insurance companies charge reduced premiums for buildings which have windows of steel and wire-woven glass. Messrs. F. Braby & Co., Ltd., of London and Glasgow, have introduced a new sash which will not only afford the security which belongs to steel, but will allow of partial or entire opening for ventilation. They have also the security offered by a "lock-joint." Cleaning no longer becomes a risky or troublesome operation with such a window. The sash consists of an upper and a lower part. The top can be opened from 4 to 6 inches, while the bottom part remains closed, but with a wider opening above the bottom sash becomes raised from 2 to 4 inches. In that way provision



is made for the passage of both incoming and outgoing air. Ventilation of a room or ward is therefore accomplished in the easiest manner. For hospitals and asylums the new window will be found to possess many advantages. By means of it municipal regulations for opening and cleaning windows can be complied with. Another advantage is that

with the window there is no need of boxing. They can be readily substituted for ordinary windows. Although the fittings were only lately offered for use they have been already introduced into hospitals, libraries, police-station schools, &c. Wire glass can be used with them.

CUSTODIS CHIMNEYS.

WE were among the earliest to recommend the adoption of the Alphons Custodis chimneys. The long list of tall chimney shafts which have been constructed on the patent system, as well as those which are in progress, is a testimony to the truth of what we said, as well as evidence of the superiority of the principle. Four stacks, each 275 feet by 19 feet, have been constructed for the new power-station at Chelsea. The Frodingham Iron Works have one 220 feet by 12 feet. The British Westinghouse Electric and Manufacturing Company will have two, 225 feet by 11 feet. Similar sizes have been adopted for the Clyde Valley Power Company. Messrs. Greaves, Bull & Laken have given a second order for a chimney 135 feet by 5 feet 6 inches. We have not yet, however, a chimney constructed by the firm in England which will rival one of theirs at Constable Hook, New Jersey, which is 365 feet in height, being the tallest chimney in America. The descriptive pamphlet just issued by the Alphons Custodis Chimney Construction Company has illustrations of many of the English examples, which form a most interesting collection.

MESSRS. VICKERS, SONS & MAXIM submitted to the Barrow education committee a scheme regarding their apprentices. In future all apprentices in the engineering and ordnance department will have to pass examinations in algebra, geometry, reading, writing and arithmetic. Apprentices are to be advised to attend the technical school, and any successes gained carry increased wages and a later hour for starting work in the mornings. Promotion to the drawing office is contingent upon attendance at the technical school's special classes. The firm have over 700 apprentices, and only about half now attend the technical school. The scheme will cost Vickers 900l. a year.

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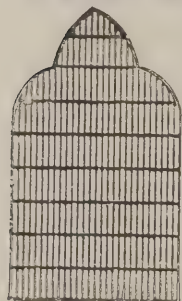
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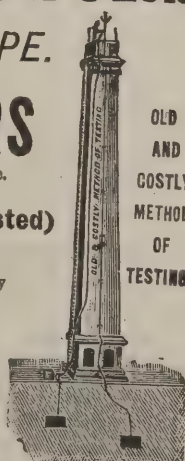
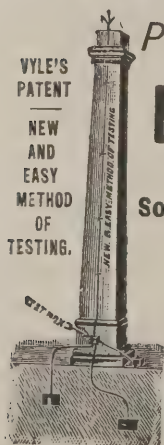
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ELECTRO-GLAZED CASEMENTS.

ASS so quickly succumbs in fires, it is regarded with dread by firemen. It may on that account appear to have been most absurd to submit glass to such tests as the British Fire Prevention committee can devise. The trial was, however, arranged by the British Luxfer Prism Syndicate, Ltd., in order to display the power of resistance offered by their electro-glazed casements. The details of the severe experiments are published in an official "Red-book," No. 91. They were carried out under the direction of Mr. James Sheppard, who says of the windows:—"It is satisfactory to learn that with casements of this description it is possible to obtain protection to window openings against attacks from outside fires for a period of forty-five minutes. The importance of protection of this nature is shown by the large fires that have occurred during the past year where buildings have been involved by flame entering through the windows." With such an experience all scepticism about the resistance offered by the electro-glazed casements must vanish.

THE CITY ENGINEER COMPETITION.

THE full list of candidates for the position of engineer of the City of London, which has become vacant owing to the retirement of Mr. D. J. Ross, is, according to the *City Press*, as follows:—

Mr. W. N. Blair, Town Hall, Pancras Road.
Mr. W. Burch, Admiralty Office, Devonport.
Mr. S. E. Burgess, borough engineer, South Shields.
Mr. L. H. Chase, Runcorn.
Mr. H. W. Collier, Saltburn.
Mr. O. E. Collins, Guildhall, Norwich.
Mr. A. Fiddler, Guildhall, Northampton.
Mr. J. Hardasty, Longsight, Manchester.
Mr. J. F. Harrison, 1 Central Avenue, Partick, N.B.
Mr. W. T. Hatch, Metropolitan Asylums Board.
Mr. W. R. P. Hedderstedt, Orpington, Kent.
Mr. H. L. Hinnell, 41 Corporation Street, Manchester.
Mr. J. S. McKae, 17 Marine Terrace, Criccieth, North Wales.

Mr. W. R. Morris, London County Council Engineer's Office.

Mr. W. Oxtoby, Town Hall, Camberwell.

Mr. A. Pearce, Avonmouth Dock Works, Bristol.

Mr. N. Scorgie, Town Hall, Hackney.

Mr. F. Sumner, Town Hall, Woolwich.

Mr. C. H. N. Sutter, 7 Westview Terrace, Bray, Ireland.

Mr. J. E. Swindlehurst, city engineer, Coventry.

Mr. E. Van Putten, Town Hall, Catford.

Mr. F. Wood, engineer, Town Hall, Fulham.

RECENT CASES ON THE WORKMEN'S COMPENSATION ACT.

THE work of constructing a practical body of rules and definitions from the somewhat vague indications of the intention of the Legislature contained in the sections of and the schedules to the Workmen's Compensation Act goes on apace. Some recent decisions of the Court of Appeal have put constructions upon several words and phrases the meaning of which, in spite of the multitude of cases already decided, remained obscure.

The two cases of *Ellis v. Joseph Ellis & Co.*, and *Simpson v. Ebbw Vale Steel, Iron and Coal Company*, deal with the question, Who is a workman within the meaning of the Act? In the first named case a member of a partnership, formed for the purpose of working a mine, worked in the mine as a foreman at a weekly wage. While so working he met with an accident which caused his death. The Court decided that the Act had no application to a case of this kind. The Act contemplates a case where there is an employer and an employé. A person cannot, for the purposes of the Act, "occupy the position of both employer and employé." The work done in such a case by the acting partner is really a contribution in kind to the partnership assets. The wages paid him are really an extra reward for his extra contribution. To bring the case within the Act there must be on the one side an employer and on the other an employé who are different persons. That condition, as Cozens-Hardy, L.J., pointed out, would be satisfied in the

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case of a workman employed by a company who received a share of the profits. It is not satisfied where a partner, by arrangement with the other partners, receives for work done sums of money, whether those sums are called wages or not.

In the second of these cases a more difficult question arose. In that case the manager of a mine at a salary of 400l. a year, a house rent free and coal, who was not required to do any manual work, was killed by an accident arising in the course of his employment. The Court decided that such a person was not a workman within the meaning of the Act. The difficulty of arriving at this decision was caused by the width of the language used in defining the term "workman." According to section 7, subsection 2, of the Act, "a workman" includes "every person who is engaged in an employment to which this Act applies, whether by way of manual labour or otherwise." Construing that definition strictly, it would seem to be a little difficult to exclude the deceased from the category of workmen. On the other hand, he was certainly not a workman in the popular sense of the term. The Courts have before now held that due regard must be paid to the fact that popular language is employed by the Act. Applying this principle it came to the conclusion that, as such a person as the deceased could not in common parlance be called a workman, he was not a workman for the purposes of the Act. As the Master of the Rolls pointed out, if the language of the Act were interpreted merely according to its grammatical construction, it might include such persons as solicitors and estate agents. He pointed out that the whole object of the Act was to help by a sort of State insurance persons who could not afford to insure themselves. The Act could not therefore apply to persons who were earning salaries which enabled the recipients to insure themselves. Moreover, the part of the Act which deals with the amount of compensation payable contemplates a person who is earning a weekly wage. The amount in case of temporary incapacity is not to exceed 20s. per week. This shows that it is not meant to be applied to the case of "a man who might be earning thousands a year." The exact line, the Court admitted, it was difficult to draw. Each case must be decided on its own facts.

The case of *Aylward v. Mathews* deals with the question of what is a building within the meaning of the Act. It was decided that a wooden structure exceeding 30 feet in height, used as a temporary platform for a crane which was employed upon a building, was itself a building. The Master of the Rolls pointed out that it was hardly possible to construe the Act unless the language used is considered in connection with the objects at which it aims. The Act seems to have contemplated that workmen were subjected to certain risks if they were employed upon the erection or repair of buildings over 30 feet in height. It therefore enacts that they shall be compensated if they are injured while so employed. They would obviously be subject to similar risks whether the thing which was being erected or repaired was a wooden platform or a building of brick or stone. Here, again, the question whether any given erection is a building within the meaning of the Act is one of fact.

The question whether building operations are an extension of an existing building or the erection of a new building may appear to be a somewhat academic question. That it may, however, be a very important question for builders and contractors is shown by the case of *Hartley v. Quick*. In that case a workman was employed upon certain additions to a building (over 30 feet high) which was used as an electric generating station. In the course of his employment he sustained injuries. At the time of the accident the walls of the new building did not exceed 30 feet in height. They were not yet joined to the walls of the existing building, but the foundations were made for them up to those walls. If the additions had been held to be an independent building the employers would not have been liable because they had not reached the height of 30 feet. The Court held that they were not a new building but a part of the old building, and that therefore the workman might be said to be engaged upon a building over 30 feet in height. It does not, however, follow that the Act will apply whenever new building operations are carried out which involve the use of a wall of an existing building exceeding 30 feet in height. The principle which governs this class of case was clearly stated by the Master of the Rolls. He distinguished the case of "an independent owner erecting an independent building by the side of an existing building" from the case where "the

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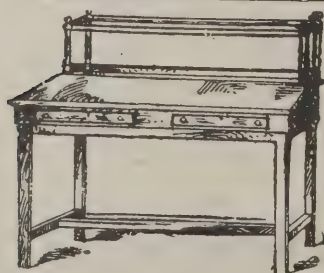
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rection of a new building is being carried out by way of extension of an existing building belonging to the same owner," in such a way that structural alteration of the existing building is involved. In the first case the building is an independent building—even though a wall of an old building may be used as a party wall. In the second case here is simply an extension of the old building.

The case of *Plant v. Wright & Co.* also dealt with the question of the circumstances under which a workman could be said to be employed upon a building over 30 feet in height; but here the question turned, not upon the nature of the building, but upon the character of the employment. The facts were that the employers had entered into a contract to do the plumbing-work connected with a factory and to measure up such work when complete. The accident to the plaintiff occurred while he was engaged in measuring up the work. It was argued that the work of construction was complete, and that therefore the workmen could not be said to be engaged in or about the construction of a building within the meaning of the Act. The cases in which it had been held that an accident occurring in the course of the removal of scaffolding from a completed building was an accident occurring in the course of the construction of the building could, it was said, be distinguished from the present case. In those cases the building was not actually complete till the scaffold had been removed. In this case the building was complete, whether or no the measuring was done. In fact, the measuring might not be done till many months after. The Court refused to allow the validity of this distinction. They regarded the measuring as part of the work of constructing the building, because under the contract the work must be measured before the price was paid. "From a business point of view," said Mathew, L.J., "the measuring up is in such cases an essential part of the process of doing the work." That the measuring was a material part of the performance of the contract may be admitted. But we feel inclined to ask whether everything which is material to be done for the complete performance of the contract is necessarily done in or about the construction of the building? The payment of the price is a very material duty to be performed in order to completely perform the contract, but it is hardly a duty in or about the

construction of the building. We should have thought that in this case the duty was rather a duty to be performed in or about the ascertainment of the price than in or about the construction of the work; but to the Court of Appeal it has seemed otherwise.

The much-vexed question of what is a scaffold for the purposes of the Act was again discussed in the case of *O'Brien v. Dobbie & Son*. The question to be decided was whether a simple ladder propped against a building 30 feet in height could be regarded as a scaffold. The Court of Appeal decided that it might be so regarded under some circumstances. Whether in any given case it was right to so regard it must depend upon those circumstances. "If," said Cozens-Hardy, L.J., "the prime and main use was as a staircase, then *prima facie* I should say it was not a scaffolding. If, on the other hand, the prime and main object was not to use it as a staircase, but as a sort of platform at various stages for doing works of construction or repair, then *prima facie* I think it ought to be regarded as a scaffolding."

The case of the *Castle Spinning Company v. Atkinson* raised the question of the proper construction of clause 13 of the first schedule to the Act. That clause in substance provides that, where a weekly payment has been continued for not less than six months, the employer may apply to have his liability redeemed by the payment of a lump sum, the amount of which shall, in default of agreement, be settled by arbitration. In this case the employers applied for diminution of the weekly payment or, alternatively, for its redemption by the payment of 150*l*. The Court of Appeal held that the right of the employer was to apply for the fixing by an arbitrator or by the County Court of a lump sum, and to pay the sum so fixed. He could not fetter the discretion of the arbitrator or the Court by naming a sum at which he desired the redemption to take place. Such a power on the part of the employer might, if the sum named were inadequate, lead merely to a fruitless inquiry. It was suggested that it might be convenient that the employer should be allowed to name a sum beyond which he was not prepared to go. That, however, was, as the Court said, a matter for the consideration of the Legislature.

It was decided in the case of the Great Northern Rail-

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way v. Dawson that the value of a uniform worn by an employé in the company's service must be taken into consideration in estimating the workman's earnings, though the property in the clothes had not passed to the workman. The workman is benefited by the fact that the use of the uniform saves his own clothes; and the value of this benefit, rather than the cost of the uniform, must be taken to be the value of that benefit for the purposes of the Act.

THE HOLBORN AND FINSBURY ELECTRICAL EXHIBITION.

THIS exhibition, which has been organised by the County of London Electric Supply Company, Ltd., and is now being held at 118-122 Holborn, W.C., is of a very comprehensive character, and not less than sixty-five firms are taking part therein. It is divided into two sections, the one comprising lighting and heating and the other power. In the first-named section there is shown every variety of fittings for electric light, both for domestic and public purposes, a notable feature being the arc lamp display, which includes all the best of arc lamps, including the latest "flame" types. Worthy of notice, too, are the drawing and dining-rooms, which have been arranged by the County of London Supply Company. These are fitted in the latest style, and lighted and heated throughout by electricity. The same company have also arranged a suite of cottage rooms lighted on their slot meter system, and similar to the L.C.C. cottages at Tooting, which have been lighted by the company under this system.

An interesting development in electric lighting is shown in the shape of the Bastian and Cooper Hewitt lamps, which are illuminated by the current traversing a path of mercurous vapour; their great use at present is for photographic purposes.

In the power section all classes of machinery are shown actually at work. For instance, Messrs. F. W. Reynolds & Co. have a number of wood-working machines driven direct from the motor without any intermediate counter-shafting. The Electro-motor and Dynamo Co. show an excellent 2-ton hoist with motor self-contained, erected on tripod shear-legs. A similar hoist is also shown to run

on a girder as a traveller. These are actually at work and are of great interest to contractors and others. Motor-driven printing machines and pumps are also shown in operation. There is, moreover, on view a model of the admirable Richmond-Carey push-button automatic passenger lift in actual working, and this is well worthy of close examination. Messrs. Waygood & Co., Ltd., also show an electric service lift for carrying up coals, luggage, &c., which is very largely used in private houses, and found to be very convenient. Messrs. Penrose & Co. likewise have an interesting show of electric lifts and gearing; passenger lift with switch in cage; "Kryptol," a remarkable new substance for electric heating; mercury vapour lamps for photographic work and general illumination, and various other novel features in electric power and lighting.

CANADIAN PIG-IRON.

THE *Bulletin* of the American Iron and Steel Association states that the Association has received direct from the manufacturers the statistics of the production of all kinds of pig-iron in Canada in the calendar year 1904. They show an increase of 5,524 tons, or a little over 2 per cent., as compared with 1903, but a decrease of 48,615 tons as compared with 1902.

The total production in 1904 amounted to 270,942 tons, as compared with 265,418 tons in 1903 and 319,557 tons in 1902. In the first half of 1904 the production was 120,643 tons, and in the second half it was 150,299 tons, an increase of 29,656 tons. Of the total production in 1904, 251,671 tons were made with coke and 19,271 tons with charcoal. About one-fourth of the total production was basic pig-iron, namely, 70,133 tons. The production of Bessemer pig-iron, all made in the last half of the year, was 26,016 tons. Spiegeleisen and ferro-manganese have not been made since 1899.

The unsold stocks of pig-iron in Canada on December 31, 1904, amounted to 35,119 tons.

On December 31, 1904, Canada had fifteen completed blast furnaces, of which eight were in blast and seven were idle. Of this total, ten were equipped to use coke for fuel and five to use charcoal. In addition, three coke furnaces were partly erected on December 31, but work on the furnaces had been suspended some time ago.

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EDITORIAL NOTICES.

In view of the many difficulties which are certain to arise in connection with the law, practice rules and procedure under the Workmen's Compensation Act, we have added to our staff A VERY EMINENT BARRISTER, who has made the subject a special study, and will be glad to answer in the columns of this paper any questions relating to the complicated matters arising from the provisions of this difficult Act. Our LEGAL ADVISER will further answer any legal question that may be of interest to our readers. All letters must be addressed "LEGAL ADVISER," Office of "The Architect," Imperial Buildings, Ludgate Circus, London, E.C.

The Editor will be glad to receive from Architects in London and the Provinces results of Competitions and Tenders and other particulars of Works in progress in which they may be interested.

The authors of signed articles and papers read in public must necessarily be held responsible for their contents.

No communication can be inserted unless authenticated by the name and address of the writer—not in every case for publication, but as a guarantee of good faith.

Correspondents are requested to make their communications as brief as possible. The space we can devote to Correspondence will not usually permit our inserting lengthy communications.

TENDERS, ETC.

*** As great disappointment is frequently expressed at the non-appearance of Contracts Open, Tenders, &c., it is particularly requested that information of this description be forwarded to the Office, Imperial Buildings, Ludgate Circus, London, E.C., not later than 2 P.M. on Thursdays.*

COMPETITIONS OPEN.

COLCHESTER.—April 13.—For school in Mill Road, Mile End. Block plan to be obtained from Mr. C. E. Denton, Educational Offices, Colchester.

KING'S NORTON.—April 26.—For the erection of a public library in Church Hill, King's Norton.—Architects must be resident in King's Norton or practising in Birmingham. Particulars may be obtained from Mr. A. W. Cross, surveyor, 10 Newhall Street, Birmingham.

RADCLIFFE.—April 29.—For the erection of a free public library. Premiums of 50*l.*, 30*l.* and 20*l.* will be awarded. General conditions and instructions, with an outline plan of site, may be obtained from Mr. S. Mills, clerk, Council Offices, Radcliffe, Manchester.

ROCHESTER.—May 15.—For the erection of a municipal technical institute at Rochester. Three premiums of 50, 20 and 10 guineas will be awarded. Copies of the instructions and a plan of the site can be had from Mr. W. Banks, surveyor, Guildhall, Rochester.

SWINDON.—April 14.—The education committee of the Town Council of Swindon propose to erect a public elementary school with accommodation for 840 scholars, and invite plans from architects. Mr. W. Seaton, Secretary to the Education Committee, Education Office, Town Hall, Swindon.

CONTRACTS OPEN.

ASHTON-IN-MAKERFIELD (LANCS).—April 18.—For the erection of a new administrative building, scarlet-fever and diphtheria pavilions, laundry, disinfector, stables and mortuary buildings, and other work at existing hospital buildings, for the Ashton-in-Makerfield Urban District Council. Messrs. Heaton, Ralph & Heaton, architects, Wigan.

BARROW-IN-FURNESS.—April 7.—For the erection of entrance gates, boundary wall and iron fencing to the abattoirs, and other work. Town Clerk, Barrow-in-Furness.

BATLEY.—April 5.—For the masons', joiners', plumbers', plasterers', slaters', painters', heating engineers' and electrical engineers' work respectively in the erection of the Carnegie free library. Messrs. W. Hanstock & Son, architects, Branch Road, Batley.

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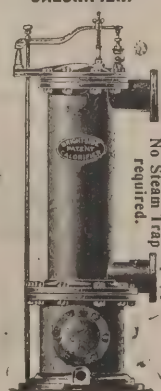
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BELFAST.—April 4.—For building a chancel, vestry, &c., All Saints Church, University Street, Belfast. Mr. William J. Fennell, architect, 2 Wellington Place, Belfast.

BEWCASTLE.—April 3.—For erection of a stone bridge across the Kirk Beck at Shopford, Bewcastle. Mr. James Murray, district surveyor, Kirklington, Carlisle.

BOSTON.—April 29.—For erection of a new infirmary, laundry, boiler-house and mortuary at the workhouse, Boston, Lincs. Mr. James Rowell, architect, Church Lane, Boston.

BRADFORD.—April 4.—For excavator, concreter, mason and bricklayer's work, and for steelwork required in the extension of the town hall (first section). Mr. F. E. P. Edwards, city architect, Whitaker Buildings, Brewery Street, Bradford.

BRENTFORD.—April 11.—For the supply and erection of a staircase and covered way at Brentford, a covering for crane at Hayes, and two foot-bridges at Freshford (near Bath) and Panteg (Mon) stations for the Great Western Railway Company. The Engineer, Paddington Station, London.

BRENTWOOD.—April 1.—For the erection of a new mortuary building at the Essex County lunatic asylum, Brentwood. Mr. F. Whitmore, county architect, Duke Street, Chelmsford.

BRETTFORTON.—April 11.—For the erection of fourteen houses, to be let in four contracts, for the Great Western Railway Company, viz. three at Brettforton and Western Sub-Edge, three at Broadway, five at Toddington, and three at Winchcombe stations on the Cheltenham and Honeybourne Railway. The Engineer, Winchcombe Station.

BROOMFLEET.—April 8.—For alterations and additions to the Council school at Broomfleet. The Clerk of Works, Beverley.

CARDIFF.—April 6.—For the erection of a filter-house and meter-house at the Heath filter-beds, near Cardiff. Mr. C. H. Priestley, waterworks engineer, Town Hall, Cardiff.

CARLISLE.—April 3.—For the erection of two stone bridges of 20 feet and 30 feet spans respectively, across Glencoyne and Aira Becks, Greystoke and Patterdale.

Mr. George Joseph Bell, county surveyor, The Courts, Carlisle.

CARLISLE.—April 4.—For the erection of a Dutch barn at the Carlisle cemetery. Clerk's Office, 27 Lowther Street, Carlisle.

CHELMORTON.—For the erection of a new house at Chelmsorton, Buxton. Messrs. Garlick & Flint, architects and surveyors, 5 Terrace Road, Buxton.

COLNE.—April 4.—For the erection of the West Street schools. Messrs. Holgate & Spivey, architects, Colne.

CONSETT.—April 5.—For the erection of additions to the Travellers' Rest inn at Consett, Durham. Messrs. G. Dickinson & Son, architects, 5 Houndgate, Darlington.

EAST FEN.—April 3.—For the erection of a barn in the East Fen, Lincs. Mr. G. E. Clark, borough surveyor, Municipal Buildings, Boston.

ECCLES.—April 3.—For the erection of a temporary school, and also of permanent boundary walls and sanitary conveniences in Beech Street, Winton, Lincs. Town Clerk's Office, Eccles.

EGREMONT.—April 6.—For the erection of five dwelling-houses at Egremont, Cumberland. Mr. James Cowan, surveyor, &c., Egremont.

ELLAND.—April 12.—For the erection of a brick chimney, 45 yards high, at Storth brickworks, Elland. Messrs. Sharp & Waller, architects and surveyors, 32 Bradford Road, Brighouse.

EPSOM.—April 15.—For the erection of farm buildings at the Horton asylum and at the epileptic colony, Epsom, Surrey. The Asylums Engineer, 6 Waterloo Place, S.W.

GOOLE.—April 3.—For the erection of public swimming-baths in Pasture Road, Goole. Mr. E. Hazeldine Barber, surveyor, Council Offices, Goole.

GRIMSBY.—April 5.—For new Sunday school and boiler-house at the United Methodist Free church, Freeman Street. Rev. W. H. Brookes, Kent Villa, Eleanor Street, Grimsby.

ILFORD.—April 11.—For the extension of the county secondary school in Melbourne Road, Ilford, by adding thereto six classrooms, cookery classroom, cloak-room, lavatories, &c. Mr. C. J. Dawson, architect, 11 Cranbrook Road, Ilford.

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IRELAND.—April 10.—For making alterations and additions to premises in Church Street, Antrim. Mr. William J. Fennell, architect, 2 Wellington Place, Belfast.

IRELAND.—April 10.—For making alterations and additions to two cottages at Ballywalter, co. Down. Mr. William J. Fennell, architect, 2 Wellington Place, Belfast.

KING'S HEATH.—April 4.—For the erection of a public library at King's Heath, near Birmingham. Mr. Ambrose Cross, surveyor, 23 Valentine Road, King's Heath.

LAMORRAN.—April 1.—For the erection of a wain-house at Tregenna, Lamorran, Cornwall. Mr. George Gow, Tregenna Office, Truro.

LANCASTER.—April 10.—For the erection of a mixed school on the Greaves, Lancaster. Mr. J. C. Mount, borough surveyor, Lancaster.

LEWES.—April 17.—For the erection of new offices in Fisher Street, Lewes, Sussex. County Surveyor's Office, County Hall, Lewes.

LONDON.—April 5.—For forming new areas and carrying out sundry other work to subways and heater-rooms at the Crook Fever hospital, Shooter's Hill, Woolwich. Mr. W. T. Hatch, engineer-in-chief, Embankment, London, E.C.

LONDON.—April 5.—For relaying the floors of two bath-rooms and meat store at the Fulham infirmary in terrazzo paving. Mr. E. J. Mott, clerk, Guardians' Offices, Fulham Palace Road, Hammersmith, W.

LONDON.—April 11.—For the renewal in steel and timber of the first floor of a warehouse at the goods station, Paddington, W., for the Great Western Railway Company. The engineer, Paddington Station, London, W.

LONDON.—April 17.—For the erection of an iron school to accommodate 550 children (250 infants and 300 mixed) in the Belmont Road site, Tottenham. Mr. G. E. T. Laurence, architect, 22 Buckingham Street, Aldelphi, W.C.

LONDON.—April 18.—For town hall restoration works, Choreditch. Mr. Alfred W. S. Cross, architect, 53A Maddox Street, W.

MACCLESFIELD.—For the erection of a new carding and spinning mill, together with weaving shed extensions, at Macclesfield. Mr. Ernest W. Dyson, architect and surveyor, 4 Market Hill, Barnsley.

MANCHESTER.—April 7.—For an extension to the female casuals' wash-house at the Tame Street workhouse, Ancoats. Mr. A. J. Murgatroyd, architect, 23 Strutt Street, Manchester.

MANCHESTER.—April 10.—For alterations and additions to the Embden Street municipal schools, Hulme, Manchester. Education Offices, Deansgate, Manchester.

METHWOLD (NORFOLK).—For alterations and additions to the Methwold non-provided school, Norfolk. Mr. Arthur J. Lacey, architect and diocesan surveyor, 6 Upper King Street, Norwich.

MILFORD HAVEN.—April 7.—For the erection of a shop in Charles Street, Milford Haven. Messrs. J. W. Wood & J. B. Gaskell, architects, Milford Haven.

MITCHAM.—April 4.—For the construction of a brick-built gasholder tank at Mitcham, Surrey. Mr. Benjamin Green, secretary and manager, the Works, Mitcham.

MORETONHAMPSTEAD.—April 8.—For the erection of a Congregational minister's residence at Moretonhampstead, Devon. Mr. Alfred J. Cornelius, architect, Truro.

ORPINGTON.—April 7.—For the erection of a small-pox hospital in Croton Heath Wood, Orpington, Kent. Mr. John Ladds, 93 Pemberton Road, Harringay, London, N.

OTLEY.—For making alterations at the Cock and Bottle licensed premises, in Bondgate, Otley, Yorks. Architect's Offices, 92 Albion Street, Leeds.

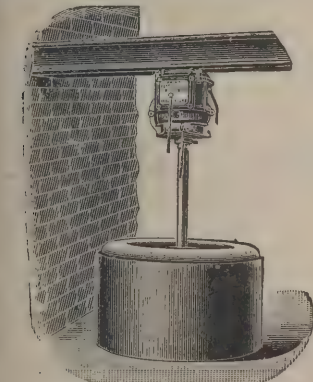
PADIHAM.—April 10.—For the erection of a large weaving shed, warehouse, engine-house, boiler-house and other buildings in connection therewith in Dryden Street, Padiham. Mr. Samuel Keighley, architect, 27 Nicholas Street, Burnley.

PORTSMOUTH.—April 17.—For the complete reinstating of show-room, workshop, stores, &c., Broad Street, Portsmouth. Borough Engineer's Offices, Town Hall, Portsmouth.

PRESTON.—April 14.—For extension of fire-station building, Tithebarn Street. Borough Surveyor, Town Hall, Preston.

RADCLIFFE (LANCS).—April 5.—For the erection of registrar's house and mortuary chapel and other works, on the cemetery site, Radcliffe. Mr. W. L. Rothwell, engineer to the Council.

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READING.—April 7.—For rebuilding York Pool bridge at Shinfield, near Reading. Mr. J. Morris, county surveyor, Broadway Buildings, Reading.

REDHILL.—April 5.—For erection of elementary schools in Frenches Road, Redhill. Mr. John Moir Kennard, architect, 13 Railway Approach, London Bridge, S.E.

REDRUTH.—April 5.—For work at Trewirgie Council schools, Redruth, Cornwall. Mr. Sampson Hill, architect, Green Lane, Redruth.

ROCHDALE.—April 5.—For the erection of buildings at the gasworks. Mr. T. Banbury Ball, manager, Gasworks, Dane Street, Rochdale.

ST. BEES.—April 18.—For new chapel, laboratories, lecture hall and library at St. Bees school, Cumberland. Mr. John F. Curwen, architect, Kendal.

ST. MERRY.—April 8.—For building a new Wesleyan chapel at St. Merry, Cornwall. Messrs. J. Ennor & Son, architects, Central Square, Newquay.

SCOTLAND.—April 3.—For the erection of a new bridge constructed of steel girders and masonry over the river Bogie at Smithson, near Gartly. Mr. James Barron, engineer, Central Chambers, 216 Union Street, Aberdeen.

SCOTLAND.—April 3.—For the erection of a new retort-house at the Alva gasworks, for the Alva Town Council. The Gas Manager's office, Alva.

STOCKTON.—April 10.—For the erection of new schools and caretaker's house at Newtown. Mr. T. W. T. Richardson, architect, 50 High Street, Stockton.

TUNBRIDGE WELLS.—April 10.—For (Contract No. 2) the erection of an engine-house and other works incidental thereto, in connection with the Paddock Wood sewerage and sewage-disposal works. Mr. Frank Harris, engineer to the Council, Broadway, Southborough, Tunbridge Wells.

WALES.—For the erection of grain warehouses at West Dock, Cardiff. Mr. G. A. Birkenhead, architect, Caledonian Chambers, Cardiff.

WALES.—April 3.—For alterations and additions, together with certain jobbing works, at the Rassau Council schools, Beaufort, and for additions and alterations at the Briery Hill Council schools, Ebbw Vale. Mr. Henry Waters, architect, Beaufort.

WALES.—April 3.—For the erection of twelve or more houses at Troedyrhiw. Mr. William Dowdeswell, architect, Treharis.

WALES.—April 3.—For the erection and completion of the New Hope English Baptist chapel, Caerau, Maesteg. Mr. W. Beddoe Rees, architect, 3 Dumfries Place, Cardiff.

WALES.—April 4.—For erecting a caretaker's house, with boundary wall and outbuildings, at Ebbw Vale. Mr. T. J. Thomas, town surveyor.

WALES.—April 4.—For alterations and additions to Cwm-dare hotel, Cwmparc, near Treorchy. Mr. W. D. Morgan, architect, Victoria Chambers, Pentre, Rhondda Valley.

WALES.—April 5.—For the erection of workmen's cottages at Newbridge, Mon, Nos. 20 to 27, as the Council may hereafter decide, for the Abercarn Urban District Council. Mr. J. Williams, engineer and surveyor.

WALES.—April 7.—For the erection of a new Congregational church at Pen-y-darren, Merthyr Tydvil.

WALES.—April 7.—For the erection of a stone bridge at Cwm-yglo, Llanarthney, Carmarthen. Mr. John Saer, clerk, 7 Hall Street, Carmarthen.

WALES.—April 7.—For the extension and alteration of chapel, for the Baptist church of Pysgah, Cymmer. Mr. W. Rees, grocer, High Street, Cymmer.

WALES.—April 10.—For the erection of eighteen houses at Bedlinog. Mr. Williams, architect, 57 Lower High Street, Bedlinog.

WALES.—April 10.—For the erection of one detached and two semi-detached villas in Clare Road, Ystalyfera. Mr. Arthur S. Williams, architect, Llandilo.

WALES.—April 11.—For the erection of seventeen houses in Town Hill Road, Sketty, Swansea. Mr. Charles T. Ruthen, architect, Bank Chambers, Heathfield Street, Swansea.

WALES.—April 11.—For the erection of a waiting-room and platform coverings at Mountain Ash station, near Aberdare, for the Great Western Railway Co. The Engineer, Neath Station.

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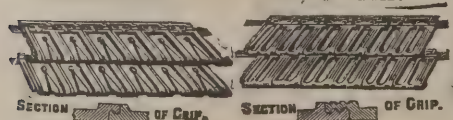
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infants' school, Aberaman. Messrs. J. Llewellyn Smith & Davies, architects, 7 Victoria Square, Aberdare.

WALES.—April 12.—For the erection of artisans' dwellings at Wellington Street, Canton. Mr. W. Harper, borough engineer, Town Hall, Cardiff.

WALES.—April 14.—For the erection of a new police station at Llanharan, Glamorgan. County Surveyor's Office, Town Hall, Bridgend.

WALES.—April 15.—For the erection of two new blocks of buildings, together with alterations and additions to the existing buildings at the asylum, Denbigh. Messrs. T. M. Lockwood & Sons, architects, Foregate Street, Chester.

WALES.—April 15.—For erection of a mixed school and the execution of works connected therewith at Abertaf, Abercynon. Mr. W. G. Thomas, architect, Public Offices, Mountain Ash.

WALES.—April 18.—For the erection of fifty houses at Brewery Street, Pontygwaith; also the formation and completion of roads, carriageways, surface-water drains, &c. Mr. W. D. Morgan, architect, Victoria Chambers, Pentre.

WATH BROW.—April 1.—For building a reading-room at Wath Brow, Cumberland. Mr. A. J. Thompson, secretary, 1 King Street, Wath Brow.

WEST HARTLEPOOL.—April 15.—For the erection of three houses in Colwyn Road. Mr. Francis E. Boaz, York Road, West Hartlepool.

WHITBY.—April 7.—For the erection of a pair of semi-detached villa residences in Bagdale, Whitby. Mr. Edward H. Smales, architect, 5 Flower Gate, Whitby.

WHITEHAVEN.—April 3.—For the erection of the Carnegie public library. Messrs. Greig, Fairbairn & Macniven, architects, Edinburgh.

WOKING.—April 1.—For excavating ground and constructing concrete foundations for gasholder, together with sheet-piling around the foundation. Mr. Arthur Valon, engineer, 140 Temple Chambers, London, E.C.

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Cunliffe	3,878	5	0
Holloway	3,677	0	0
Currall, Lewis & Martin	3,573	18	4
Southerland & Thorpe	3,453	0	0
J. WHITE, jun., Handsworth (accepted)	3,348	11	6

BOURNEMOUTH.

For erection of a Primitive Methodist chapel and vestries at Winton. Mr. T. E. GRIMES, architect, Bournemouth.

Shears & Sons	£1,948	10	0
Brown & Sons	1,794	13	0
Dean	1,720	0	0
Drake	1,716	10	0
Burt & Cherritt	1,705	18	0
Jones & Seward	1,649	0	0
Colborne	1,619	8	0
E. H. CRABE, Parkstone (accepted)	1,450	0	0

CASTLETON.

For the erection of the Carnegie branch library at Castleton, Rochdale. Mr. JESSE HORSFALL, architect, Manchester and Todmorden.

Ashworth	£2,280	0	0
Wilkinson	2,231	0	0
Brierley	2,206	0	0
R. & T. Howarth	2,183	0	0
Ashworth & Woolfenden	2,178	0	0
Endersby	2,050	0	0
Mill & Sons	2,022	0	0
J. & J. Coates	1,984	10	0
Kay	1,950	0	0
NICHOLL & SON, Rochdale (accepted)	1,949	0	0

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Name withheld by request, Glasgow	No claim.
(Signalled and fire put out; sprinkler did not act)	

Shaw, Walker & Co., Glasgow	Loss £225.
Aberdeen University Press	No claim.
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COBHAM.

For the erection of a laundry at isolation hospital, Cobham,
for the Strood Rural District Council.

Hicker & Son	£469	0	0
West Bros.	435	0	0
Tong	408	0	0
Multon	379	0	0
Browning	373	0	0
Reeves	370	0	0
Burr	368	15	0
W. & F. Tuffey	357	0	0
Wells	356	0	0
Spencer & Son	356	0	0
T. W. HOOKER (accepted)	356	0	0

GREAT MISSENDEN.

For the erection of billiard-room for Mr. Alfred Dunhill.
Mr. J. BRUCE MERSON, architect, Kilburn.

Dymock	£508	10	0
Wright	498	0	0
Parsons	475	0	0
ALDRIDGE & SON (accepted)	404	0	0

KIRKCALDY.

For the extension of about 500 feet in length of the present
East Pier (about 23,000 cubic yards of concrete).

Tilbury Contracting Co.	£52,236	17	6
G. & R. Cousin	51,729	17	0
Kinnear, Moodie & Co.	48,548	0	0
Pearson & Son, Ltd.	48,243	0	0
Lawson	40,629	18	0
Robertson & MacPherson	40,337	8	0
Hill & Co.	38,959	0	0
Smith & Sons	38,777	19	8
Beattie & Sons	36,499	0	0
Sir J. Jackson, Ltd.	35,116	0	0
Muirhead, Greig & Matthews	34,840	0	0
Best	32,562	19	0
Crawford	31,143	0	0
McAlpine	29,797	0	0
Kirkwood, Kerr & Co.	28,202	0	0
Blair & Whyte	27,858	16	6
C. BRAND & SON, Glasgow (accepted)	25,991	19	7
Petrie & Co.	24,415	17	4

LEDBURY.

For the laying of about 725 yards of 9-inch and 6-inch
stoneware sewers with manholes; making-up a new
road about 300 yards long, for the Freehold Building
Society. Mr. R. G. GURNEY, surveyor.

Griffiths	£1,135	0	0
T. & C. Panter	1,026	8	6
Hunter & Co.	930	3	8
Hills, Davies & Son	880	18	0
Porter	857	0	0
Smith	824	0	0
Johnson Bros.	767	11	2
Cruwys & Hobrough	754	15	0
Hill	726	12	0
Meredith	715	0	0
Holloway	670	0	0
Emery	646	16	0
W. JAMES, Colwall (accepted)	614	1	0

LEICESTER.

For the erection of manager's house and boundary wall at
pumping station, Belgrave. Mr. E. MAWBEY, borough
engineer.

Agar	£1,510	9	11
Hutchinson & Son	1,349	0	0
J. M. & R. Barrow	1,260	0	0
Herbert	1,168	0	0
Sharpe	1,154	9	3
Johnson & Sons	1,154	0	0
Herbert & Sons	1,122	10	0
Chapman	1,114	8	0
A. & W. Chambers	1,085	15	4
Cole	1,075	0	0
Rudkin & Son	1,051	13	5
Haskard, Rudkin & Beck	1,029	0	0
Bowles & Son	1,015	3	0
Hanson	1,012	0	0
Clark & Garratt	985	0	0
Bradshaw Bros.	978	2	6
Leicester Builders, Ltd.	971	8	5
Potter	966	17	5
E. Fox, Evington Street (accepted)	960	0	0

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LLANDAFF.

For the first section of St. Michael's Theological College, Llandaff. Mr. F. R. KEMPSON, architect, Hereford and Cardiff. Quantities by Mr. CHARLES TAYLOR, Cardiff.

Broad & Co.	£11,005	0	0
Stephens & Bastow	10,997	0	0
Davies	10,973	0	0
S. Shepton & Sons	9,945	0	0
E. Estcourt & Sons	9,800	0	0
W. Thomas & Co.	9,633	0	0
Willcock & Co.	9,411	0	0
W. Bowers & Co.	9,350	0	0
W. A. Linton	9,300	0	0
E. Turner & Sons	8,895	0	0
Knox & Wells	8,885	0	0
T. Bevan	8,800	0	0
J. Allan & Co.	8,601	0	3

LONDON.

For the carrying-out of improvements in the school in Lark-hall Lane, Clapham.

Mitchell & Son	£15,798	0	0
Lathey Brothers	15,519	0	0
Smith & Son	15,074	0	0
Spencer, Santo & Co., Ltd.	14,988	0	0
J. & C. Bowyer	14,974	0	0
King & Son	14,800	0	0
Holloway Brothers (London), Ltd.	14,766	0	0
Carmichael	14,681	0	0
Marsland & Sons	14,579	0	0
J. & M. Patrick	14,551	0	0
Simpson & Son	14,545	0	0
F. & H. F. Higgs	14,458	0	0
Downs	14,456	0	0
Garrett & Son	14,383	0	0
Stimpson & Co.	14,300	0	0
Smith & Sons, Ltd.	14,250	0	0
Holliday & Greenwood, Ltd.	14,078	0	0
Appleby & Sons	13,700	0	0
Hudson Brothers	13,609	0	0
W. Johnson & Co., Ltd., Bellevue Road, Wandsworth Common (recommended)	13,205	0	0
Architect's estimate	14,494	0	0

LONDON—continued.

For the construction of new piers at Millwall and Hammer-smith, and partial reconstruction of the piers at Putney and Wandsworth, for the London County Council.

Thames Ironworks, Shipbuilding and Engineering Co.	£23,254	12	8
Fasey & Son	15,529	13	8
Page, Son & East, Ltd.	14,840	17	6
Cochrane & Sons	14,307	7	2
WESTMINSTER CONSTRUCTION Co., LTD. (accepted)	13,823	10	10

For the erection of a lodge and entrance gates at Denmark Hill. Mr. W. G. TUTT, architect.

Appleby & Sons	£674	0	0
Minter	505	0	0
Turtle & Appleton	475	0	0

For providing and fixing low-pressure hot-water apparatus to three halls, a classroom, science-room, six cloak-rooms and three lavatories at the Shap Street school, Haggerston.

Davis & Bennett	£369	0	0
Haden & Sons	364	0	0
Yetton & Co.	360	0	0
Mackenzie & Moncur, Ltd.	350	0	0
Purcell & Nobbs	348	0	0
Defries & Sons, Ltd.	321	0	0
Paragon Heating Co.	294	4	0
W. Truswell & Son, Durham Foundry, Sheffield (recommended)	292	10	0

NEW BARNET.

For construction of storm-water sewers. Mr. H. YORK, surveyor.

Butcher	£1,045	0	0
Bell	989	0	0
Kitteringham	933	0	0
Catley	789	0	0
Langley, Hardy & Johnson	759	0	0
Adams	749	0	0
Jackson	656	0	0
HEWETT & SONS, Barking (accepted)	619	15	0

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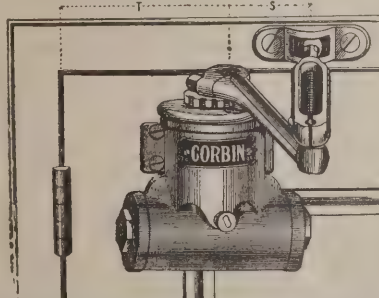
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PANGBOURNE.

For the erection of four cottages. Mr. S. COUCH-JOHN, architect, Reading.

Leech	£1,250	0	0
Tucker	1,145	0	0
Stokes & Sons	1,109	10	0
Carter	1,098	16	0
East & Hyde	981	0	0
Stimpson	920	0	0
Allnutt	905	0	0
Fisher Bros.	885	0	0
Trimder & Sons	875	0	0
BATTEN BROS., Reading (accepted)	868	0	0

SLEAFORD.

For the erection of two pairs of cottages at Rauceby asylum. Mr. JESSE CLARE, county architect.

Newton & Cooke	£1,548	9	0
Rose & Son	1,401	1	3
Armstrong	1,375	5	8
Berry	1,312	0	0
Hockley & Co.	1,275	0	0
Maxey & Son	1,242	0	0
Elmes	1,140	0	0
J. BANKS & SON (accepted)	1,087	1	6

SPROWSTON.

For erection of infants' school, for the Norfolk County Council. Mr. CHAS. J. BROWN, architect, Norwich.

Burton	£2,620	15	9
Riches	1,750	0	0
Youngs & Son	1,693	0	0
Gill	1,690	0	0
Lincoln	1,657	0	0
Scarles Bros.	1,633	0	0
Hannett	1,625	0	0
Greengrass	1,587	0	0
Boddy & Son	1,585	0	0
Chapman & Son	1,578	0	0
G. STOWERS, Norwich (accepted)	1,540	0	0

SANDERSTEAD.

For erection of two pairs of semi-detached houses in Beechwood Road. Messrs. PEPLER & ALLEN, architects, Croydon.

Bex	£3,400	0	0
Grace & Marsh	2,859	0	0
Potter	2,770	0	0
WORSFOLD & SONS (accepted)	2,640	0	0

STAMFORD.

For erecting a free library. Messrs. HALL & PHILLIPS architects. Quantities by Messrs. ANDREWS & READ.

Cracknell	£2,686	0	0
Gutteridge	2,397	0	0
Kettering Co-operative Builders, Ltd.	2,340	0	0
Brown & Son	2,300	0	0
Peasgood	2,177	0	0
Woolston	2,166	0	0
Hinson & Co.	2,163	15	0

STONY STRATFORD.

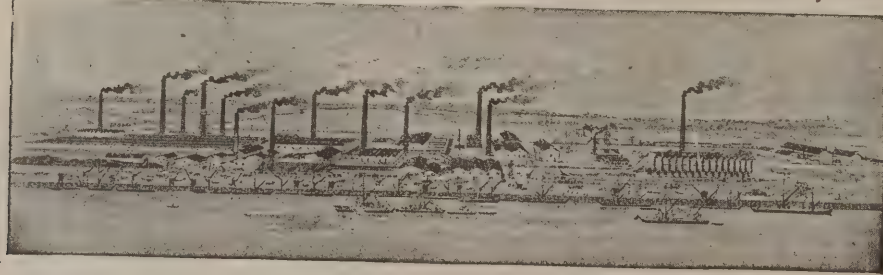
For the construction of sewerage works, for the Stratford and Wolverton Rural District Council. Mr. W. J. LOMAX, engineer, Bolton.

Curral, Lewis & Martin, Ltd.	£18,393	3	2
Wood	18,327	14	7
Rayner	18,312	4	0
Jackson	18,183	19	8
J. & T. Binns	18,102	4	0
Taylor	18,043	11	11
Harrison & Co.	17,828	0	0
Byrom, Ltd.	17,331	14	7
Henson	17,708	1	7
Riley	16,875	13	9
Bower Bros.	16,511	2	5
Ashley	15,785	0	0
Martin	14,944	0	0
Tabor	14,490	6	3
Johnson & Langley	14,153	0	0
Worthington	14,131	9	1
Haycock & Sons	13,709	17	0
Mackay & Son	13,474	8	11
LANGLEY, HARDY & JOHNSON (accepted)	13,463	18	0

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WALES.

For building a farmhouse at Ffynonfawr, Breconshire.		
Messrs. A. O. EVANS, WILLIAMS & EVANS, architects,		
Pontypridd.		
Jenkins	£1,168	0 0
Lewis	804	0 0
W. P. Lewis & Co.	770	0 0
Maddy	770	0 0
Jones	685	0 0
H. LEWIS, Ferndale (accepted)	660	0 0

For rebuilding 91 High Street, Merthyr. Mr. C. M. DAVIES,		
architect.		
Jenkins	£900	16 0
Williams	885	0 0
W. C. Jones	879	0 0
Hawkins	798	10 0
E. Jones	735	0 0
D. Jones	727	0 0
M. WARLOW (accepted)	727	0 0

WHEATLEY HILL.

For the erection of new club premises and caretaker's house,		
for the Wheatley Hill Workmen's Social Club and		
Institute, Ltd. Mr. H. T. GRADON, architect, Durham.		
Fountain & Milward	£2,185	0 0
Walker Bros.	2,185	0 0
Twaddle	2,120	0 0
Browell	2,020	0 0
Draper & Sons	1,970	0 0
Booth	1,961	9 11
Manners	1,948	0 0
Storey	1,915	0 0
Braithwaite & Co.	1,906	5 0
Watt Bros.	1,874	6 0
Howe	1,770	0 0
Hope	1,750	0 0
Bradley	1,732	0 0
W. H. AYTON, Heaton (accepted)	1,706	3 0

WALLINGFORD (BERKS).

For erecting private residence. Mr. S. COUCH-JOHNS, archi-		
tect, Reading.		
Knight	£1,563	0 0
Godwin	1,537	0 0
Romain	1,520	0 0
Fisher Bros.	1,165	0 0
Stokes & Sons	1,138	10 0
Brasher & Sons	1,003	10 0
Stimpson & Sons	1,001	0 0
Bailey & Sons	968	17 0
Bosher, Son & Co.	965	15 0
Wheeler	866	0 0
Batten Bros.	864	0 0
H. SAINSBURY, Tilehurst (accepted)	852	0 0

WOLVERTON.

For sewage works for the Stratford and Wolverton Rural		
District Council, Wolverton, Bucks. Mr. W. LOMAX,		
engineer, Bolton.		
Jackson	£16,782	2 9
J. & T. Binns	16,143	7 3
Rayner	14,881	19 9
Currall, Lewis & Martin, Ltd.	14,307	15 6
Hawtin	13,494	17 11
Mackay & Son	13,399	3 11
J. Byrom, Ltd.	13,151	14 5
Heap	12,935	0 0
Bower Bros.	12,685	4 5
Taylor	12,504	16 5
Riley	12,427	10 4
Jewell	12,365	15 6
Tabor	12,178	1 8
Martin	11,856	0 0
Johnson & Langley	11,810	18 0
Ashley	11,680	0 0
J. H. Billings & Co.	11,662	7 0
Haycock & Sons	11,187	10 6
Harrison & Co.	11,084	0 0
Langley, Hardy & Johnson	11,075	18 9
Bateman	10,609	18 3
Worthington	10,499	8 5
G. HENSON (accepted)	10,182	0 9

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T. W. Pedrette	11,065	6	0
Morecroft	9,832	0	0
Pedrette & Co.	8,983	8	0
Neal & Co.	8,779	0	0
Firth & Co.	8,472	10	0
Underwood Bros.	8,312	3	0
Pethick Bros.	8,126	0	0
Catley	7,700	0	0
Jackson	7,684	14	5
Moran & Son	7,599	0	0
Coxhead	7,047	0	0
Kelletts, Ltd.	6,810	5	6
Manders	6,662	9	0
Osenton	6,490	8	0
T. Watson, jun.	6,148	9	3
Iles	6,108	12	6
Bentley & Loch	5,980	14	6
Mowlem & Co.	5,938	0	0
Johnson & Langley	5,623	2	0
Harrison & Co.	5,604	0	0
Bell	5,559	0	0
Muirhead, Greig & Matthews	5,455	8	0
Killingback & Co.	5,421	0	0
Langley, Hardy & Johnson	4,781	5	10
Gibbins	3,994	15	6
LOCK, ANDREWS & PRICE, Nottingham (accepted)	4,464	13	0

WIMBLEDON.

For completion of villa residence, Parkside Gardens. Mr. E. C. HOMER, architect.

Hampton Trust	£665	15	0
Bain	520	10	0
Larke & Sons	479	0	0
Gimson	455	17	0
A. HUDSON (accepted)	398	15	0
Hayes & Howarth	370	0	0

WIMBLEDON—continued.

For the erection and completion of residence, Parkside Avenue. Mr. E. C. HOMER, architect.

C. GIMSON (accepted)	£3,700	0	0
<i>Stables and coach-houses.</i>			
Williams	983	0	0
Larke & Sons	890	0	0
Castle & Sons	880	7	0
Hudson	778	9	0
Gimson	680	0	0

Received too late for classification.

DUNDEE.

For work in connection with the provision of new lavatories, larders, water tank, &c., at Westgreen asylum.

Accepted tenders.

D. Crichton & Co., mason.
G. Hunter, joiner.
T. M. Dewar, plumber.
R. G. Laburn, slater.
L. Reoch, plaster.

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For alterations and additions to the free library. Mr. A. E. COLLINS, city engineer.

J. S. SMITH, Norwich (accepted)	£1,547	0	0
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TRADE NOTES.

A LARGE clock, with dials facing south and west, has just been erected on St. John's Church tower, Kenilworth, by John Smith & Sons, Midland Clock Works, Derby. The same firm erected the great clock and chimes at St. Mary's Church, Warwick, three years ago.

THE Bath Stone Firms, Ltd., were able to declare a dividend of 16 per cent. for the second half-year. A sum of 20,000*l.* had been also added to the reserve fund. Mr. J. T. F. Turner, the secretary, pointed out that during a year of general depression in the building trade they had felt the advantage of having a manager like Mr. Cotterell.

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CATHEDRAL OF OVIEDO, SPAIN.

ELECTRIC NOTES.

At the Newcastle Bankruptcy Court a restaurant proprietor attributed his failure partly to the tramway service, for "everybody goes home now that there are electric tramways."

The Chester Corporation have been considering the extension of their electric tramway service at an expenditure of 17,000*l.* The tramways committee have finally rejected the proposal to introduce motor buses, and recommend that the original electric-car system be proceeded with.

A DEPUTATION from the South Shields Town Council recently visited the principal towns to inquire into the subject of motor buses as an alternative to an electric tramway system. The opinion was arrived at that motor buses were unsuitable. This decision has been adopted by the Council, and tenders for the laying of the electric tramways will be shortly considered.

THE tramways committee of the Derby Corporation have considered tenders for certain extensions and for the provision of four new cars. The tender of W. Griffiths & Sons, London, for 18,689*l.* 2*s.* 9*d.* for the extensions is recommended for acceptance. The borough surveyor's and electrical engineer's estimate was 19,245*l.* The order for the cars is recommended to the Brush Electrical Engineering Company, Ltd., Loughborough.

THE Mersey Railway Company at their recent half-yearly meeting unanimously accorded a special fee of 5,000*l.* to the chairman of the company to remunerate him for his services in connection with the replacing of steam traction with electric traction. It was said that the chairman had devoted very considerable attention to the company, and had devoted an enormous amount of time to the arrangements and negotiations before the electrification of the line was completed.

BUILDING AND BUILDERS.

MR. GEORGE CARMICHAEL, the president, will take the chair at the twenty-seventh annual dinner of the Builders' Clerks Benevolent Institution on Tuesday, April 4.

It is estimated that a further sum of 737,000*l.* will be spent on barracks on Salisbury Plain, partly on new works and partly on continuation services.

THE Greenock Corporation have decided that only firms paying the standard rate of wages or piece prices to all competent workers for all classes of work, whether contract or otherwise, should be eligible to estimate for and receive Corporation contracts, and that all Corporation contracts should contain a clause requiring a contractor to pay the minimum standard rate of wages.

THE County Councils' Association have referred to the Parliamentary committee a suggestion from the Isle of Wight that County Councils should endeavour to obtain such legislative measures as would vest in them the right to specify to local authorities having the supervision of the erection of new property the widths and levels of main roads as well as the disposal of deposits constituting an obstruction or nuisance.

THE foundation-stone of the church of St. Erkenwald, York Road, Southend, has been laid. The church is intended eventually to accommodate 800, the cost being 15,000*l.*; but at present only the chancel and the first bay of the nave are being taken in hand, providing room for 450 and costing 5,500*l.* The site was given by Mr. William Gregson. The architect is Mr. W. J. Tapper, St. John's Wood, London, and the builders Messrs. F. & E. Davey, Ltd., Southend.

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THE Premier of New South Wales is said to be taking some steps in the direction of establishing ironworks in that colony. Reports on the subject have been furnished by the Public Works Department and the Mines Department, the former giving particulars of the quantity of iron required each year in connection with public works, and the latter supplying data as to available supplies of iron ore. The Public Works Department have been instructed to prepare conditions and specifications with a view of inviting offers for the establishment of works.

THE Surrey County Council are erecting a lunatic asylum at Netherne, near Reigate, at a cost of 360,000*l.* They have already borrowed 55,000*l.* for site, foundations and an approach road. A Local Government Board inquiry took place on the 23rd inst. into an application for 267,750*l.* for superstructure, water supply and heating. The estate of 354 acres was purchased for 21,895*l.* The contract for the building was signed on November 2, 1904, and was given to Mr. John Bowen, George Street, Birmingham, who was the lowest offerer among thirteen firms tendering. The average price of the thirteen firms came to 238,715*l.*, and Mr. Bowen's tender was 219,797*l.*

THE National Housing Reform Council passed the following resolution at a conference held in London on Saturday last:—"That this conference desires to draw the attention of local authorities in the suburbs and area of Greater London to the grave evils resulting from the lack of proper foresight in the planning of new housing areas and to the pressing need for the preparation and adoption of new by-laws to insure the ample provision of light and air space, gardens, &c., for workmen's cottages. Further, this conference is of opinion that Parliament should confer on local authorities various new municipal powers in regard to the preparation of building plans, the taxation of land values and the purchase of municipal estates similar to those powers already possessed by cities in the German Empire."

THE *Commercial and Industrial Gazette* (St. Petersburg) states that the Russian Society of Civil Engineers have drawn up the final programme of an exhibition of the latest improvements in building technics and in the artistic decoration and arrangement of houses and apartments. The exhibition is to be held at St. Petersburg, in connection with the All-Russian Conference of Civil Engineers in 1906.

Both Russian and foreign exhibits will be accepted, divided into the following groups:—(1) Structural art, materials in different forms and their application; (2) productions of the various trades and industries in connection with building; (3) sanitary construction; (4) technical fire-saving arrangements; (5) electro-technical appliances; (6) artistic decoration of dwellings, and internal and external finish of buildings; (7) special technical literature.

THE foundation-stone of the new church attached to the Devonport Royal Naval Barracks has been laid. The church will consist of a nave 40 feet wide, with passage aisles, chancel, side chapel, baptistery, vestries and organ chamber, and will seat 1,000 officers and men. A large choir vestry will be under the chancel. The materials are local limestone for the walling, with Portland stone dressings outside and Monk's Park stone inside. There will be an open timber roof to the nave, and a barrel roof with ribs to the chancel, these roofs being covered with green Westmorland slates. The aisles, chapel and baptistery will be roofed with concrete. The design has been prepared in the head office of the works department of the Admiralty. The work is being executed by Mr. A. Carkeek, contractor, under the supervision of Mr. W. J. Clarke, superintending civil engineer of Devonport Dockyard.

VARIETIES.

THE Lancashire Chancery Court have given their sanction to a scheme of arrangement and reconstruction of the Southport Opera House and Winter Gardens, Ltd.

THE naval dock at Bangkok is to be deepened and repaired in order to dock vessels of the size of at least 2,500 tons. The work, which is expected to take a year in completion, will cost about 50,500*l.*

MESSRS. GEO. ELKINGTON & SON, architects and surveyors, of 95 Cannon Street, London, E.C., who have been established at that address for the past forty-two years, have removed to larger and more commodious offices at Norfolk House, Laurence Pountney Hill, E.C.

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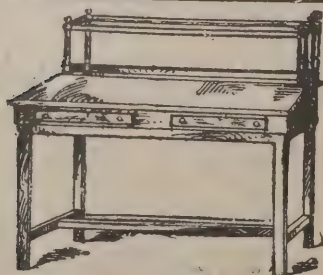
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For Index of Advertisers, see page x.

THE Beckenham District Council have decided to abandon the scheme for the construction of electric tramways, for which a Bill was promoted and passed in Parliament, in favour of motor omnibuses. There is a considerable feeling of hostility against this decision.

THE tender of Messrs. G. E. Wallis & Sons, of Maidstone, has been accepted for the building of a new isolation hospital and carrying out extensive alterations to the laundry at Barming Heath asylum, the amount of the contract being over 10,000/. Mr. W. J. Jennings, Canterbury, is the architect.

THE contract for the erection of a large viaduct over the river at Khushalgah, in Northern India, has been placed by the India Office with the Teesside Bridge and Engineering Company, of Middlesbrough. The bridge is of the double-deck type, carrying a railway on top, with a roadway below, and will have a 471 feet cantilever and an anchor span of 300 feet.

THE Tamworth Town Council have accepted a report from their sanitary and streets committee upon a scheme of sewerage for the borough and upon a scheme of sewage-disposal works jointly with the Rural District Council. They recommend that the joint sewage-disposal works be designed and carried out jointly by the borough and rural district engineers.

THE "Harmsworth Encyclopædia" has come and conquered. There are numerous works of its class, but if scale and price are considered it is without a rival. It is only necessary the read the articles on architecture, painting, sculpture and archæology to realise the extent of the information in the pages. The Encyclopædia will contain the knowledge which the majority of people require.

A PETITION was presented on Thursday to the Lambeth Borough Council from ratepayers and occupiers of premises in the Waterloo Bridge Road protesting against the removal of the wood paving in that thoroughfare and its replacement by granite setts. The importance of the roadway for the north and south communications in London is pointed out, and the creation of Kingsway, it is urged, will increase the traffic.

THE paving and highways committee of the Manchester City Council, recognising the tendency to increase the weight

of cartloads, have had all the bridges spanning the city rivers, streams and canals examined as to their fitness to bear the augmented strains without danger. In all cases where there is an indication of weakness the defect is to be promptly made good. The committee will not be contented with anything but an excellent margin of safety.

AN experiment is about to be made to develop canal transport by the use of liquid fuel for motive power. Mr. Norman Thomson, residing at Streatham, is building a 30-ton barge for the delivery of goods, and as a travelling warehouse from which goods may be sold. It is contended that by this method warehousemen would be able to reduce expenses for travellers and delivery. The Leeds and Liverpool Canal Company is adding to its fleet a 30-ton barge, to be driven by a 30-horse-power Diessel oil-engine, at an estimated cost of 1*d.* per mile.

A BILL authorising the construction of a dam at Keokuk Rapids, on the Mississippi, to cost a million sterling, has passed through the House and Senate at Washington. The proposed dam will be the greatest power-producer in the world except Niagara and the Assouan dam in Egypt. It is calculated that power—which will be converted into electricity and supplied for a radius of 100 miles—will cost about one-fourth as much as at present for South-west Iowa and parts of Illinois. This will make it the cheapest power in the United States. The projectors hope to have it ready in four years.

CERTAIN modifications have been made on the scheme for the construction of port works at Monte Video, in which comparatively little progress has been made since their inauguration in 1901. A decree provides for the introduction of a new system of constructing the wharves, which will enable them to be proceeded with at once, without waiting for the completion of the breakwaters. It is hoped they will be completed within three years from January last.

A LOCAL Government Board inquiry has been held at Smethwick town hall into the application of the Town Council for sanction to borrow 27,547*l.* for purposes of street improvements. About 26,000*l.* of the amount required was for the purpose of paving ninety-six streets of the borough which were unpaved. The other sums were

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Mount View Congregational Church, Stroud Green, London, N.

Marsworth Church, near Tring, Herts.

Pitstone Church, near Tring, Herts.

St. Peter's Church, Parkstone, Dorset.

St. Mary's Church, Longfleet, Poole, Dorset.

St. James's Church, Poole, Dorset.

St. Mary's Church, Atherstone, Warwickshire.

Salford Priors Church, Warwickshire.

The Jesse Haworth Memorial Church, Walshaw, near Bury, Lancashire.

The Cathedral Church, Pretoria, South Africa.

St. Matthias Church, Barbadoes, West Indies.

St. Thomas's Church, Newport, Isle of Wight.

St. John's Church, Forton, Gosport.

St. Paul's Church, Peterborough.

Linslade Parish Church, Leighton Buzzard.

St. Mary's Church, Linslade, Bucks.

Works have been carried out under the direction of the late Sir ARTHUR W. BLOMFIELD, A.R.A., J. L. PEARSON, Esq., R.A., F.S.A., Messrs. BOOTH & CHADWICK, Manchester, and other eminent Architects.



required for improvements, such as the widening of roads, &c. It is not proposed to deal with the whole of the matters at once, but to save the cost of another inquiry the whole of the work has been included.

THE Leeds City Council recently advertised for a sewerage engineer at a salary of 1,000*l.* a year. The applications numbered sixty-nine, and these were reduced to thirty. The sewerage committee have selected the following twelve candidates, who will be asked to appear before the committee on April 4:—D. E. L. Davis, Birmingham; James H. Frogley, Bolton; George A. Hart, Birmingham; R. E. W. Berrington, Wolverhampton; Francis Wood, Fulham; James McKie, Derby; H. H. Hellins, Dublin; Arthur W. Bradley, Bury; K. F. Campbell, Huddersfield; Alfred Fiddler, Northampton; Joseph Garfield, Bradford; J. S. Pickering, Cheltenham.

MUNICIPAL waterworks for Todmorden were opened on the 23rd inst. A reservoir has been constructed at Gorphey with a capacity of 130,000,000 gallons, which will provide a daily supply of 621,000 gallons. Five sand filters have been constructed of such area that the rate of downward flow at the surface of the sand will only be about 4 inches per hour when all the water is being used. At this very slow rate of filtration a gelatinous film of fine mud and microbes forms upon the surface of the sand, and so long as this film is maintained intact the most minute organisms cannot pass it. Mr. George P. Deacon, of Westminster, prepared the plans and specifications, and the contractor has been Mr. Benjamin Lumb, of Todmorden. Mr. Lumb's contract was 49,413*l.* 15*s.* 4*d.* The land cost about 8,000*l.*, the Water Act about 4,500*l.*, and the existing pipes within the borough 18,000*l.* The total cost of the new works will probably be just over 90,000*l.*

LORD AVEBURY gave an address on Tuesday before the London Chamber of Commerce on "The Great Increase of National and Municipal Expenditure." In the course of his remarks he declared the local authorities were running head over heels into debt. The outstanding loans of local authorities in England and Wales had risen in ten years by no less than 142,000,000*l.*, and now amounted to over 343,000,000*l.* It was said that much of the expenditure was on remunerative undertakings, but he much doubted

whether there was any real profit. Of course, when there was a monopoly it was easy to show a profit on paper, but all monopolies were bad, and those of Governments and municipalities were worst of all, because they could not be controlled.

PUBLIC CLOCKS.

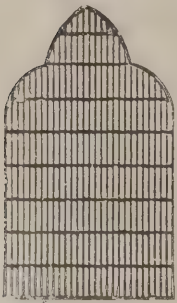
THE world, it is said, does not know its greatest men, for they are often silent and secluded workers. In manufactures the same ignorance prevails. It is a familiar announcement "The trade supplied," but there are firms who without such a notification allow others to take advantage of their products. It is a system which is widely extended, but it may be doubted whether it is always to be recommended. Some men like to work for experts alone, and that may be one of the causes which has led to the practice. If anyone engaged in the manufacture of church and turret clocks were asked about the firm of Messrs. Sainsbury Bros., Ltd., of Walthamstow, they could not fail to testify to the importance of the establishment and the works which come from it. After a business career of more than a century the reputation of Sainsbury Bros. is too widespread to be disputed. Their co-operation has been continuous and extensive.

Having succeeded in the past, they are no less desirous to retain their supreme position in the future. For that purpose their factory at Walthamstow has been rebuilt and is being provided with plant of the latest design. There will be no difficulty henceforth in carrying out the orders of architects for clocks of exceptional size and quality and artistic treatment. There are few districts in this country in which their clocks are not to be found, and their long connection with Government departments is a proof of the perfection of their products as timekeepers, and which no foreign manufacturers have been able to surpass.

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THE new baths erected at the cost of Mr. Andrew Carnegie are now complete. They were designed by Mr. Hippolyte J. Blanc, of Edinburgh. The new bath buildings occupy a site in Pilmuir Street, along which they show a frontage of 260 feet. The total area of ground occupied is 3,300 square

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yards, over which the plan is set out in three main attached groups, namely, the front, comprising entrance hall, reading and committee-rooms and offices, billiard-room, slipper baths, and complete suite of Turkish baths; second, the pond hall and relative accommodation for machinery and filter, engine-room, laundry, accumulator-room, &c.; and third, the gymnasium, dressing-rooms, instructors' rooms, superintendent's residence.

The main entrance is about the centre of the frontage in a projecting block of building of two storeys in height, flanked by two octagonal turrets. The entrance hall is very roomy, being 27 feet by 14 feet. All passing to the pond hall, gymnasium, or Turkish baths are required to pass the intercepting turnstiles. Those desiring the billiard-room only do not require to pass the stiles, but enter direct on the right of the entrance door. The billiard-room is a spacious lofty apartment 58 feet by 25.6 feet, furnished with three full-sized tables. Recesses on one side accommodate onlookers, and a deeply recessed oriel at one end of the room is set apart for those engaging in minor table games. The apartment is well lighted, both from clerestory windows and roof lights. The walls are panelled with wood 8 feet high. Pilasters divide the apartment in a series of bays.

The superintendent's office is on the right of the entrance hall, while from the left is entered a special room for ladies, with communication therefrom to the section of slipper baths set apart for them. Advancing to the inner vestibule (a large and well-lighted area 38 feet by 17 feet), access is given, on one hand, to the gymnasium, and on the other to the pond hall. The gymnasium is a large, lofty and cheerfully lighted hall, having a floor area of 103 feet by 45 feet. A shallow gallery on three sides is constructed for onlookers on occasions of display. The hall is decorated in soft tints of yellow, with stencil ornament in pale orange and green, and is furnished with the most complete and perfect equipment of modern gymnastic appliances. Probably nowhere in Scotland, if even in Britain, is there a more commodious or more perfectly equipped gymnasium of its kind. In connection with the gymnasium are commodious dressing-rooms, with lavatories and sprays in each. Instructors' rooms are conveniently situated.

The pond hall is, naturally, the chief feature of the

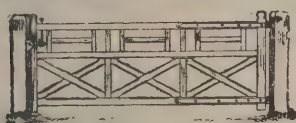
building. The water area is 75 feet by 35 feet, and on two sides are fifty-one dressing boxes entirely of teak. By an ingenious arrangement the space they occupy can be reduced by folding in the enclosures, so giving space for two extra rows of seats for gala occasions. Moreover, instead of the usual single pathway round the pond there are in this case two—that at the pond being specially and only for bathers, the second being for those entering and leaving the boxes. By this provision the pond water is kept free from the dust of boots. At one end of the hall are foot baths and sprays and superintendent's room. There is a gallery along three sides, and this accommodation, along with the movable seats in the area, affords sitting room on gala occasions for 1,000 persons.

The machinery for filling, heating, circulating and filtering the pond water are all provided in the basement floor, where are also a complete laundry, fitted up with wash-house, steam drying horses and steam calendar. The boiler for steam-power is of the Babcock & Wilcox type, capable of evaporating about 5,000 lbs. of water per hour. It provides the steam for hot-water supply for atmospheric heating of the whole buildings, also for Turkish baths, slipper baths, laundry, engines and pond.

The slipper-bath hall is a large, lofty and well lighted apartment, measuring 61 feet by 31 feet. It provides fourteen bath chambers, each with dressing chamber attached. There are also six spray and three douche apartments, together with sixteen separate dressing cubicles in connection. The baths are of special construction, perfectly fitted to their situation to prevent water getting in behind. For heating each department a flue from the basement is ingeniously contrived as a part of the bath, so placed as to prevent water getting access. The baths are of white glazed fireclay of special make, and each compartment is partitioned with green enamelled slate slabs, the doors having gun-metal mountings. The hall is divided in three main spaces, the centre—wherein are the baths—being warmed to a higher temperature than the sides, where are the dressing boxes. An attendant's passage is in the centre between the baths, and in this passage are all the fittings, exposed and under his sole control. A section of the bath hall is partitioned off for the sole use of ladies every day.

The corridor leading to the slipper baths continues to

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the Turkish baths. These comprise sudatorium, tepidarium, shampooing-room, spray, Russian and plunge bath, also large cooling and dressing-room. The whole apartments are treated with faience tiling on walls, floor, &c., and where walls are plastered they are decorated in colour in soft tints. The cooling-room is a veritable Turkish apartment, with carved and decorated wood screens and wall surfaces all elaborately treated in positive colours of rich reds, blues and gilding, all forming a pleasing and attractive eye scheme, adding to the perfect comfort of the bath.

Externally the elevations are treated in a phase of the later Renaissance, and, says the *Dunfermline Press*, show at once to be a true rendering of the general plan of arrangement. The centre compartment, in which is the main entrance, rises much higher than the side compartments, which require top lighting and are therefore of single storey. On each side of the entrance are two octagonal turrets which terminate with shaped cone roofs, and with the centre gable rising between them form a very effective and pleasing group. The elevation of the wings is simple, composed of a series of compartments occupied with windows and divided with wall pilasters, terminating in ornamental finials above the roof parapets. The oriel of the billiard-room at the south end and the higher elevation of the Turkish bath group at the north end form pleasingly composed abutments, terminating the long range of the elevation.

Fitly symbolising the main purposes of the building are two bronze panels inserted in stone frames on faces of the octagon turrets. That on the south side illustrates the art of fencing, whilst that on the north side (near which the foundation-stone was laid in July, 1902) represents the art of swimming to the advantage of being able to save life.

For the heating and ventilation the best known methods to insure efficiency have been adopted. The electric-lighting system is complete and efficient, and includes one accumulator for emergency requirements.

Among the contractors were:—Builders, Messrs. James Stewart & Sons (Dunfermline); tile-layers, Minton, Hollins & Co. (Stoke-on-Trent), H. & R. Johnston (Cowbridge, England), Carter & Co. (Poole); enamelwork, Messrs. J. & M. Craig, Ltd. (Kilmarnock); baths, Messrs. Shanks & Co., (Barrhead).

THE HOLBORN AND FINSBURY ELECTRICAL EXHIBITION.

This interesting Exhibition, to which we briefly alluded in our last issue, will remain open until April 5 next, and in continuation of our notice of some of the principal exhibits we may mention that the Richmond-Carey patent automatic electric lift, a working model of which on a 3-inch scale is to be seen at the stand of Messrs. J. Richmond & Co., Ltd., can be used by anyone without the services of an attendant, while it is perfectly safe in operation, as the design of the controlling arrangements meets every possible contingency, with the view of rendering impossible the ordinary lift accidents. Messrs. J. Richmond & Co., Ltd., also exhibit passenger lift gear, forming one of a set for the Malta Tramways, with a capacity to raise 15 cwt. through a travel of 180 feet at a speed of 300 feet per minute.

The electric service-lift exhibited by Messrs. Waygood & Co., Ltd., which was also previously briefly alluded to, is operated by pushes on each floor, so that a child can manipulate it, while the cost for current is practically nothing. Electric-lift gear and accessories are also to be seen at this stand.

The Cooper Hewitt and Bastian lamps are shown at stand No. 42A by Messrs. A. W. Penrose & Co., who also exhibit at stand No. 62 the electric passenger-lift equipment, with car, showing switch in cage control, a half-ton electric warehouse crane equipment, and the Phoenix electrically-driven sensitive drill, as well as an electric breast drill, besides a Colt's armoury printing press, which is motor driven. Kryptol, the new patented resistance material for producing heat by electricity, which is attracting a good deal of attention at this stand, is admirably suited for the laboratory and workshop.

Messrs. Johnson & Phillips are showing hot wire instruments, arc lamps, porcelain insulators, cables and junction boxes, enclosed motor starters, as well as a specimen ventilating fan and Thirman cut-out.

Mr. W. Newton is exhibiting electric-light fittings, switches and accessories, besides specimens of electric radiators and ventilating desk fans.

Nor should mention be omitted of The Shannon, Ltd., who make a good display of the card index system as

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The County of London Electrical Supply Company, it may be added, make a special feature of their power supply in the districts of Clerkenwell, Holborn and St Luke's, and have a very large number of power users connected to their mains. To those who have not yet adopted electric energy as a motive-power, the present exhibition will undoubtedly be of very great service.

NEW HEADQUARTERS FOR CADETS AT HAMPSTEAD.

A STRIKING illustration is afforded of the facilities afforded and the inducements held out to youths nowadays for making themselves efficient in military exercises by a visit to the new headquarters of the 1st cadet battalion of the Royal Fusiliers (City of London Regiment), which have just been completed at Pont Street, Hampstead, N.W., and which are perfectly equipped in every detail. The drill hall is of ample dimensions, admirably lighted by means of four of Humphrey's incandescent lamps in the centre and a Lucas light at each end. The window-frames as well as the roof supports are of iron, and there is a complete gymnastic equipment, supplied by T. M. Gardiner, of Hoddesdon, Herts. The armoury behind is capable of accommodating 900 rifles, and the fireproof system has been adopted throughout. There is a gallery in the front part of the hall, and leading off this are three rooms, with partitions, folding doors for meetings and general purposes.

Below ground is a shooting gallery for Morris tube practice, fitted with the Kerim electric light as well as with electric targets and indicators, and there is a magazine for ammunition built into the wall, while there is a store-room at the rear. Overhead is the admirably arranged canteen fitted with a Carrona kitchen, and mess-rooms for the officers and sergeants, besides bedrooms, bath-rooms and a store-room for accoutrements.

There is in addition a gunshed in which is stored a

Gardener machine gun and a conveniently arranged band practice room.

The architect is Mr. J. A. Tregelles, of 38 New Broad Street, and the builders are Messrs. T. Steed & Son, while Messrs. Purcell & Nobbs are responsible for the heating and lighting arrangements. The cost of the building and site, amounting to 8,000*l.*, was provided by Mrs. Wharrie, the daughter of Sir Henry Harbin.

TRADE MARKS BILL.

THE following explanation is appended to the Trade Marks Bill introduced by Mr. Moulton, Mr. Eve, Mr. Cripps, Mr. Butcher, Sir Albert Rollit, Mr. Cawley and Mr. Robson.

This Bill is intended to consolidate and amend the law relating to trade marks and to dissociate the law relating thereto from that relating to patents and designs. In preparing this Bill three main objects have been kept in view, viz. :—

1. To make the legislation which defines the essentials of registrable trade marks and the procedure for registering them more in accordance with the wishes and needs of the commercial community.

2. To separate the fundamental provisions of that legislation from the provisions relating to procedure. The latter is made by the Bill more elastic, and capable of being readily modified as experience shows best, and they are therefore relegated to rules which can promptly be amended if necessary.

3. To correct defects in the working and arrangement of the present Acts, so as to render the legislation simpler, more intelligible and more effective.

Some of the chief points in the present Bill are as follows :—

Clause 9.—The provisions as to registrable trade marks are made wider and more elastic so as to embrace many types of trade marks which, though excellent in practice, have hitherto been excluded from registration. Clause 10 deals with the question of coloured trade marks. Clauses 12 and 14 deal with applications for registration and oppositions thereto and appeals brought in respect of them. Clause 15 deals with the vexed question of disclaimers

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which has led to so much litigation in the past. It gives great freedom to the tribunal to require such disclaimers as are necessary to define the rights acquired by the registration, but provides that such disclaimers shall not prejudice any rights that do not depend upon that registration. Clauses 19-21 deal with the question of identical trade marks, especially such as arise from honest independent user before registration was established. Clauses 22-27 regulate cases in which a series of substantially similar marks are used by a firm on different goods—a very common and convenient practice. Clauses 28-31 provide for the renewal of registration at intervals of fourteen years. Clauses 32-38 deal with the important question of the rectification of the register in case of trade marks improperly registered or improperly omitted, and also with the case of disused trade marks. It also provides that trade marks already registered shall in case they are attacked have the benefit of the more liberal provisions of the present Bill as to registrability. Clauses 39-45 deal with the effect of registration and secure for the commercial community that which previous Acts probably intended to secure but failed so to do, *i.e.* that a trade mark that has been registered for five years shall be treated by all Courts as valid. Clauses 46-49 deal with legal proceedings relating to trade marks. The double procedure by motion and action is rendered unnecessary, and the rights of the parties and all consequent relief will be dealt with in one proceeding. Clause 50 gives the Court a wider discretion as to costs which will remove a widely felt hardship.

The other clauses of the Bill deal with the powers and duties of the Registrar of Trade Marks and of the Board of Trade and various miscellaneous matters.

A complete set of rules is scheduled to the Bill. These will be the rules when the new legislation commences. They will, however, be capable of being amended from time to time by the Board of Trade, subject to their being submitted to Parliament by being laid on the table of each House.

The subject is of so technical a character that it is impossible to give details of the provisions of the Bill or of the grounds on which they rest. But in the preparation of the Bill every effort has been made to ascertain the views of those who are most interested in trade marks, and of

those who have the greatest familiarity with the administration of the present Acts and the judicial decisions thereunder, and it is believed that the provisions of the present Bill accord with these views in all substantial matters.

REGISTRATION OF PLUMBERS.

THE annual meeting of registered plumbers under the jurisdiction of the Birmingham and District Council was held in the council-room of the Midland Institute. Mr. John Price (city surveyor) presided. In moving the adoption of the report the President said the principal matter referred to in it was the question as to when the time for registration without examination should terminate. The representative committee decided that after December 31, 1904, no plumber should be registered unless he had passed an examination approved by the committee, but in consequence of several of the councils having failed to carry out that decision, the representative committee had extended the time till December 31, 1905. The Council were anxious that no further extension of time would be granted, for it was very desirable that a practical test as to the efficiency of masters and men should be speedily and uniformly adopted. He hoped that the plumber who did not know his business would soon be a thing of the past. The accounts showed a balance in hand of 103*l.* 5*s.* 1*d.*

The annual report of the Manchester Council stated that the Manchester education committee had been approached with a view to a representative of the building trades being co-opted as a member of that body. The Council were informed that the scheme of co-option did not provide for further representation in the direction indicated. It was also recorded that a deputation from the Council was received by a sub-committee of the paving, drainage and highways committee of the Manchester Corporation, when the Corporation were asked not to place upon its list of "authorised plumbers" any person who had not received a proper training. The gas and water committees declined to receive this deputation. "It has since been pointed out," added the report, "that the official authorised list contains the names of men who have no connection with even the building trade, and your Council still hope for a revision."



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Advertisements for Tenders, Building Land, Situations Vacant or Wanted, &c., can be left at those Offices, and copies of "The Architect," "Builders' Reporter," and other publications of Messrs. GILBERT WOOD & CO. can be obtained as early as at the City Office, Imperial Buildings, Ludgate Circus, E.C.

EDITORIAL NOTICES.

In view of the many difficulties which are certain to arise in connection with the law, practice rules and procedure under the Workmen's Compensation Act, we have added to our staff A VERY EMINENT BARRISTER, who has made the subject a special study, and will be glad to answer in the columns of this paper any questions relating to the complicated matters arising from the provisions of this difficult Act. Our LEGAL ADVISER will further answer any legal question that may be of interest to our readers. All letters must be addressed "LEGAL ADVISER," Office of "The Architect," Imperial Buildings, Ludgate Circus, London, E.C.

The Editor will be glad to receive from Architects in London and the Provinces results of Competitions and Tenders and other particulars of Works in progress in which they may be interested.

The authors of signed articles and papers read in public must necessarily be held responsible for their contents.

No communication can be inserted unless authenticated by the name and address of the writer—not in every case for publication, but as a guarantee of good faith.

Correspondents are requested to make their communications as brief as possible. The space we can devote to Correspondence will not usually permit our inserting lengthy communications.

TENDERS, ETC.

*** As great disappointment is frequently expressed at the non-appearance of Contracts Open, Tenders, &c., it is particularly requested that information of this description be forwarded to the Office, Imperial Buildings, Ludgate Circus, London, E.C., not later than 2 P.M. on Thursdays.*

COMPETITIONS OPEN.

COLCHESTER.—April 13.—For school in Mill Road, Mile End. Block plan to be obtained from Mr. C. E. Denton, Educational Offices, Colchester.

HIGH WYCOMBE.—May 31.—Secondary school, accommodation for 175 pupils. No premium offered. Mr. T. J. Rushbrooke, borough surveyor, 77 Easton Street, High Wycombe.

KING'S NORTON.—April 26.—For the erection of a public library in Church Hill, King's Norton.—Architects must be resident in King's Norton or practising in Birmingham. Particulars may be obtained from Mr. A. W. Cross, surveyor, 10 Newhall Street, Birmingham.

RADCLIFFE.—April 29.—For the erection of a free public library. Premiums of 50*l.*, 30*l.* and 20*l.* will be awarded. General conditions and instructions, with an outline plan of site, may be obtained from Mr. S. Mills, clerk, Council Offices, Radcliffe, Manchester.

ROCHESTER.—May 15.—For the erection of a municipal technical institute at Rochester. Three premiums of 50, 20 and 10 guineas will be awarded. Copies of the instructions and a plan of the site can be had from Mr. W. Banks, surveyor, Guildhall, Rochester.

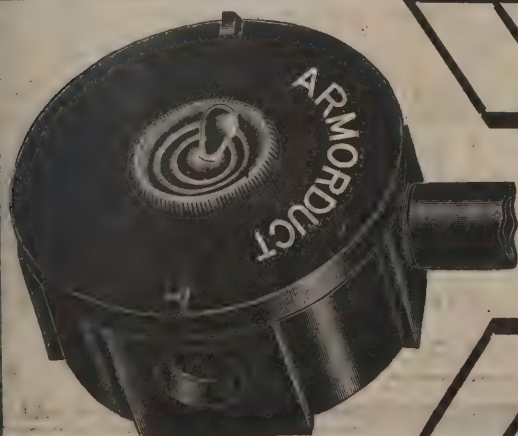
SWINDON.—April 14.—The education committee of the Town Council of Swindon propose to erect a public elementary school with accommodation for 840 scholars, and invite plans from architects.—Mr. W. Seaton, Secretary to the Education Committee, Education Office, Town Hall, Swindon.

CONTRACTS OPEN.

ABRAM.—April 12.—For the erection of a caretaker's lodge house at the hospital in Abram, Lancs. Messrs. Heaton, Ralph & Heaton, architects, King Street, Wigan.

ALNWICK.—April 22.—For taking-down and re-erecting Little Mill bridge, for the Alnwick Rural District Council, Mr. H. W. Walton, clerk, Fenkle Street, Alnwick.

ASHTON-IN-MAKERFIELD (LANCS).—April 18.—For the erection of a new administrative building, scarlet-fever and diphtheria pavilions, laundry, disinfectory, stables and mortuary buildings, and other work at existing hospital buildings, for the Ashton-in-Makerfield Urban District Council. Messrs. Heaton, Ralph & Heaton, architects, Wigan.



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ASHTON-UNDER-LYNE.—April 10.—For the construction of ladies' conveniences at Stamford Park. The Borough Surveyor, Town Hall, Ashton-under-Lyne.

ASKAM-IN-FURNESS.—April 24.—For erecting a manager's house, weigh-office and other buildings at the Askam-in-Furness Gasworks. The Council Buildings, Station Road, Dalton-in-Furness.

ASKRIGG.—April 21.—For the erection of temperance hall at Askrigg (Yorks). Messrs. Clark & Moscrop, architects, Feethams, Darlington.

BATLEY.—April 12.—For the mason, joiner, plumber, plasterer, slater, painter and electrical engineer's work in the erection of new bank at Batley. Messrs. Walter Hanstock & Son, architects, Branch Road, Batley.

BOSTON.—April 29.—For erection of a new infirmary, laundry, boiler-house and mortuary at the workhouse, Boston, Lincs. Mr. James Rowell, architect, Church Lane, Boston.

BRENTFORD.—April 11.—For the supply and erection of a staircase and covered way at Brentford, a covering for crane at Hayes, and two foot-bridges at Freshford (near Bath) and Panteg (Mon) stations for the Great Western Railway Company. The Engineer, Paddington Station, London.

BRETFTON.—April 11.—For the erection of fourteen houses, to be let in four contracts, for the Great Western Railway Company, viz. three at Bretforton and Western Sub-Edge, three at Broadway, five at Toddington, and three at Winchcombe stations on the Cheltenham and Honeybourne Railway. The Engineer, Winchcombe Station.

BROOMFLEET.—April 8.—For alterations and additions to the Council school at Broomfleet. The Clerk of Works, Beverley.

BUBWITH.—April 15.—for alterations and additions to the Council school at Bubwith, Yorks. The Clerk of Works, Beverley.

COVENTRY.—April 11.—For the pulling-down of old premises and erection and completion of new shops, houses, &c. Messrs. Harrison & Hattrell, architects, 23 Hertford Street, Coventry.

CREEGBROSE.—April 15.—For the erection of a piggery at Creegbrose, near Chacewater, in the parish of Kenwyn, Cornwall. Mr. G. Oliver, Creegbrose.

DENHOLME.—April 13.—For the plasterer and slaterwork in five houses, Denholme, Yorks. Mr. J. Bottomley, 15 Prince Street, Haworth.

EAST MOLESEY.—April 13.—For a house and premises in East Molesey. Mr. D. G. Andrew, architect, Bridge Road, East Molesey.

EASTLEIGH.—For the erection of new Baptist church at Eastleigh, Hants. Messrs. J. Wills & Sons, architects, Victoria Chambers, Derby.

ELLAND.—April 12.—For the erection of a brick chimney, 45 yards high, at Storth brickworks, Elland. Messrs. Sharp & Waller, architects and surveyors, 32 Bradford Road, Brighouse.

EPSOM.—April 15.—For the erection of farm buildings at the Horton asylum and at the epileptic colony, Epsom, Surrey. The Asylums Engineer, 6 Waterloo Place, S.W.

ERITH.—April 17.—For the erection of public library building at Erith. Mr. W. Egerton, architect, 12 Queen's Road, Erith.

FULFORD.—April 17.—For the erection of three houses at Fulford, Yorks. Mr. Arthur H. Everist, architect and surveyor, 8 New Street, York.

GATESHEAD.—April 27.—For the erection of stables at Tyne Road East. Mr. N. Percy Pattinson, borough surveyor, Town Hall, Gateshead.

GLASGOW.—April 10.—For alterations on the Dennistoun dépôt, for the Corporation. Mr. Jas. Dalrymple, general manager, 46 Bath Street, Glasgow.

GREAT YARMOUTH.—April 10.—For the erection of a porter's lodge and house, reception wards, &c., at the Great Yarmouth union workhouse, and also for hot-water apparatus, electric lighting and bells. Mr. W. Walter Lake, architect, Regent Street.

GUILDFORD.—April 15.—For the erection of the super-structures of new casual wards, labour shed and workshops and quarters for married couples on foundations already put in, at the workhouse, Guildford. Mr. Edward L. Lunn, architect, 36 High Street, Guildford.

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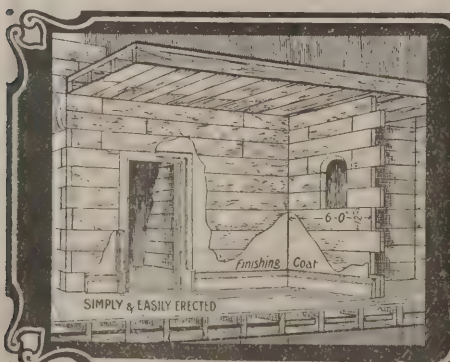
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HEMSWORTH (YORKS).—April 19.—For additions and alterations to the workhouse at Hemsworth. Mr. T. H. Richardson, architect, Hemsworth.

ILFORD.—April 11.—For the extension of the county secondary school in Melbourne Road, Ilford, by adding thereto six classrooms, cookery classroom, cloak-room, lavatories, &c. Mr. C. J. Dawson, architect, 11 Cranbrook Road, Ilford.

IRELAND.—For carrying-out additions and repairs to the church and school, for the committee of Second Presbyterian Church, Dromara. Messrs. Hobart & Heron, architects, Scottish Provident Buildings, Belfast.

IRELAND.—April 10.—For making alterations and additions to premises in Church Street, Antrim. Mr. William J. Fennell, architect, 2 Wellington Place, Belfast.

IRELAND.—April 10.—For making alterations and additions to two cottages at Ballywalter, co. Down. Mr. William J. Fennell, architect, 2 Wellington Place, Belfast.

IRELAND.—April 10.—For the erection of a National school and offices, &c., at Crossnacreevy, Castlereagh, co. Down. Messrs. W. H. Stephens & Sons, Donegal Square North.

IRELAND.—April 17.—For the construction of a storage reservoir of about 75,000,000 gallons capacity at Foffanyreagh, near Newcastle, in the county of Down; also a caretaker's residence. Mr. R. H. Dorman, Courthouse, Armagh.

KENILWORTH.—April 18.—For the construction of covered sewage tanks, circular filters, pump-well, engine-house, cast-iron and stoneware pipe sewers and other incidental works. Messrs. Willcox & Raikes, engineers, Temple Row, Birmingham.

LANCASTER.—April 10.—For the erection of a mixed school on the Greaves, Lancaster. Mr. J. C. Mount, borough surveyor, Lancaster.

LANCASTER.—April 15.—For the erection of a retaining and fence wall in Halton Road, near Skerton Mill. The Borough Surveyor's Office, Town Hall, Lancaster.

LEEDS.—April 14.—For the erection of a set of conveniences at Hunslet Moor, Leeds. The City Engineer's Office, Leeds.

LEWES.—April 17.—For the erection of new offices in Fisher Street, Lewes, Sussex. County Surveyor's Office, County Hall, Lewes.

LONDON.—April 11.—For the renewal in steel and timber of the first floor of a warehouse at the goods station, Paddington, W., for the Great Western Railway Company. The Engineer, Paddington Station, London, W.

LONDON.—April 11.—For supply of about 146 tons of steel bridge girders and other steel and ironwork of British manufacture, for the Great Western Railway. The Engineer at Paddington Station, London, W.

LONDON.—April 12.—For the erection of electricity substations at Old Oak Common, near Acton, at Shepherd's Bush and at Royal Oak, including a new stationery storehouse and offices at the latter place, for the Great Western Railway Company. The Office of the Engineer, Paddington Station, London, W.

LONDON.—April 17.—For the erection of an iron school to accommodate 550 children (250 infants and 300 mixed) on the Belmont Road site, Tottenham. Mr. G. E. T. Laurence, architect, 22 Buckingham Street, Aldelphi, W.C.

LONDON.—April 18.—For town hall restoration works, Shoreditch. Mr. Alfred W. S. Cross, architect, 53A Maddox Street, W.

MANCHESTER.—April 10.—For alterations and additions to the Embden Street municipal schools, Hulme, Manchester. Education Offices, Deansgate, Manchester.

MARYPORT.—April 11.—For the erection of a laundry and other work at the Victoria cottage hospital, Maryport. Mr. C. Eaglesfield, architect, Maryport.

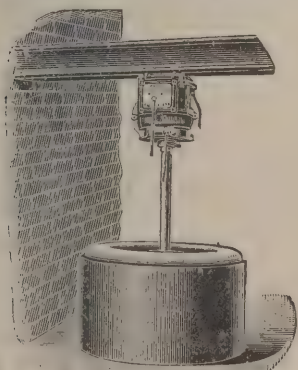
MELTHAM.—April 11.—For the erection of a motor-house and other buildings at Meltham Hall, near Huddersfield. Messrs. John Kirk & Sons, architects, Huddersfield.

MORETONHAMSTEAD.—April 8.—For the erection of a Congregational minister's residence at Moretonhampstead, Devon. Mr. Alfred J. Cornelius, architect, Truro.

MORPETH.—For the erection of new premises at Morpeth. Messrs. Liddle & Browne, architects, Prudential Buildings, Mosley Street, Newcastle-on-Tyne.

NOTTINGHAM.—April 11.—For the concrete foundation, masonry and other work required in the erection of abut-

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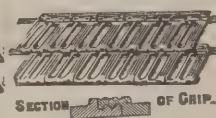
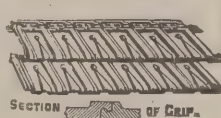
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ments, flood arches and approaches to the suspension bridge over the river Trent. Mr. Frank B. Lewis, city architect, Guildhall, Nottingham.

OAKENGATES.—April 12.—For additions and alterations to the Primitive Methodist church, Oakengates (Salop). Mr. Elijah Jones, 10 Albion Street, Hanley.

OSSETT.—April 13.—For the erection of a shop and bakery at Ossett, Yorks. Messrs. John Kirk & Sons, architects, Dewsbury.

PADIHAM.—April 10.—For the erection of a large weaving shed, warehouse, engine-house, boiler-house and other buildings in connection therewith in Dryden Street, Padiham. Mr. Samuel Keighley, architect, 27 Nicholas Street, Burnley.

PALLION.—April 12.—For the erection of nineteen dwelling-houses, Lyndhurst Terrace, Pallion, Sunderland, for the North-Eastern Railway Company. Mr. William Bell, the company's architect, Central Station, Newcastle-on-Tyne.

PENPONDS.—April 20.—For the erection and completion of vicarage, with outbuildings and boundary walls. Mr. Sampson Hill, architect, Green Lane, Redruth.

PORTSMOUTH.—April 17.—For the complete reinstating of show-room, workshop, stores, &c., Broad Street, Portsmouth. Borough Engineer's Offices, Town Hall, Portsmouth.

PRESTON.—April 14.—For extension of fire-station building, Tithebarn Street. Borough Surveyor, Town Hall, Preston.

RAMSGATE.—April 17.—For the conversion of Effingham, Effingham Street, into a fire brigade station. Mr. T. G. Taylor, borough engineer, Albion House, Ramsgate.

ST. ALBANS.—April 17.—For the erection of swimming-baths in Cotton Mill Lane, St. Albans. City Surveyor, Victoria Street, St. Albans.

ST. BEES.—April 18.—For new chapel, laboratories, lecture hall and library at St. Bees school, Cumberland. Mr. John F. Curwen, architect, Kendal.

ST. MERRY.—April 8.—For building a new Wesleyan chapel at St. Merry, Cornwall. Messrs. J. Ennor & Son architects, Central Square, Newquay.

SALFORD.—April 10.—For the provision and erection of fireproof doors in the workshops at the central tramway car depot. Tramways Offices, 32 Blackfriars Street, Salford.

SCOTLAND.—April 11.—For the erection of a hospital, for the Lanark District Lunacy Board. Mr. Alex. Cullen, architect, Brandon Chambers, Hamilton.

SCOTLAND.—April 15.—For the mason, ironfounder, carpenter, glazier, slater, plumber and plasterer's work in the erection of four homes, for the Edinburgh District Lunacy Board. Mr. Hippolyte J. Blanc, architect, 25 Rutland Square, Edinburgh.

SCOTLAND.—April 17.—For the proposed extensions to the existing hospital buildings at Muirhead, Linwood Road, Johnstone:—(1) Brick and masons' work, (2) carpenter and joiner's work, (3) plumber and gasfitter's work, (4) plasterer and concrete's work, (5) slaters' work, (6) tilework, (7) painters' work. Mr. J. L. Cowan, architect, 136 Wellington Street, Glasgow. Also:—(1) Lancashire steam-boiler and piping, (2) heating, (3) laundry-machinery. Mr. Archibald Leitch, 40 St. Enoch Square, Glasgow. Also sewage-disposal works. Mr. Robert F. Millar, 109 Bath Street, Glasgow.

SOUTHEND-ON-SEA.—April 27.—For the erection of a public library in Victoria Avenue, Southend-on-Sea. Mr. William H. Snow, town clerk, Southend-on-Sea.

SPENNYMOOR.—April 15.—For the erection of a new police-station at Spennymoor, Durham. County Surveyor's Office, Shire Hall, Durham.

STOCKTON.—April 10.—For the erection of new schools and caretaker's house at Newtown. Mr. T. W. T. Richardson, architect, 50 High Street, Stockton.

TEWKESBURY.—April 10.—For the erection of an elementary school at Tewkesbury. Mr. M. H. Medland, county architect, 15 Clarence Street, Gloucester.

TRURO.—April 14.—For new classrooms and alterations at Truro College. Mr. Sampson Hill, architect, Greenlane, Redruth.

TUNBRIDGE WELLS.—April 10.—For (Contract No. 2) the erection of an engine-house and other works incidental thereto, in connection with the Paddock Wood sewerage and sewage-disposal works. Mr. Frank Harris, engineer to the Council, Broadway, Southborough, Tunbridge Wells.

ULVERSTON.—April 14.—For the erection of house in Kilner's Park, Ulverston. Messrs. Settle & Brundit, architects and surveyors, Ulverston.

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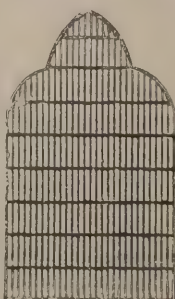
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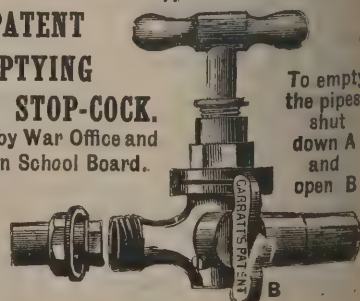
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WALES.—April 10.—For the erection of eighteen houses at Bedlinog. Mr. Williams, architect, 57 Lower High Street, Bedlinog.

WALES.—April 10.—For the erection of one detached and two semi-detached villas in Clare Road, Ystalyfera. Mr. Arthur S. Williams, architect, Llandilo.

WALES.—April 11.—For the erection of seventeen houses in Town Hill Road, Sketty, Swansea. Mr. Charles T. Ruthen, architect, Bank Chambers, Heathfield Street, Swansea.

WALES.—April 11.—For the erection of a waiting-room and platform coverings at Mountain Ash station, near Aberdare, for the Great Western Railway Co. The Engineer, Neath Station.

WALES.—April 12.—For alterations at Penclawdd Council school, Glamorgan. Messrs. Hartland, Isaac & Watkins, 7 Rutland Street, Swansea.

WALES.—April 12.—For the erection of a new Council school at Bargoed. The Glamorgan County Council Offices, Westgate Street, Cardiff.

WALES.—April 12.—For the erection of three additional classrooms, new cloak-rooms, &c., and alterations to Aman infants' school, Aberaman. Messrs. J. Llewellyn Smith & Davies, architects, 7 Victoria Square, Aberdare.

WALES.—April 12.—For the erection of artisans' dwellings at Wellington Street, Canton. Mr. W. Harper, borough engineer, Town Hall, Cardiff.

WALES.—April 14.—For the erection of a new police station at Llanharan, Glamorgan. County Surveyor's Office, Town Hall, Bridgend.

WALES.—April 14.—For the erection of twenty-eight dwelling-houses at Cwmbach. Messrs. Morgan & Elford, architects, 42 Canon Street, Aberdare.

WALES.—April 15.—For the erection of two new blocks of buildings, together with alterations and additions to the existing buildings at the asylum, Denbigh. Messrs. T. M. Lockwood & Sons, architects, Foregate Street, Chester.

WALES.—April 15.—For erection of a mixed school and the execution of works connected therewith at Abertaf, Abercynon. Mr. W. G. Thomas, architect, Public Offices, Mountain Ash.

WALES.—April 15.—For the erection of 135 dwelling-houses, together with streets, sewers and surface-water drains at Darranlas, Mountain Ash, for the Napier Building Club. Messrs. Morgan & Elford, architects, 1 Jeffreys Street, Mountain Ash.

WALES.—April 17.—For the erection of an institute at Gorseinon, Swansea. Mr. Charles T. Ruthen, architect, Bank Chambers, Heathfield Street, Swansea.

WALES.—April 18.—For the erection of a chapel at Tonyrefail. Mr. G. Hughes, Gilfach Road, Tonyrefail.

WALES.—April 18.—For the erection of fifty houses at Brewery Street, Pontygwaith; also the formation and completion of roads, carriageways, surface-water drains, &c. Mr. W. D. Morgan, architect, Victoria Chambers, Pentre.

WEST HARTLEPOOL.—April 15.—For the erection of three houses in Colwyn Road. Mr. Francis E. Boaz, York Road, West Hartlepool.

WHITSTABLE.—April 11.—For the enlargement of the county police station at Whitstable, Kent. The County Architect, 86 Week Street, Maidstone.

THE Local Government Board recently held an inquiry into an application by the Boston Town Council for a loan of 20,000*l.* for electric lighting. The scheme has not found favour, for the plans have since been returned, with various suggestions and recommendations, and they call for a revised scheme on a broader basis, and the appointment of a consulting electrical engineer. The Board are not satisfied, upon the information before them, that the establishment of an electric-lighting installation in accordance with the scheme as at present designed would be likely to be successful from the financial point of view. The Board think also that it had not been satisfactorily shown that there would be any material improvement in the lighting of the streets, and looking to the arrangement of the arc lights shown on the block plan, it was even possible that the illuminating effect of the electric light might be inferior to that of the present method of lighting by gas. The Board are also advised that the arrangement of the generating station is capable of considerable improvement, especially with regard to possible future extensions.

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W. Williams	4,674	0	0
E. Jones	4,400	0	0
W. Jones	3,604	0	0
R. Jones	3,575	0	0
R. & J. WILLIAMS, Upper Bangor (accepted)	3,494	0	0

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British Electric Plant Company, Ltd., feed pump	238	10	0

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Cunningham, Forbes & Co.	£1,051	18	9
Norris	1,001	18	6
Franks	969	17	4
Streeter Bros.	946	0	0
Catley	888	0	0
Trim	871	2	8
HEWETT & Co. (accepted)	862	16	2
Surveyor's estimate	992	3	3

For sewerage works at Shere and Gomshall, for the Guildford Rural District Council. Messrs. LEMON & BLIZARD, engineers, Westminster.

Potter	£3,617	0	0
Iles, jun.	2,692	19	0
Cunningham & Co.	2,639	2	2
Pedrette	1,990	0	0
Norris	1,935	0	0
Franks	1,762	8	3
Rayner	1,700	0	0
Bell	1,644	0	0
Dean	1,642	14	11
Harrison & Co.	1,639	0	0
Streeter & Co.	1,627	13	1
Tabor	1,604	7	1
Riley	1,565	17	8
Jackson	1,544	10	0
Osman	1,544	0	0
Turner	1,425	17	0
Jesty & Baker	1,398	11	0
Hewitt & Sons	1,389	18	0
Catley	1,389	0	0
F. W. TRIMM, Dorking (accepted)	1,321	0	0
Osenton	1,319	0	0
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Young	181	10	0
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Sheepbridge Iron Company	2,589	11	3
Oakes & Co.	2,568	0	0
J. & R. Ritchie	2,544	0	0
Staveley Iron Company	2,548	2	9
Clay Cross Company	2,541	0	0
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Cloake	2,495	11	4
Holwell Iron Company	2,495	0	9
Spittle & Co.	2,493	10	9
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LYOYD & SON, Weston-super-Mare (accepted)	2,125	18	7

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Galvin	£3,761	17	10
Gaul	3,600	0	0
Denis O'Callaghan	3,575	0	0
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Hill	3,350	0	0
Kearns	3,350	0	0
E. & P. O'FLYNN, Cork (accepted)	3,160	0	0

For the erection of semi-detached villas and terraces of houses at Blackwater Road, Douglas, and Glasheen, Cork, for Mr. Thomas Donovan, high sheriff. Messrs. W. H. HILL & SON, architects, 28 South Mall, Cork.

PATRICK MURPHY, John Street, Cork (accepted)	£6,400	0	0
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IRELAND—continued.

For additions and improvements at Provincial Bank, Youghal, co. Cork. Messrs. W. H. HILL & SON, architects, 28 South Mall, Cork.

D. CREEDON, Fermoy (accepted) . . . £1,437 10 0

For building and completing a bungalow at Innishannon, for Rev. Augustus Tabiteau-Herrick. Messrs. W. H. HILL & SON, architects, 28 South Mall, Cork.

WILLIAM O'CONNELL, Hanover Street, Cork (accepted) . . . £630 0 0

KINETON.

For the erection of three cottages. Mr. E. G. HOLTOM, architect, Stratford-upon-Avon.

Fincher & Co. . . . £995 0 0

J. Harris. . . . 979 0 0

J. Harris & Sons . . . 896 0 0

Booth . . . 848 0 0

Easton . . . 795 0 0

Fleming . . . 775 0 0

F. G. WATSON, Southam, Rugby (accepted) . . . 698 0 0

LONDON.

For cleaning and paintingwork at the Downs school, for the Metropolitan Asylums Board.

Streather . . . £600 0 0

Jones & Andrews . . . 492 0 0

Jenner . . . 488 6 0

Sycamore Works, Ltd. . . . 468 18 0

Kirkaldy & Son . . . 450 0 0

Kent . . . 439 0 0

Holliday . . . 418 0 0

Wall . . . 398 0 0

Potter . . . 372 0 0

Enness Bros. . . . 365 0 0

Langdon & Clark . . . 340 12 0

Wontner & Co., Ltd. . . . 334 0 0

Dudley . . . 329 15 0

Wright . . . 300 0 0

Fenn . . . 299 10 0

Proctor & Son . . . 280 0 0

Richards . . . 275 0 0

T. COLE, Barnsbury (accepted) . . . 235 0 0

LONDON—continued.

For the erection of messroom at Walmer Road depot, for Kensington Borough Council.

Kearley . . . £340 0 0

Saint . . . 248 0 0

G. & F. Kent . . . 246 0 0

Sealy . . . 225 0 0

F. D. & H. Head . . . 223 10 0

W. WISE (accepted) . . . 197 15 0

For additions to stores and workshops at the Western hospital, for the Metropolitan Asylums Board.

Crisp . . . £1,055 0 0

R. & E. Evans . . . 973 0 0

Aldridge & Son . . . 960 0 0

Wall . . . 950 0 0

Cole . . . 907 0 0

Cowley & Drake . . . 880 0 0

Faulks . . . 879 10 0

Taylor & Co. . . . 847 8 4

Christie . . . 837 0 0

Cruse . . . 809 0 0

Holliday . . . 785 0 0

SYCAMORE WORKS, LTD., Wimbledon (accepted) . . . 756 0 0

For building a dwelling-house in the Manor Way, Lee, S.E. Mr. L. V. HUNT, architect.

Green . . . £2,150 0 0

Collingwood . . . 2,117 0 0

J. & C. Bowyer . . . 2,083 0 0

Whitehead & Co. . . . 2,038 0 0

Akers & Co. . . . 1,887 0 0

KENNARD BROS. (accepted) . . . 1,848 0 0

For painting exteriors of the following schools, for the London County Council.

Greystoke Place, City of London.

Green . . . £145 0 0

Foxley . . . 100 0 0

Martin, Wells & Co., Ltd. . . . 99 0 0

Sims . . . 95 0 0

Densham & Sons . . . 77 0 0

W. HORNETT, Strand (accepted) . . . 69 0 0

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LONDON—continued.

Olga Street, Bethnal Green, N.E.

Silk & Son	£221	0	0
Vigor & Co.	215	0	0
Woollaston Bros.	211	0	0
Haydon & Sons	202	8	0
Munday & Sons	190	0	0
Sheffield	175	0	0
Barrett & Power	168	0	0
A. W. DERBY, Ilford (accepted)	154	0	0

Creek Road, Deptford.

Musgrove	£178	7	0
Leng	156	0	0
Woollaston & Co.	154	10	0
Jones	148	18	0
Howie	143	0	0
Munday & Sons	140	0	0
Hayter & Son	139	10	0
Proctor & Son	138	0	0
H. GROVES, Greenwich (accepted)	134	0	0

Bellenden Road, Dulwich.

Line	£199	0	0
Holloway	181	0	0
Downs	180	0	0
Leney & Son	156	0	0
Ford	147	0	0
J. & C. Bowyer	146	0	0
Hayter & Son	134	10	0
Banks	124	15	0
Maxwell Bros., Ltd.	119	0	0
Holliday & Greenwood, Ltd.	105	0	0
E. PROCTOR & SON, Plumstead (accepted)	90	0	0

Sherbrooke Road, Fulham.

Gurling	£369	10	0
Ronald	340	0	0
Spencer, Santo & Co., Ltd.	311	0	0
J. & M. Patrick	299	0	0
Lole & Co.	268	12	6
Garrett & Son	264	0	0
Lathey Bros.	257	0	0
Tucker	199	0	0
W. R. & A. HIDE, Hammersmith (accepted)	183	15	0

LONDON—continued.

Ecclesbourne Road, Islington, N.

Patman & Fotheringham, Ltd.	£270	0	0
Marchant & Hirst	266	0	0
Woollaston & Co.	257	0	0
McCormick & Sons	236	0	0
Bouneau	216	0	0
Porter	203	0	0
Neal	200	0	0
Woollaston Bros.	198	0	0
J. Grover & Son, Islington (recommended)	198	0	0

Caledonian Road, Islington, N.

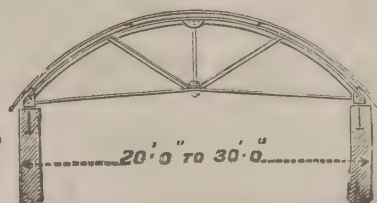
Patman & Fotheringham, Ltd.	£182	0	0
Porter	174	0	0
Williams & Son	169	0	0
Harris & Co., Ltd.	155	0	0
Bouneau	154	0	0
Martin	150	0	0
Kirby	149	0	0
Stevens Bros.	142	0	0
J. STEWART, West Green Road (accepted)	108	16	0

Haseltine Road, Lewisham.

Howie	£208	0	0
Banks	189	10	6
Hayter & Son	184	14	0
J. & C. Bowyer	175	0	0
Groves	165	0	0
Leney & Son	150	0	0
C. G. JONES, Forest Hill (accepted)	144	10	0

Barrett Street, Marylebone, W.

Cruwys	£228	16	0
Bristow & Eatwell	153	0	0
Williams & Son	142	0	0
Foxley	142	0	0
Neal	140	0	0
Peattie	131	0	0
Chidley & Co., Ltd.	125	0	0
Holloway Bros. (London), Ltd.	119	0	0
Densham & Sons	97	0	0
F. T. CHINCHEN & Co., Kensal Green (accepted)	94	0	0

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LONDON—continued.

Princess Road, St. Pancras.

Cruwys	£240	0	0
Hayter & Son	164	10	0
Foxley	164	0	0
Stevens Bros.	134	0	0
Chidley & Co., Ltd.	126	0	0
Chappell	120	0	0
Chinchen & Co.	119	10	0
W. DENSHAM & SONS, St. John's Wood (accepted)	119	0	0

Sandford Row, Watworth.

Leonard	£225	17	0
Williams	192	0	0
Rice & Son	154	0	0
Sayer & Son	151	5	0
Goad	150	0	0
Brittain	148	0	0
E. TRIGGS, the Chase, Clapham (accepted)	107	0	0

Eltringham Street, Wandsworth.

W. & C. Brown	£395	0	0
Jewell	274	0	0
Carmichael	255	0	0
Hudson Bros.	247	0	0
Martin, Wells & Co., Ltd.	240	0	0
Bulled & Co.	235	0	0
Ronald	230	0	0
Garrett & Son	221	0	0
Flood	210	0	0
Tucker	187	0	0
E. TRIGGS, the Chase, Clapham (accepted)	169	0	0

Ensham Street, Wandsworth (iron buildings).

Johnson & Co., Ltd.	£79	0	0
Leonard	76	10	0
Ronald	72	10	0
Read	69	18	0
Garrett & Son	64	0	0
W. & C. Brown	64	0	0
Leney & Son	61	10	0
J. & C. BOWYER, Upper Norwood (accepted)	58	10	0

LONDON—continued.

Allen Street, South Kensington.

Spencer, Santo & Co., Ltd.	£87	0	0
Neal	80	0	0
Brown & Sons	78	10	0
J. & M. Patrick	75	0	0
Peattie	64	0	0
W. R. & A. HIDE, Hammersmith (accepted)	52	10	0

Horseferry Road, Westminster.

King & Son	£158	0	0
Holloway Bros. (London), Ltd.	129	0	0
Lathey Bros.	127	0	0
Ford	119	0	0
Brittain	118	0	0
Sims	106	0	0
Hornett	102	10	0
RICE & SON, Stockwell Road (accepted)	102	0	0

For providing and fixing a complete system of low-pressure hot-water apparatus to the twenty-six classrooms, three halls, cloak-rooms, lavatories, &c., Deansfield Road, Woolwich.

J. Grundy	£960	0	0
Stevens & Sons	825	0	0
Mackenzie & Moncur, Ltd.	791	0	0
Haden & Sons	791	0	0
R. H. & J. Pearson, Ltd.	765	0	0
J. & F. May	700	10	0
J. DEFRIES & SONS, LTD., Houndsditch (accepted)	691	15	0

NELSON.

For the erection of new club premises at Nelson, Glamorgan.

Messrs. A. O. EVANS, WILLIAMS & EVANS, architects.

Thomas	£2,892	0	0
Richards	1,800	0	0
Thomas	1,748	0	0
Lewis	1,828	0	0
Littlejohns	1,715	0	0
Rushatch & Co.	1,600	19	7
Evans & Bros.	1,650	0	0
M. HARDING, Caerphilly (accepted)	1,490	0	0

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Accepted Tenders.

Sproston.

Stowers £1,540 0 0

Swanton Novers.

Larner, Dereham 569 0 0

Wroxham.

Scarles, Norwich 644 0 0

STEYNING.

For the erection of infirmary buildings at workhouse.

Messrs. CLAYTON & BLACK, architects, Brighton.

T. J. HAWKINS & Co., Ashford (*accepted*) . . £25,274 0 0

There were twenty-three tenders.

STOW-ON-THE-WOLD.

For the erection and completion of a new rectory house.

Messrs. HEALING & OVERBURY, architects.

Burden £2,709 2 0

Howman & Co. 2,311 13 10

Groves & Sons 2,301 11 0

Byard & Son 2,227 0 0

Collins & Godfrey 2,130 0 0

Estcourt & Sons 2,120 0 0

TETBURY.

For alterations and additions to the workhouse. Mr. V. A

LAWSON, architect, Stroud.

Forse & Sons £4,898 0 0

King & Son 4,887 0 0

Bowers & Co. 4,470 0 0

Estcourt 4,451 0 0

Saunders & Sons, Ltd. 4,280 0 0

Jenkins 4,273 13 0

Draper & Wallington 4,157 0 0

Shaylor & Sons 4,150 0 0

Drew 3,850 0 0

Wall & Hook 3,848 0 0

Cooke 3,790 6 0

Orchard & Peer 3,730 0 0

Colborne 3,708 18 0

G. DREW, Cirencester (*accepted*) 3,700 0 0

TIVERTON.

For additions to boarding-house, for the governors of

Blundell's school. Mr. W. BARRONS, architect, Tiverton.

Nicks Bros. £1,950 0 0

Labdon 1,854 0 0

R. Grater & Sons. 1,598 0 0

Loosemore 1,595 0 0

J. GRATER & SONS, Tiverton (*accepted*) . . 1,594 10 0

RÜNTZ & FORD v. BAKER.

JUDGMENT was delivered by Mr. Justice Wills on the 31st ult. in a case of importance to the architectural profession and to builders, which was heard on Wednesday and Thursday by his Lordship and a special jury. Mr. Danckwerts, K.C., and Mr. E. M. Pollock (instructed by Messrs. Edwards & Cohen) appeared for the plaintiffs, Messrs. Ernest Rüntz & Ford, architects, of Walbrook, and Mr. Dickens, K.C., and Mr. Francis Watt (instructed by Messrs. Webster & Webster) appeared for the defendant, Mr. Sidney H. Baker, a surveyor, of 62 Coleman Street, E.C.

The action arose in the following manner. The defendant was desirous of erecting some superior and artistic suburban properties, and instructed the plaintiffs to prepare plans and

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drawings for the erection of some houses of this kind on his estate at East Finchley, and certain houses were pointed out by the defendant to the plaintiffs as possessing internal arrangements which he would like followed. An amount was agreed upon for the preparation of plans and drawings, quantity surveyor's fees and the supervision of the building. The defendant did not want to spend more than 1,000*l.* to 1,200*l.* per pair, but the plaintiff, Rüntz, stated that he pointed out to the defendant that if the houses were to be of similar accommodation to those he had been shown at Muswell Hill, the cost would be more than this figure. Several sketches and sets of plans and drawings were prepared by the plaintiffs and submitted to the defendant, which he desired modified in certain particulars, and the quantities having been got out tenders were invited from different builders, the lowest received being for 2,250*l.* per pair. The result of the tenders was made known to the defendant, who objected to the amount required to build the houses, and various conferences took place between the plaintiffs, defendant, the defendant's builder, Collins, and the quantity surveyors with a view to reducing the cost of the houses, and a list of suggestions prepared by the quantity surveyors and the builder which would reduce the cost of the houses to about 1,640*l.* was submitted to the defendant, but no decision was apparently arrived at. The plans and drawings were afterwards returned by the defendant to plaintiffs with an intimation that he did not require them. Some time afterwards the plaintiffs had their attention called to the fact that five houses had been erected on the land at Finchley, and it was found that the houses as erected were practically identical with those designed by the plaintiffs, and they therefore claimed a proportionate part of the agreed fees, which the defendant declined to pay. Expert evidence was called on both sides, and Mr. Justice Wills sat until five o'clock on Thursday evening to finish his summing up, in the course of which he mentioned that in his opinion the artistic designs of the plaintiffs had been used in erecting the houses, though the modifications that had been made for the defendant deprived them of much of their beauty. The jury, after retiring to consider the matter and inspect the various sketches, plans and photographs, returned a verdict for the plaintiffs.

TRADE NOTES.

THE Brilliant Sign Company, Ltd., have been informed by their Cape Town house that they are the recipients of a diploma for a bronze medal for brilliant signs and letters exhibited at the recent Cape Town International Exhibition. They are the only firm in the trade to whom a diploma was awarded for excellency of work. This recognition confirms the experience in England and elsewhere.

MESSRS. A. L. GIBSON & Co. have received the order for four Kinnear steel rolling shutters for the motor garage at the Hôtel Metropole, Brighton—two single shutters and two filling a wide opening divided in the centre by their hinged post which, when the shutters are raised, can be hoisted out of the way so as to leave the whole opening clear. The Kinnear shutter has hitherto been largely used in this country for tramcar depôts, but is now finding an extended field of usefulness in connection with the establishment of motor garages as an adjunct to hotels and other large establishments. The shutter meets a necessity which otherwise could not be readily served.

WE desire to draw the attention of our readers to the advertisement of the Builders' Exchange, Birmingham. The exhibition, soon to be opened, is to be permanent, and is intended for the purpose of facilitating business with builders and buyers of the productions of Birmingham, the city which has the closest connection with building.

THE committee of the Cyclists' Touring Club recently met at 47 Victoria Street, Westminster, when they learned that nearly sixty devices have been entered for competition for the large monetary prizes offered for a satisfactory solution of the side-slipping problem, while at least an equal number of inventors have put forward their theories without actually entering. The trials themselves will probably take place in the neighbourhood of London during Whit-week, upon natural and artificial surfaces calculated to test the merits of the devices to the utmost.

TELEPHONE—NO. 4258, CENTRAL.

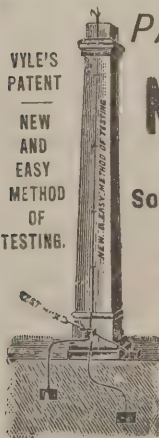
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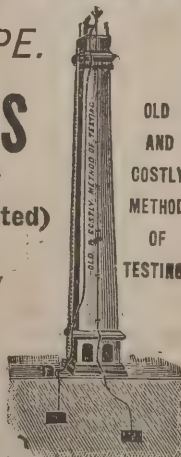
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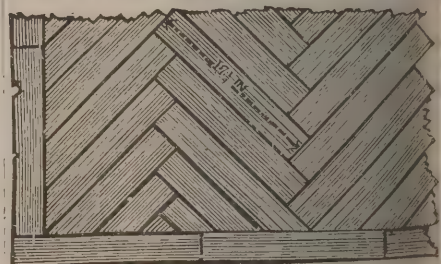
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" " 2"	8s. 3d.	11s. 5d. "
" " 1 1/2"	6s. 9d.	9s. 0d. "



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	Wainscot.	P. Pine.
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1" x 4"	45s. 0d.	22s. 9d.

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ELECTRIC NOTES.

THE British Consul-General at Antwerp announces that tenders will be opened on the 12th inst. for the supply of electric-lighting materials for the Belgian State railways.

THE tramways committee of Leith Town Council have resolved to adopt the grooved trolley wire for the new electric tramway system, and a remit was made to the sub-committee to accept offers for the overhead equipment.

THE general works committee of the Coventry City Council on Tuesday decided to recommend the Council not to go further with the proceedings against the Coventry Electric Tramways Company in respect of the alleged delay in the construction of the tramway extensions in Albany Road.

At Manchester an elaborate method for the distribution of parcels in connection with the Manchester Corporation tramways has been inaugurated. Parcels will be collected and delivered several times daily not only in the city, but in every suburb, and will be forwarded to their destination by tramways or special goods vans.

At Aberdeen the Town Council will alter the rule as to disconnecting the electricity demand indicator, so as to provide that consumers on any particular occasion, but not exceeding one in each month, and three days at one time, requiring an extra supply of electricity, might, by giving the Corporation twenty-four hours' notice in writing, have arrangements made whereby their indicators would not register the demand on the occasion so notified.

THE Midland Railway Company have asked for an abatement in the assessment of their lines within Bradford by reason of the competition of the Corporation trams. The committee have offered a reduction of 3,000*l.*, which will mean a loss to the Corporation revenue of 1,250*l.* The takings of the Bradford City Tramways for the twelve months ended March 25 show an increase over the preceding year of 3,136*l.*

THE cleansing and lighting committee of Edinburgh Town Council have recommended that an expert be consulted as to the illuminating power of both the gas and electric light of the city, while in view of the conversion of the ordinary gas lamps to incandescent the town clerk was

instructed to ask the Gas Commissioners at what price they would supply gas for the public streets and stairs, and whether they would be willing to enter into a contract with the Corporation.

THE Belfast Corporation have received the award of Mr. L. Macassey in connection with the Belfast Tramways arbitration. The gross total claimed by the company in respect of the sale of the undertaking was 452,345*l.* os. 2*d.*, less 60,000*l.*, being the amount of principal monies secured by the company's outstanding debentures. The total estimate of the Corporation, making the same allowance in regard to the debentures, was about 260,000*l.*, so that there was a difference of over 130,000*l.* The arbitrator, after deducting the debentures for which the Corporation became liable, awarded 296,948*l.* 14*s.* 6*d.* to the company and 7,500*l.* for compensation to the directors, manager and secretary, making in all 304,448*l.* 14*s.* 6*d.*

BUILDING AND BUILDERS.

MR. T. G. HUXLEY, of Malpas, Cheshire, has undertaken the erection of new schools at Rhos, near Ruabon, for the Denbighshire education committee, his tender amounting to about 8,000*l.*

THE citizens of Norwich have purchased a site of 20 acres for 2,500*l.*, which will be presented to the War Office to be used for cavalry barracks, to replace the present buildings, which were condemned. The new barracks will be erected at an estimated cost of 200,000*l.*

THE Aberdeen painters resumed work on Monday, after being on strike a month. At the conference the masters conceded to five of their demands, namely, minimum instead of standard wage, the adoption of a rule against scamping work, a by-law regulating the number of apprentices to be employed in proportion to journeymen, and an annual conference prior to the adjustment of each year's trade by-laws.

MR. JAMES A. GORDON, a well-known North of Ireland contractor, was riding on Sunday from Donaghadee to Newtownards, near Belfast, on his motor-bicycle, when, in taking a sharp turn at a place known as the New Road, the

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wheel skidded, and Mr. Gordon was hurled against a wall and killed instantaneously. Mr. Gordon was fifty years of age. He had building contracts on hand in Glasgow and Ulster.

NOTICES of reduction of one penny per hour in wages of masons, bricklayers and plasterers employed in the building trade of Sunderland and in the Tyneside district have been served. The labourers are also asked to submit to a reduction of halfpenny per hour. Prior to the issue of the notices conferences were held between the representatives of the employers and the men. The notices of the men expire on May 26.

THE Dublin Corporation, at a meeting on the 3rd inst., passed the following resolution, together with the addendum, "That this Council, having in view the best interests of the citizens and the general prosperity of the city, expresses its most earnest desire that the present dispute in the building trade be terminated, and thus obviate the distress which has ensued consequent on such dispute. And that we call upon the Master Builders' Association to permit the men to return to work on their old terms pending the result of arbitration."

THE Public Health Acts (Amendment) Bill, which Lord Hylton introduced into the House of Lords, contains a provision which, if adopted, will largely facilitate the erection of country labourers' cottages. It is to the effect that buildings (not being public buildings or factories) situate at a certain distance from every boundary of the curtilage, and at a distance of not less than 30 feet from any other building, shall be exempt from the operation of the building by-laws in force in any county district.

In the presence of a crowded assembly on the 30th ult. Lord Roberts opened the new hall which forms the latest adjunct to the Uppingham School buildings, and is the old Uppinghamians memorial to their comrades who fought in the South African war. Lord Roberts was accompanied by his daughter, Lady Edwina Roberts, and also among those present were the Marquis of Exeter, Lady Lilford, Lady Carbury, Sir Arthur Fludyer and Lady Fludyer, Major the Hon. and Mrs. P. Evans Freke, Capt. Jones, &c. The stone employed for the building was Edithweston and was supplied by Messrs. Woodforde & Wing, of Stamford.

THE North-Eastern Railway Company are erecting a large goods station in Newcastle which will be the biggest single building in the city. There will be lines and platforms for accommodating six trains simultaneously. The warehouse will be built throughout of ferro-concrete, on the Hennebique system—concrete reinforced with steel bars. The floors and other parts of the structure have been subjected to severe tests. Two beams of 28 feet and 35 feet span respectively were loaded with 205 and 257 tons, the deflection did not exceed three-eighths of an inch.

THE Birmingham Corporation purchased in 1887 17 acres of land at Bordesley Green as a site for municipal workmen's dwellings. The scheme was abandoned in 1902, and the housing committee are now considering an offer from Mr. H. Taylor, Small Heath, to take the land on a 99 years' lease and to erect buildings according to the conditions. It is contemplated to build not less than 30 and not more than 340 houses on the land, to be let at rentals of 4s. 6d. and 5s. There will be a plot of ground in the centre and no licensed premises will be permitted. After making roads, &c., the city will have to wait fifty-six years before any profits in the shape of ground rents accrue to the ratepayers.

THE Atherstone District Council on Tuesday discussed a letter from a local solicitor, on behalf of a number of large ratepayers, drawing attention to the great injury which was being caused to the district by the "irksome construction and enforcement of the antiquated building by-laws of 1876." Building operations were said to be practically at a standstill, and this was entirely owing to the increased cost of erection. The writer stated that thirty-six houses were about to be built in the Nuneaton district, which might have been put up in the Atherstone district, but by building them in the former locality the owner would effect a saving of 360l. They urged the Council to take steps to relax the present regulations, which curtailed the rateable value of the district, restricted the employment of labour and injured the welfare of the community at large. The matter was referred to a committee.

THE opening ceremony of the new buildings for the United Methodist Free Church and schools, Seven Kings, took place on Thursday, April 6. The portion of the build-

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ing which has been erected embraces the church nave and temporary apse, also a bold, square tower with open traceried parapet, and surmounted by a spire and finial vane rising to a height of 91 feet; also main schoolroom 51 feet by 40 feet, together with superintendent's room, &c., and the usual conveniences. The building was designed by Messrs. George Baines & Son, 5 Clement's Inn, Strand, W.C. The contract amount for this portion was 3,488*l.*, and the church accommodates 400 persons in a mixed congregation. The facings are of red brick, the dressings in Bath stone. The seating and internal joinery is of fumed oak wax polished. The building is intended to be extended in the future, by transepts, apse and vestries, and a corresponding addition under same to the schools, giving a future accommodation of 700 adults in the completed church.

VARIETIES.

A NEW bridge constructed across the river Exe, at Exeter, at a cost of about 25,000*l.*, has been opened. The structure was designed by Sir J. Wolfe-Barry and Mr. C. Breton, and has been erected under their supervision.

MR. BENT, the Premier of Victoria, has (says a *Daily Chronicle* cable) ordered machinery for State brick works, in pursuance of his declaration that the brick combine is artificially maintaining prices and must be fought.

THE surveyor of Montgomery Town Council complained recently that it had taken the Cambrian Railway six days to transmit some piping from Welshpool to Montgomery, six miles.

MR. ARNOLD-FORSTER, the Secretary for War, has officially stated that the expenditure under the Military Works Acts for the year ending March 31, 1905, will amount to about 3,370,000*l.* The expenditure to be incurred in 1905-6 is still under consideration.

THE Leeds sewerage committee on Tuesday reduced the sixty-nine candidates for the post of engineer to the following three:—Mr. Hart, chief assistant engineer to the Thame and Rea District Drainage Board, Birmingham; Mr. Garfield, Bradford sewerage engineer; and Mr. Fidler, borough engineer and surveyor of Northampton.

THE building trade in the Ruabon district of North Wales is now looking much brighter. The brickworks and collieries are becoming busier, and work appears more plentiful than it has been for some time past, several large contracts having recently been settled.

THE Rugby Board of Guardians decided on Monday to build a new infirmary in the workhouse grounds, in order that the existing infirmary may be utilised to relieve the present congestion in the workhouse. It was also decided to erect two dormitories over the girls' day-room.

THE West Bromwich District Hospital Board of Management has decided to at once undertake the erection of a separate nursing block in the hospital grounds. The proposed buildings will accommodate twenty-four nurses and will cost 3,000*l.*

A PROFESSOR at the French Academy of Medicine stated that as the result of elaborate experiments with the dust from many streets in Paris he had found that a pound of the dust from the Rue de Rennes contained 1,300,000 microbes, and a pound of that from the Rue Monge contained 2,100,000.

THE Darlington tramways committee, at a meeting last week, decided by a large majority to recommend to the Council the abolition of halfpenny fares, which were adopted as an experiment with the commencement of the year. It is computed that there was a loss in consequence of the reduction to a halfpenny of 4*l.* to 5*l.* per week.

ABOUT 1,200 square feet of patent interlocking rubber tiling of Messrs. Arthur L. Gibson & Co. have been laid on the public portion of the ground floor of the new Shipping Exchange in Cockspur Street. This is a suitable arrangement, for the tiling is largely used in British and American steamers, battleships and yachts.

THE Millport Town Council have adopted a scheme of water supply prepared by Mr. T. O. Niven, C.E., who reports that he can give a reservoir with a capacity of 15,000,000 gallons, the cost of which, with filters and piping throughout the town and all other necessary work, he estimates at 5,915*l.*

THE Kensington Borough Council, having a surplus of 36,000*l.* owing to alterations in the rates made by the County Council for the payment of precepts, will utilise

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31,000*l.* of the amount for payment of outstanding loans on wood-paving works. Such works will in future be paid out of revenue instead of by loans. The present loan debt of the borough is more than a quarter of a million.

AUTOMOBILISTS are being approached by the promoters of a scheme for the construction through the Landes country of a grand macadamised promenade, 65 feet wide, and extending from Arcachon to Biarritz. The route which is proposed would through its entire length skirt the ocean at a distance of about 400 yards, and be exclusively reserved for automobiles and cycles.

THE Blackpool Town Council discussed for three hours on Tuesday the question of the public lavatories now in course of erection on the new promenade. Some members were of opinion that the lavatories were undesirable and should be pulled down. Others were in favour of finishing the work and allowing it to remain for a season to see how it answered. Finally the casting vote was given in favour of the completion of the work.

THE new Durham and East Coast branch of the North-Eastern Railway between Seaham Harbour and Hartlepool was opened on Saturday for passenger traffic. The line will afford easier communication between Sunderland and West Hartlepool. The new line is 9 miles long, and skirts the coast all the way. It crosses a number of gorges at great height. One of these, at Hawthorn, built of brick, is 104 feet high, and has one span of 120 feet, the largest brick arch with one exception on any British railway.

A LOCAL GOVERNMENT BOARD inquiry was held at Hereford last week respecting an application of the Town Council to borrow 3,000*l.* to pay for the extras in connection with the building, at a cost of 20,000*l.*, of the new town hall. Two items in the amount of extras, amounting for 1,611*l.*, were caused by the discovery that the site for the new building was faulty, there being at the rear the remains of an old moat, which constituted a part of the earliest defences of the city.

PLANS have been prepared by the surveyor to the Government of Natal for new sewage-disposal works at the base camp of the Chinese labourers at Durban. The scheme includes the provision of a septic tank of 35,000 gallons capacity, i.e. sufficient to hold one day's dry weather

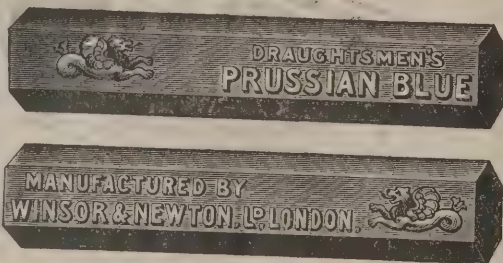
flow, and continuous percolation filter 46 feet diameter 15 feet deep, fitted with the Fiddian automatic sewage distributor, the order for which has been placed with Mr. Birch Killon, of Manchester.

THE first sod was cut on the 3rd inst. in connection with the works for the introduction of a gravitation water supply from the Noran to Arbroath, a distance of about 20 miles. Mr. Hogg, of Messrs. Crouch & Hogg, Glasgow, the engineer for the scheme, stated that critics of the scheme had prophesied that the estimated cost, 80,000*l.*, would be exceeded, possibly doubled, before the works were finished. He was prepared to stake the reputation of his firm that the undertaking would be completed within the four corners of the estimate.

THE Liverpool city lighting engineer, Mr. C. R. Bellamy, has issued his report for the year 1904, from which it appears that the city is lighted by 18,360 public lamps, the maintenance charges being 47,648*l.*, as compared with 40,881*l.* in 1893, the year prior to the lighting being taken over by the Corporation, showing that while 168½ miles of street lighting have been added, increasing the number of lamps by 65 per cent. and the aggregate illuminating power more than quadrupled, the charges are only 16 per cent. greater.

PROVISION for further alterations in the ventilation of the new Palace of Westminster is made in the Estimates for 1905-6, a sum of 700*l.* being set apart for continuing the work of carrying out the recommendations of the select committee on House of Commons ventilation, 250*l.* being allotted for improving the ventilation of lavatories, and about 2,000*l.* being devoted to improving the heating appliances of the chamber and contiguous offices, altering smoke shafts, purifying the atmosphere of the members' tea and reading-rooms and the Westminster Hall grand committee-room and works of a minor character.

THE Foreign Office issued on Tuesday a report on the trade of Mexico in 1903. There is a very great falling off in the value of the iron girders imported in the year 1903, the value being only 47,387*l.*, as compared with 111,459*l.* in 1902. During the last six months the imports were:—From Belgium 5,926*l.*, from the United States 5,148*l.*, from Germany 4,148*l.*, from France 2,199*l.*, but from the United



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States only 360/. The importation of iron or steel sheets for roofing amounted to 133,756/, as compared with a value of 146,120/ in 1902; and from the statistics published for the last six months of the year the value of these goods from the different countries was as follows:—The United Kingdom, 58,546/, the United States 17,187/, and Germany 7,316/.

THE London Metal Exchange and the Scottish Pig-Iron Trade Association recently had a misunderstanding as to what constituted "good delivery" in "A.G." standard foundry iron contracts, with the result that serious complications took place in extensive speculative transactions between London and Glasgow, and gave great concern. The Scottish Association has now fallen into line with London, and has issued a circular naming the brands passed as deliverable "A.G." and "A.A." contract for standard foundry pig-iron. By this arrangement Lanarkshire and American pig-iron become good deliveries.

AMUSEMENTS.

The Coliseum.

THE handsome building erected by Mr. Frank Matcham at the corner of St. Martin's Lane, London, is a great success, and is crowded at each performance. The entertainment provided is of the highest possible class, thoroughly refined, and this probably accounts for the crowded houses. Undoubtedly at the present time there is no place in London where such a pleasant afternoon or evening can be spent—a well-ventilated and handsomely decorated hall, a place of amusement where all can see and hear with comfort, and a programme which cannot be excelled. The singing of Miss Winifred Hare and Madame Alice Esty, with the Coliseum Auditorium Choir, is an intellectual treat for all lovers of music. Those of our readers who have not yet visited the London Coliseum should take an early opportunity of doing so. We have described the building itself on a former occasion, and both programme and building are well worthy of one another.

Brixton Theatre.

WE congratulate Miss Jean Sterling Mackinlay upon her success in so ably portraying the character of "Sunday" in Mr. Thomas Raceward's play of that title, which is now charming the audiences at the Brixton Theatre. There are not many actresses who could have attempted and succeeded so admirably in following up Miss Julia Neilson's creation of "Sunday," for its spirit, pathos and American accent combined make it a difficult character to copy. But Miss Mackinlay keeps her audience in spellbound attention, scoring strongly with her winsome, guileless faith and defence in and for her rough stirring and Wild-West guardians. Mr. F. E. Pearce is admirable in the part of Colonel Brin thorpe. All the other characters are well sustained, and the scenery is pretty and effective, especially the Terrace of Brin thorpe Abbey. Altogether, Mr. Louis Calvert is to be congratulated upon the complete success of his undertaking.

CADET HEADQUARTERS, HAMPSTEAD.

WRITING from the Hampstead Headquarters of the 1st Cadet Battalion the Royal Fusiliers (City of London Regiment), the commanding officer, Lieut.-Colonel Frank Sheffield, wishes to draw attention to the opening ceremony which has been fixed by the Prince of Wales, colonel-in-chief of the Royal Fusiliers, for Monday evening, May 15. In the course of a careful preliminary inspection of these headquarters, His Royal Highness was pleased to express unqualified approval of their extent, architectural appearance and general completeness, in which respect they are unsurpassed by any similar buildings in the Metropolis. The battalion receiving no Government aid, is entirely dependent on voluntary contributions; and Colonel Sheffield points to the gratifying fact that on the total expenditure incurred there remains the comparatively small indebtedness of 2,000/. It is naturally desired that this balance should be raised before the opening day, so that the Prince of Wales may enjoy the additional pleasure of announcing that these admirable headquarters have no burden of debt resting upon them. For this purpose Colonel Sheffield relies upon the public interest in this unique development

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of the Volunteer movement, and he will be glad of communications upon this subject addressed to him at the Headquarters, Pond Street, Hampstead, N.W.

A QUARRYING FEAT.

An interesting event took place in the island of Portland on March 25 in the famous Kingbarrow Quarries of the Bath Stone Firms, Ltd. From these quarries the stone has been excavated for the erection of the new Government buildings at Whitehall and the new War Office. What is known locally as a "big ream" was most successfully carried out. This in reality is the cleavage method adopted by the quarrymen in splitting the rock and wrenching it from its natural bed as it stands intact. The process adopted was as follows: About forty "pits" were scored in the top of the rock ranging from 18 to 24 inches in length, and into each of these were inserted two "pigs" of iron. Throughout the whole length of the "ream" about 170 large iron wedges were firmly driven between the "pigs" of iron. As soon as all was in readiness, forty-two men, using sledges from 12 to 14 lbs. each in weight, commenced the "battering assault." Striking simultaneously, one man to four wedges, they soon had the satisfaction of seeing the first signs of success in the shape of a very faint crack along the surface. Continuing their exertions, with occasional pauses to reset wedges, &c., they eventually succeeded in attaining their final ambition, and had completely severed the huge rock from its tenacious hold after a laborious task of 4½ hours. The measurement of the piece was 106 feet long by 20 feet wide by 12 feet deep, and is computed to contain 1,600 tons. This is believed to be the largest "ream off" in the history of quarrying operations in the island of Portland.

In addition to the prizes already offered the committee of the Cheap Cottages Exhibition will give a prize of 50% for the best cottage built of concrete or other form of Portland-cement work, and one of 50% for the best wooden cottage.

THE HYPER-ACME PULLEY.

THERE is no more useful mechanical power than the pulley. But owing to the inevitable law that a gain of force is a loss of velocity, various expedients have been devised to overcome the difficulty which is caused by weight and friction. In scientific experiments it is possible to employ a series of pulleys to produce surprising effects, and in that way weight may appear to be overcome. In business, however, any imitation of a philosophic toy is out of place. The Hyper-Acme pulley-block produces the same result we can see performed in lecture-rooms on a small scale, but more effectually and with large masses, for a lad can raise three tons and a couple of men fifteen tons by its aid. The reason is that the process of lifting has been analysed and found to have more than one difficulty against which provision is made. In lifting a weight the attention and strength are largely devoted to the endeavour to keep it from falling. The Hyper-Acme pulley, by means of a self-acting stop, sustains the load in the intervals between each exertion of force. The arrangement acts so smoothly there is no jerking or jarring, and the raising appears to the operator to be the consequence of a continuous pull. The invention is also arranged as a travelling pulley-block, and can run along the flange of an ordinary rolled girder adapted for weights up to three tons. In lowering there is no possibility of a precipitate fall. The whole arrangement is carried out with a view to hard work by Mr. Charles D. Phillips, of the Emlyn Works, Newport, Mon.

WATER-SUPPLY IN AUSTRALIA.

At the ordinary meeting of the Institution of Civil Engineers on March 28, Sir Guilford L. Molesworth, K.C.I.E., president, in the chair, the paper read was "Coolgardie Water-Supply," by Mr. C. S. R. Palmer.

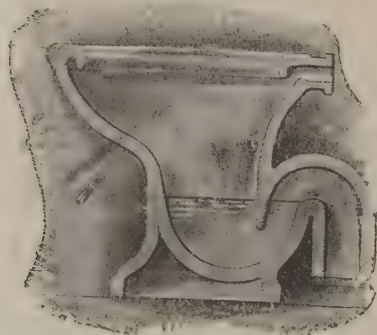
The elevated tract of country situated in the interior of Western Australia, and known comprehensively as the Coolgardie Goldfields, is exceedingly arid, fresh water being unobtainable naturally, and only in small quantities by conservation, while condensed water is very expensive. The first real impetus to the progress of the colony was given by the discovery of gold at Coolgardie in 1892, and thereafter not only mining, but also the agricultural and pastoral

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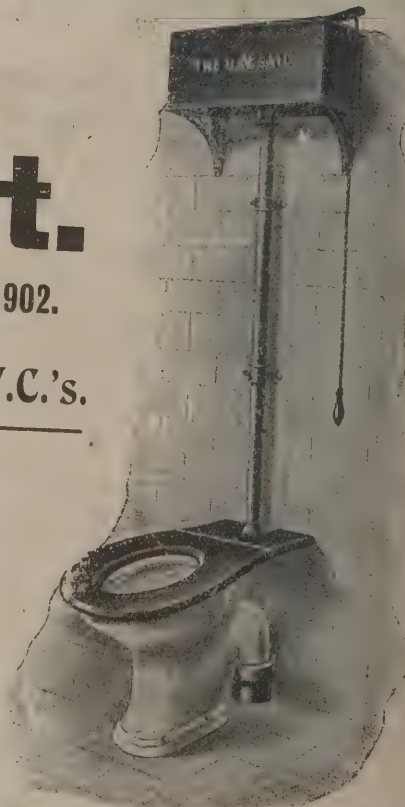
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industries rapidly increased, and it was realised that help given to the first-mentioned must also aid the latter. Large expenditure was first incurred on 'small' local water-supply works, but without commensurate results, and the Government decided on a comprehensive scheme of construction.

After inquiry into alternatives, it was recommended that the work should consist of a storage reservoir in the Darling ranges (capacity 4,600 million gallons, enough for two years supply and loss), a 30-inch pipe to carry thence 5 million gallons daily, a series of pumping stations along the pipe line and service reservoirs at various centres, the estimated cost of these works being 2,500,000/.

Parliament having approved the project and provided funds, an English commission of engineers was appointed to report on the proposals and advise on the design of the pipes, &c. Work was started soon after receipt of their report, which generally confirmed the original outline scheme. Five years afterwards, in January 1903, the works were formally opened, and they have supplied water continuously since.

The reservoir dam or weir is built across the Helena river, the height of the crest above river-bed being 110 feet, and the storage is sufficient to provide two years' consumption and loss. The catchment area is 569 square miles, but the rainfall comparatively is small and the off-flow low. The author detailed the rainfall and off-flow, and argues from the figures that percentage estimates are liable to mislead in some cases. The reservoir basin is described as badly crossed by volcanic dykes, but these are water-tight, as the small loss from the reservoir proves. Analyses are given of the water stored; they show it to be of good quality, but rather high in ammonia, higher at the reservoir than after the journey through 350 miles of pipe to the goldfields. The surplus or flood waters pass over the whole length of the dam, thus forming probably the highest overflow weir constructed; and so far no damage has occurred.

A bad fissure was found in the rock foundations of the dam when opened up, necessitating excavation to 90 feet below bed-level. The fissure was then bored into, and the watertightness of the material was tested before concreting commenced. The author describes the section of the weir, the water cushion, the valve towers and the draw-off arrange-

ments, and he states that the whole have acted satisfactorily, and that the rainfall has proved ample to satisfy the requirements.

The dam is built of concrete, and as nothing but stone was available locally a branch line of railway, $4\frac{1}{2}$ miles long, was built to convey cement, sand, &c. Water for the works and for the workmen was obtained by constructing a subsidiary weir up-stream, and the small reservoir (20 million gallons capacity) thus formed, with its overflow channel and flume, dealt with all but a few extreme floods, thereby facilitating work on the main dam. The cement used was very carefully tested, not only to insure none but good material being used, but also, as the source of supply was so far distant, to ascertain what local treatment would render good such cement as heated excessively when setting. The results of analyses and of tests of tensile strength, fineness and heating are detailed, and attention is drawn to exceptional behaviour.

The sand was all washed before use, the stone was quarried and broken locally, raw materials deposited near the mixer were worked down as much as possible by gravity, and the mixture was similarly helped in transport to the weir. Excavation of foundations was carried on night and day, an electric installation furnishing light. The concrete was spread and rammed by hand, bond being broken and plums introduced for greater cohesion and shearing resistance between layer. The concrete was built between timber frames, the mixture next the boards being worked smooth with straight spades to save rendering.

The English commissioners before mentioned were asked to report specially regarding the pipes, and the points remitted and the information furnished to them are stated by the author. The commissioners recommended that of the pipes three-fourths should be rivetted and one-fourth welded, that expansion joints should be used and the pipes be laid above ground. Tenders were invited accordingly, but permitting of alternative offers, and in the result a new form of pipe—the locking-bar pipe—was accepted, being cheaper than welded pipe and, strength for strength, than rivetted pipe. The saving on the estimate enabled thicker pipes to be used, and the danger of undetected leakage from rivetted pipes being removed, the main was laid below ground with ordinary lead joints. Analyses are furnished

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of the soils along the pipe-line. For reasons given, the protective coating consisted of one part of asphalt and one part of coal-tar. The leakage from the main, both when first filled and also in regular working, was found to be small.

The author next described the locking-bar pipe, giving the relative weights and strength of steel required for plates and bars to obtain uniform strength, and he supports his opinion by the results of tests. He also explained the method of manufacturing and coating the pipes. Careful tests having shown that machine-caulked joints should prove more uniform than handwork, a machine patented locally was employed, and this, together with the method of its use, is explained. When work was in full swing as much as 35 miles of pipe per month were caulked with seven machines, at a cost no greater than that of handwork and with small resulting leakage. The sequence and method of the operations of laying and charging the main are described. No bursts occurred, but six cases occurred of pipes being cut through by the combined action of sand and water.

The friction-head allowed for in the power-calculations was for dirty pipes, and adding natural head the total lift was calculated to be 2,655 feet; but to provide for identical pumping sets, 2,700 feet, in four lifts of 450 feet and four of 225 feet, was arranged for. Results of tests of actual friction-head made on laying the main are given; also the working and reserve power, the cost of the machinery, the tests provided in the contract, and the results obtained.

These reservoirs are of concrete, and consist of six of 1 million gallons each for pump suction, two of $\frac{1}{2}$ million gallons for regulation of flow in the main, and one of 1 million, one of 2 million, and one of 12 million gallons for service purposes. Drawings are given typical of all but the last, which is of separate design. Its concrete lining is thin, unbacked, and built in sections, with expansion joints filled with bitumen between sections. A grillage of barbed wire in each section keeps it intact, and the joints are easily caulked when necessary. Normal sand being too expensive, a fine loamy sand was used for the concrete of the large service reservoir with good results. The original scheme did not provide for reticulation of townships, but this was eventually carried out at Coolgardie, Kalgoorlie, Boulder and the Kalgoorlie mining belt. A telephone line, 380 miles

long, connects headquarters, the pumping stations, and the service and regulating reservoirs with each other.

The author, who succeeded the late Mr. C. Y. O'Connor, was responsible for half the work. The original estimate, deducting the cost of work not carried out, amounted to 2,435,000*l.*, and the actual cost to 2,660,000*l.*, the excess being fully accounted for by the extra expenditure in providing high-duty pumping machinery.

WORKMEN'S COMPENSATION IN THE BRITISH COLONIES.

THE course of legislation in some of the self-governing British Colonies, in reference to Employers' Liability and Workmen's Compensation, has followed very closely the precedent of the legislation of the Mother Country.

No Colony has attempted to establish any form of compulsory insurance whether on the German model or in the form which, as has been seen, has been adopted by some countries in Europe, of freeing the employer from personal liability if and when he insures his workmen in a State-recognised association. The Colonies have followed the English precedent of imposing upon the employer an immediate personal liability for the statutory compensation, leaving him to protect himself as best he may by insurance, and providing for the claims of the workman no security (except a certain degree of preference) beyond the personal solvency of the employer.

New Zealand passed in 1900 an Act closely modelled on the English Act, but with some important variations in detail. Amending Acts were passed in 1901, 1902 and 1903.

South Australia also passed a Workmen's Compensation Act in 1900, following still more closely than the New Zealand law the precedent of the English Act. Western Australia followed in 1902 with a similar law. The Legislature of British Columbia in the same year passed an Act on the same lines.

A Bill on the same lines was introduced into the Legislature of New South Wales in 1902, but has not as yet been passed into law.

Turning now to those British Colonies which have fol-

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we find that New Zealand has made considerable additions to the categories of employees who are brought under the obligations of the Act. By section 4 of the Act of 1900 the Act is made to apply to "(1) any industrial, commercial, or manufacturing work carried on by or on behalf of the employer as part of his trade or business; (2) any mining, quarrying, engineering, building, or other hazardous work carried on by or on behalf of the employer, whether as part of his trade or business or not." The main extensions effected by these words are italicised. Under these provisions it seems that all industries falling within these very wide terms are included, whether or not machinery is employed, irrespective of the number of persons employed or any restriction as to small employers; that the law extends to commercial as well as industrial undertakings, and therefore appears to include retail shops; and that an employer is made liable, whether or not the work is part of his trade or business. Coupled with the provisions of section 15, by which a person (the "principal") contracting with another (the "contractor") for the execution by the contractor of any work is liable for accidental injuries happening in the course of the execution of the work to workmen of the contractor or of any sub-contractor, it seems that under this law the person for whom and in reference to whose property any building or engineering, or other of the works above mentioned is being carried out by a contractor, is liable for all accidents happening to any of the workmen engaged in carrying out any portion of the work contracted for, without having a right of indemnity against the contractor.

The Act of 1903 extends to "contractors who contract to perform any work in any gold mine or coal mine, 'who do not either sublet the contract or employ wages-men, or who, although employing wages-men, actually perform any part of the work themselves.'"

By the Acts of South Australia and of Western Australia the obligation attaches to employment (1) "on, in or about any railway, waterwork, tramway, electric-lighting work, factory, mine, quarry or engineering or building work; (2) on or in or about any employment declared by proclamation to be dangerous or injurious to health, or to be dangerous to life or limb. Provided that no such proclamation shall issue

except pursuant to addresses from both Houses of Parliament." It will be observed that the classes of employment to which these laws directly apply are, with the exception of the specific mention of waterworks and electric-lighting work, substantially identical with the categories of the English Act of 1897; the definition of "factory" in section 2 corresponding with the extension given to the term in the English Act. Neither Act, however, follows the English Act as to the limitation of liability for accidents in the building trade by reference to the height of the building or the use of scaffolding.

The Act of British Columbia also follows closely the Act of 1897, and even adopts the building limitations, substituting, however, 40 feet for 30 as the limit of the operation of the Act.

All the three last-mentioned Acts adopt substantially the provisions of the Act of the United Kingdom with regard to the rights of workmen employed by a sub-contractor.

REGULATIONS FOR PATENTS.

THE following memorial has been addressed to the President of the Board of Trade relating to the Patents Act, 1902, and the Patents Rules, 1905:—

To the departmental committee on whose report the Act was based there was sent, in 1900, an influentially signed communication, to the following extract from which we earnestly invite your attention:—

"As, however, patents have sometimes been ultimately supported in respect of inventions which even eminent judges have regarded as not patentable, it is not advisable, in any unopposed case, that letters patent should be refused on the ground that the invention, or alleged invention . . . has been previously patented in this country, provided the applicant (if required) so amends his specification as to indicate what was previously known, thus protecting the public against being misled. Furthermore, it is not advisable either to make it publicly known that the specification has been amended at the instance of the Patent Office authorities, or to give publicity to any official notification of any kind (whether by endorsement on the specification or other-

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wise) implying doubt as to the novelty of the subject-matter in respect of which letters patent are granted, because such publicity would obviously create prejudice against the patent; and, where based upon erroneous opinion, would operate unjustly."

As rules 9 and 10 now stand, however, when the Comptroller determines that reference ought to be made in the applicant's specification to a prior specification or specifications by way of notice to the public, the form of reference must be as follows, and be inserted after the claims:—

"Reference has been directed, in pursuance of section 1, subsection 6, of the Patents Act, 1902, to the following specification of Letters Patent No. ——— granted to ———."

Where the reference is inserted as the result of a provisional report under rule 7, a statement to that effect must be added to the reference.

Such a reference will virtually make public the pith of the examiner's report, notwithstanding the enactment that reports of examiners shall not in any case be published or be open to public inspection (subsection 4 of section 1 of 1902 Act, and subsection 5 of section 9 of 1883 Act, as amended by 1888 Act).

Moreover, although based upon mere opinion, which may be erroneous, it will usually render a patent commercially worthless.

This is a very serious matter, seeing that, in the past, large manufacturing concerns, which have rendered public service by introducing articles of great utility not previously on the market, besides given employment to many thousands of workmen and others, have accomplished these beneficial results under patents for inventions as to the novelty of which (in the patentable sense) expert and even judicial opinions have differed.

We therefore hope that it will be found possible to forthwith so modify the rules as to obviate the unnecessary risk they at present involve of seriously retarding the introduction of improvements which, though individually of a minor character, do, in the aggregate (to quote the Select Committee of 1872) contribute greatly to the progress of industry.

To this end we venture to suggest revision in the sense

that in no case shall either an official notification be endorsed upon or a stereotyped form of reference be inserted in an applicant's specification, unless and until he shall have been notified of the Comptroller's determination, and shall have been afforded, and shall have failed to exercise, the option of himself inserting in his own specification a reference, by number, year and name (and not in a stereotyped form) to the prior specification (or specifications), reference to which the Comptroller shall have determined ought to be made in the applicant's specification by way of notice to the public.

We submit that the Act does not provide for official insertion in, or endorsement upon, an applicant's specification of any notification; and, moreover, that, as the specification is addressed to the public, a reference in it to a prior specification or specifications, inserted by the applicant himself, would obviously constitute a notice thereof to, and would adequately protect the public, without necessarily injuring the applicant, as any official notification inevitably will.

Should it, however, be insisted that the modified procedure we recommend cannot be adopted as the law now stands, then, regard being had to the importance of the interests involved, we trust His Majesty's Government will see fit to introduce a short Bill in the coming session of Parliament, with a view of clearly legalising the proposed change in the rules.

Among the signatories are Lord Kelvin, Sir Benjamin Baker, Sir Nathaniel Barnaby, Professor Biles, John Brown & Co., Ltd., Bell's Asbestos Company, Ltd., Professor Barr, Sir Henry Bessemer & Co., Ltd., Sir E. Hamer Carbutt, Professor D. S. Capper, the Castner-Kellner Alkali Company, Ltd., Sir Raylton Dixon & Co., Ltd., Dick, Kerr & Co., Ltd., the Ebbw Vale Steel, Iron and Coal Company, Ltd., Dr. F. Elgar, Sir J. Fortescue Flannery, M.P., Sir Howard Grubb, Mr. R. A. Hadfield, H. & W. Hawthorn, Leslie & Co., Ltd., Mr. Andrew Johnston, Professor A. B. W. Kennedy, the Leeds Forge Company, Ltd., Sir William Mather, Merryweather & Sons, Dr. Ludwig Mond, Mr. W. H. Maw, Sir Edward J. Reed, M.P., Mr. Mark Robinson, Sir Thomas Richardson, Professor Henry Robinson, Sir Henry Rose, Sir William Ramsay, Mr. James Swinburne, Sir J. Wilson Swan, Professor Silvanus P. Thompson, Sir John I. Thornycroft and Mr. A. Yarrow.

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EDITORIAL NOTICES.

In view of the many difficulties which are certain to arise in connection with the law, practice rules and procedure under the Workmen's Compensation Act, we have added to our staff A VERY EMINENT BARRISTER, who has made the subject a special study, and will be glad to answer in the columns of this paper any questions relating to the complicated matters arising from the provisions of this difficult Act. Our LEGAL ADVISER will further answer any legal question that may be of interest to our readers. All letters must be addressed "LEGAL ADVISER," Office of "The Architect," Imperial Buildings, Ludgate Circus, London, E.C.

The Editor will be glad to receive from Architects in London and the Provinces results of Competitions and Tenders and other particulars of Works in progress in which they may be interested.

The authors of signed articles and papers read in public must necessarily be held responsible for their contents.

No communication can be inserted unless authenticated by the name and address of the writer—not in every case for publication, but as a guarantee of good faith.

Correspondents are requested to make their communications as brief as possible. The space we can devote to Correspondence will not usually permit our inserting lengthy communications.

NOTICE.

Next Friday being Good Friday, THE ARCHITECT will be published on Thursday. All advertisements intended for this Number must reach the Office not later than 4 P.M. on Wednesday, April 19.

No alteration of advertisement copy can be allowed after Saturday morning, the 15th inst.

COMPETITIONS OPEN.

HARROGATE.—May 24.—For proposed Primitive Methodist orphanage at Harrogate. Conditions may be obtained from Rev. J. T. Barkby, Riche Mont, Harrogate.

HIGH WYCOMBE.—May 31.—Secondary school, accommodation for 175 pupils. No premium offered. Mr. T. J. Rushbrooke, borough surveyor, 77 Easton Street, High Wycombe.

KING'S NORTON.—April 26.—For the erection of a public library in Church Hill, King's Norton.—Architects must be resident in King's Norton or practising in Birmingham. Particulars may be obtained from Mr. A. W. Cross, surveyor, 10 Newhall Street, Birmingham.

RADCLIFFE.—April 29.—For the erection of a free public library. Premiums of 50*l.*, 30*l.* and 20*l.* will be awarded. General conditions and instructions, with an outline plan of site, may be obtained from Mr. S. Mills, clerk, Council Offices, Radcliffe, Manchester.

ROCHESTER.—May 15.—For the erection of a municipal technical institute at Rochester. Three premiums of 50, 20 and 10 guineas will be awarded. Copies of the instructions and a plan of the site can be had from Mr. W. Banks, surveyor, Guildhall, Rochester.

CONTRACTS OPEN.

ABERTILLERY.—For erection of a new Baptist chapel at Blaenau Gwent, Abertillery. Mr. N. Lewis, F.I.A.S., architect, Oak Street, Abertillery.

ALNWICK.—April 22.—For taking-down and re-erecting Little Mill bridge, for the Alnwick Rural District Council, Mr. H. W. Walton, clerk, Fenkle Street, Alnwick.

ASHTON-IN-MAKERFIELD (LANCS).—April 18.—For the erection of a new administrative building, scarlet-fever and diphtheria pavilions, laundry, disinfector, stables and mortuary buildings, and other work at existing hospital buildings, for the Ashton-in-Makerfield Urban District Council. Messrs. Heaton, Ralph & Heaton, architects, Wigan.

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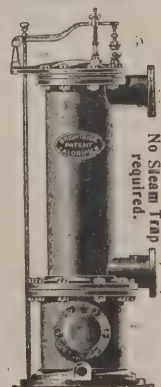
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ASKAM-IN-FURNESS.—April 24.—For erecting a manager's house, weigh-office and other buildings at the Askam-in-Furness Gasworks. The Council Buildings, Station Road, Dalton-in-Furness.

ASKRIGG.—April 21.—For the erection of temperance hall at Askrigg (Yorks). Messrs. Clark & Moscrop, architects, Feethams, Darlington.

BARNHAM.—April 19.—For the erection of a Council school at Barnham, Sussex. Mr. F. Wheeler, architect, Bank Chambers, Carfax, Horsham.

BARROW-IN-FURNESS.—April 18.—For the erection of extensions to the electricity works, Buccleuch Street. Borough Engineer's Office.

BARROW-IN-FURNESS.—May 15.—For the construction of a steel road bridge over the Walney Channel, uniting Barrow Island and Walney Island; the bridge will consist of eight fixed girder spans and one opening span, on cylinder foundations. Sir Benjamin Baker, 2 Queen Square Place, Queen Anne's Mansions, Westminster.

BELFAST.—For the erection and completion of a block of dwelling-houses, Clowney Street, Belfast. Mr. W. J. Moore, architect, Royal Chambers, 33 Royal Avenue, Belfast.

BELFAST.—April 27.—For the erection of a library in the Oldpark Road. Messrs. Graeme-Watt & Tulloch, 77A Victoria Street.

BOSTON.—April 29.—For erection of a new infirmary, laundry, boiler-house and mortuary at the workhouse, Boston, Lincs. Mr. James Rowell, architect, Church Lane, Boston.

BRADFORD.—April 15.—For the erection of a detached house in Cleckheaton Road, Low Moor, Bradford. Messrs. Howorth & Howorth, architects, Old Bank Chambers, Cleckheaton.

BRADFORD.—April 20.—For the supply and erection of wrought-iron railing and gates at the Gillington recreation ground, Four Lane Ends, Bradford. Mr. J. H. Cox, surveyor, Town Hall, Bradford.

BRADFORD.—April 20.—For the construction of the station buildings on the line of the Nydd Valley light

railway, for the Bradford Corporation, at Pateley Bridge, Wath, Ramskill, Lofthouse. Mr. James Watson, waterworks engineer, Town Hall, Bradford.

BRIDGEND.—May 1.—For the erection of two shops and dwelling-houses at Wyndham Street, Bridgend. Mr. P. J. Thomas, architect and surveyor, Bridgend.

BRIGGSWATH.—For the erection of a villa residence in Carr Hill Lane, Briggsath, near Whitby. Mr. A. H. Young, architect and surveyor, 77 Baxtergate, Whitby.

BUBWITH.—April 15.—for alterations and additions to the Council school at Bubwith, Yorks. The Clerk of Works, Beverly.

CHEPSTOW.—April 24.—For alterations and additions to the National schools, Chepstow. Mr. W. H. Dashwood Caple, architect, Church Street Chambers, Cardiff.

CHIPPING SODBURY.—April 19.—For erection of board-room and clerk's offices at the workhouse, Yate, Chipping Sodbury. Mr. A. Roach, architect, Charfield.

COMPTON.—April 15.—For additions to All Saints Church, Compton, Hants. Messrs. John B. Colson and G. H. Kitchin, joint architects, 45 Jewry Street, Winchester.

COVENTRY.—April 17.—For erection of buildings at the Foleshill gasworks for carburetted water-gas plant. Mr. Fletcher W. Stevenson, engineer and general manager, gasworks, Coventry.

CREEGBROSE.—April 15.—For the erection of a piggery at Creegbrose, near Chacewater, in the parish of Kenwyn, Cornwall. Mr. G. Oliver, Creegbrose.

DARTMOUTH.—April 18.—For the renovation of the Dartmouth Wesleyan chapel. Mr. H. Williams, St. George's Square, Dartmouth.

DENTON.—May 1.—For two houses, Manchester Road, Denton, Lanes. Mr. Ernest Woodhouse, architect, 88 Morley Street, Manchester.

DUBLIN.—May 15.—For the erection of an electric generating station. Mr. John P. Griffiths, engineer to the Dublin Port and Docks Board, East Wall, Dublin.

DUNDALK.—April 28.—For altering and enlarging the Greenore Railway Saloon, Quay Street, Dundalk. Mr. John F. M'Gahon, architect, Roden Place, Dundalk.

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DURHAM.—April 17.—For additions and alterations at the Royal County hotel, Durham. Mr. George W. Atkinson, architect, 1 Mark Lane, Leeds.

ELLAND.—April 22.—For the erection of two houses in Huddersfield Road, Elland, Yorks. Mr. K. Thompson, architect, Post Office Chambers, Elland.

EPSOM.—April 15.—For the erection of farm buildings at the epileptic colony, Epsom, Surrey. The Asylums Engineer, 6 Waterloo Place, S.W.

ERITH.—April 17.—For the erection of public library building at Erith. Mr. W. Egerton, architect, 12 Queen's Road, Erith.

FULFORD.—April 17.—For the erection of three houses at Fulford, Yorks. Mr. Arthur H. Everist, architect and surveyor, 8 New Street, York.

GATESHEAD.—April 27.—For the erection of stables at Tyne Road East. Mr. N. Percy Pattinson, borough surveyor, Town Hall, Gateshead.

GLASGOW.—April 18.—For treating the decayed stone-work of the Marine, Camlachie, St. Rollox and Springburn police offices, for the Corporation. The Office of Public Works, City Chambers, 64 Cochrane Street.

GLOUCESTER.—April 20.—For repairing works to the south-east aisle of St. Mary de Crypt Church. Messrs. Waller & Son, Gloucester.

GOOLE.—April 15.—For the erection of two shops, Boothferry Road, Goole. Mr. H. B. Thorp, architect and surveyor, Carlisle Street, Goole.

GUILDFORD.—April 15.—For the erection of the super-structures of new casual wards, labour shed and workshops and quarters for married couples on foundations already put in, at the workhouse, Guildford. Mr. Edward L. Lunn, architect, 36 High Street, Guildford.

HALIFAX.—April 17.—For the erection of a workshop, pulling-down of a chimney and other alterations. Messrs. Jackson & Fox, architects, 7 Rawson Street, Halifax.

HECKMONDWIKE.—April 18.—For works (plumbers, glaziers and painters' excepted) in erection of stabling, loose-boxes, yards, fence walls, &c. Mr. Henry Stead, architect, Heckmondwike.

HEMSWORTH (YORKS).—April 19.—For additions and alterations to the workhouse at Hemsworth. Mr. T. H. Richardson, architect, Hemsworth.

IRELAND.—April 17.—For the construction of a storage reservoir of about 75,000,000 gallons capacity at Foffany-reagh, near Newcastle, in the county of Down; also a caretaker's residence. Mr. R. H. Dorman, Courthouse, Armagh.

IRELAND.—April 21.—For reseating and other alterations to Ballygilbert Presbyterian church, near Helen's Bay, co. Down. Messrs. Hobart & Heron, architects, Scottish Provident Buildings, Belfast.

KEIGHLEY.—April 28.—For Wesleyan Sunday schools, Temple Street, Keighley. Mr. Wilson Bailey, architect, Tanfield Buildings, Bradford.

KING'S HEATH.—April 17.—For the following works:—
(1) Erection of cloak-room, extension to infants' school;
(2) providing and fixing a cast-iron emergency staircase to boys' schools, at the Council's school, King's Heath. Mr. A. W. Cross, engineer and surveyor, 23 Valentine Road, King's Heath.

KENILWORTH.—April 18.—For the construction of covered sewage tanks, circular filters, pump-well, engine-house, cast-iron and stoneware pipe sewers and other incidental works. Messrs. Willcox & Raikes, engineers, Temple Row, Birmingham.

LANCASTER.—April 15.—For the erection of a retaining and fence wall in Halton Road, near Skerton Mill. The Borough Surveyor's Office, Town Hall, Lancaster.

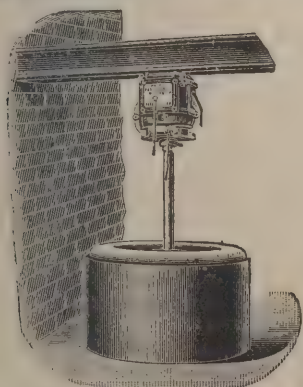
LEWES.—April 17.—For the erection of new offices in Fisher Street, Lewes, Sussex. County Surveyor's Office, County Hall, Lewes.

LONDON.—April 17.—For the erection of an iron school to accommodate 550 children (250 infants and 300 mixed) on the Belmont Road site, Tottenham. Mr. G. E. T. Laurence, architect, 22 Buckingham Street, Aldelphi, W.C.

LONDON.—April 18.—For town hall restoration works, Shoreditch. Mr. Alfred W. S. Cross, architect, 53A Maddox Street, W.

LONDON.—April 19.—For relaying certain floors in the laundry at the Grove Fever Hospital, Tooting, S.W. The Metropolitan Asylums Board, Embankment, London, E.C.

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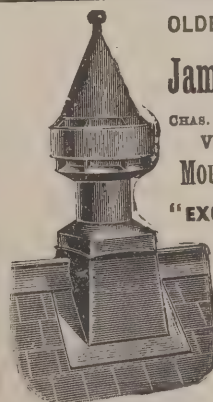
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LONDON.—April 25.—For the construction of conveniences and a caretaker's lodge at the playground, Morton Road, N. Mr. J. Patten Barber, borough engineer, Town Hall, Upper Street, N.

LONDON.—May 11.—For an iron emergency staircase at New Beckton school, East Ham. Mr. R. L. Curtis, 11 and 12 Finsbury Square, E.C.

MACCLESFIELD.—May 1.—For the erection of new boundary walls at the workhouse, Macclesfield. Mr. Jabez Wright, architect, King Edward Street, Macclesfield.

MARSDEN.—April 18.—For the erection of an assembly-room, billiard-room and other buildings to the Liberal Club, Marsden, Yorks. Messrs. John Kirk & Sons, architects, Huddersfield.

NEWCASTLE-UNDER-LYME.—April 26.—For the erection of the King's Memorial Baths, Brunswick Street. Mr. J. B. Langley, architect, 49 Deansgate, Manchester.

NORTH SHIELDS.—April 22.—For the conversion of the Union British schools, Norfolk Street, North Shields, into fire-station, &c. Mr. John F. Smillie, borough surveyor, Tynemouth.

NORTHWOOD.—April 15.—For the erection of a shed at the Ruislip sewage outfall works. Office of the Council, Maxwell Road, Northwood, Middlesex.

PENPONDS.—April 20.—For the erection and completion of vicarage, with outbuildings and boundary walls. Mr. Sampson Hill, architect, Green Lane, Redruth.

PORTSMOUTH.—April 17.—For the complete reinstating of show-room, workshop, stores, &c., Broad Street, Portsmouth. Borough Engineer's Offices, Town Hall, Portsmouth.

RAMSGATE.—April 17.—For the conversion of Effingham, Effingham Street, into a fire brigade station. Mr. T. G. Taylor, borough engineer, Albion House, Ramsgate.

ROCHDALE.—April 25.—For the erection of conveniences for ladies and gentlemen, and the reroofing of a portion of the mansion at Falinge Park. Mr. S. S. S. Platt, borough surveyor, Town Hall, Rochdale.

ST. ALBANS.—April 17.—For the erection of swimming-baths in Cotton Mill Lane, St. Albans. City Surveyor, Victoria Street, St. Albans.

ST. BEES.—April 18.—For new chapel, laboratories, lecture hall and library at St. Bees school, Cumberland. Mr. John F. Curwen, architect, Kendal.

SCOTLAND.—April 15.—For the mason, ironfounder, carpenter, glazier, slater, plumber and plasterer's work in the erection of four homes, for the Edinburgh District Lunacy Board. Mr. Hippolyte J. Blanc, architect, 25 Rutland Square, Edinburgh.

SCOTLAND.—April 17.—For the proposed extensions to the existing hospital buildings at Muirhead, Linwood Road, Johnstone:—(1) Brick and masons' work, (2) carpenter and joiner's work, (3) plumber and gasfitter's work, (4) plasterer and concrete's work, (5) slaters' work, (6) tilework, (7) painters' work. Mr. J. L. Cowan, architect, 136 Wellington Street, Glasgow. Also (1) Lancashire steam-boiler and piping, (2) heating, (3) laundry machinery. Mr. Archibald Leitch, 40 St. Enoch Square, Glasgow. Also sewage-disposal works. Mr. Robert F. Millar, 109 Bath Street, Glasgow.

SCOTLAND.—April 19.—For cement works of powerhouse, lade walls and sluices in connection with the Fochabers district electric lighting. Mr. Thomson, architect, Fife-Keith.

SCOTLAND.—April 19.—For the mason, carpenter, slater, plumber, plaster and painter's work of house for electric installation, &c., at Ardgye, Alves. Mr. John Wittet, architect, Elgin.

SCOTLAND.—May 1.—For the erection of a timber and concrete pier, buoy, coal and ship stores, dwelling-house, &c., at Oban. Mr. D. A. Stevenson, engineer to the Board, 84 George Street, Edinburgh.

SETTLE.—April 25.—For the construction of a covered concrete service reservoir to contain 66,000 gallons, collecting well, catch-water drains, conduit, straining chamber, valve wells, excavating trench for, laying and jointing of cast-iron water-mains, building break-pressure tank and laying service pipes, &c., in the township of Bentham. Mr. T. A. Foxcroft, engineer and surveyor, Town Hall, Settle.

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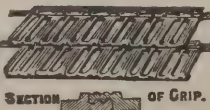
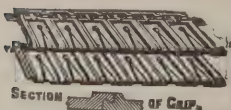
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SILLOTH.—April 24.—For alteration to the Balmoral hotel, Silloth, Cumberland. Mr. George Armstrong, architect, 24 Bank Street, Carlisle.

SOUTHEND-ON-SEA.—April 27.—For the erection of a public library in Victoria Avenue, Southend-on-Sea. Mr. William H. Snow, town clerk, Southend-on-Sea.

SPENNYMOOR.—April 15.—For the erection of a new police-station at Spennymoor, Durham. County Surveyor's Office, Shire Hall, Durham.

STANFORD.—May 1.—For the rebuilding of the super-structure of Stanford bridge, having a span of about 98 feet over the river Teme, in the parishes of Stanford and Shelsley Kings. Mr. J. H. Garrett, bridge warden, Shire-hall, Worcester.

STOCKPORT.—May 1.—For the erection of the Chestergate new schools in Hardman Street, Chestergate. Messrs. Cheers & Smith, architects, Blackburn.

SWAFFHAM.—April 29.—For the erection of additional nurses' quarters in the workhouse, Swaffham, Norfolk. Mr. Louis F. Eagleton, architect, King Street, King's Lynn.

SWANSEA.—April 15.—For laying foundations at the Corporation destructor works for one 225-kw. steam generator, together with all trenches, pits and excavations. Mr. C. A. L. Prusmann, borough electrical engineer, Strand, Swansea.

WALES.—April 15.—For the erection of two new blocks of buildings, together with alterations and additions to the existing buildings at the asylum, Denbigh. Messrs. T. M. Lockwood & Sons, architects, Foregate Street, Chester.

WALES.—April 15.—For erection of a mixed school and the execution of works connected therewith at Abertaf, Abercynon. Mr. W. G. Thomas, architect, Public Offices, Mountain Ash.

WALES.—April 15.—For the erection of 135 dwelling-houses, together with streets, sewers and surface-water drains at Darranlas, Mountain Ash, for the Napier Building Club. Messrs. Morgan & Elford, architects, 1 Jeffreys Street, Mountain Ash.

WALES.—April 17.—For alterations and repairs to Gil Vach (near Wentwood reservoir), Llanvaches. Borough Engineer's Office, Town Hall, Newport, Mon.

WALES.—April 17.—For the erection of an institute at Gorseinon, Swansea. Mr. Charles T. Ruthen, architect, Bank Chambers, Heathfield Street, Swansea.

WALES.—April 18.—For the erection of a chapel at Tonyrefail. Mr. G. Hughes, Gilfach Road, Tonyrefail.

WALES.—April 18.—For the erection of fifty houses at Brewery Street, Pontygwaith; also the formation and completion of roads, carriageways, surface-water drains, &c. Mr. W. D. Morgan, architect, Victoria Chambers, Pentre.

WALES.—April 19.—For the erection of the chapel, Caerau, Maesteg. Mr. W. Beddoe Rees, 3 Dumfries Place, Cardiff.

WALES.—April 24.—For erection of a chapel and alterations to existing hall at Abercynon. Mr. Arthur Lloyd Thomas, engineer and architect, Church Street Chambers, Pontypridd.

WALES.—April 25.—For erection of a residence at Aber-sychan. Mr. D. J. Lougher, architect, Bank Chambers, Pontypool.

WESTBURY.—April 22.—For the erection of a residence in Lower Road, Westbury, Wilts. Mr. W. H. Stanley, architect, Market House Chambers, Trowbridge.

WEST HARTLEPOOL.—April 15.—For the erection of three houses in Colwyn Road. Mr. Francis E. Boaz, York Road, West Hartlepool.

WHITBY.—For the erection of a pair of semi-detached villa residences at Prospect Hill. Mr. A. E. Young, architect and surveyor, 77 Baxtergate, Whitby.

WILLINGTON.—April 22.—For proposed warehouse, &c., Willington, Durham. Mr. Robert W. Hamilton, secretary, Willington Co-operative Society.

WINDSOR.—April 27.—For the erection of a new police and fire station in St. Leonard's Road, Windsor. Mr. E. A. Stickland, borough surveyor, Alma Road, Windsor.

WOOLWICH.—April 19.—For a small building to be used as a shelter for casuals at the union house. Mr. J. O. Cook, architect, 1A Eleanor Road, Woolwich.

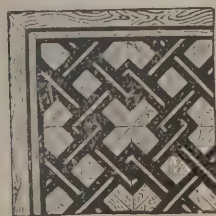
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Adamson & Sons	4,750	0	0
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Name withheld by request, Glasgow No claim.

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LEEDS.

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Arnold & Sons £299,639 0 0
M'ALPINE & SONS, Glasgow (accepted) 296,863 0 0

LEITH.

For the grooved wire for the new tramway system.

BRITISH INSULATED & HELSEY CABLE Co.
(accepted) £1,195 0 6

For the fittings in connection with the above.

S. DIXON & SON (accepted) £894 7 9

RADLETT.

For erection of two detached residences. Mr. HENRY F. MENCE, architect, St. Albans.

Vail & Williamson £1,895 10 0
Goodchild & Jeffery 1,860 0 0
Dumpleton 1,638 0 0
E. DUNHAM, St. Albans (accepted) 1,636 0 0

ROMFORD.

For works of sewerage, drainage, paving and making-up roads. Mr. HERBERT T. RIDGE, surveyor, Romford.

Westgate £7,932 7 6
Jackson 7,168 14 4
Fry Bros. 6,969 18 1
Griffiths & Co. 6,657 16 7
Trueman 6,490 0 0
Glenny 6,362 3 2
Marsh 6,050 7 8
Wilson, Border & Co. 6,046 14 3
Jackson 5,934 19 7
T. FREE & SONS (accepted) 5,909 14 10

SHERINGHAM.

For public lavatories, cloak-rooms and promenade approach, Sheringham. Mr. T. INGLIS GOLDIE, architect, Norwich and Sheringham.

Sadler £2,100 0 0
Weston 2,002 15 0
Hannent 1,947 0 0
Bullen 1,850 0 0
EDWARDS & UTTING (accepted) 1,809 19 1

SOUTHALL.

For construction of roads and sewers on the Southall Glebe Estate. Mr. C. G. MILLER, architect and surveyor.

Neave & Son £1,772 0 0
Morecroft 1,339 0 0
A. & B. Hanson 1,325 0 0
Killingback & Co. 1,320 0 0
Adams 1,249 0 0
T. Watson, jun. 1,247 17 6

SOUTH SHIELDS.

For the erection of municipal buildings in Westoe Road.

Mr. ERNEST E. FETCH, architect, Adelphi, W.C.
T. RILEY, Fleetwood (accepted) £46,450 0 0

SWANLEY JUNCTION.

For the erection of a residence at Swanley Junction, Kent, for Mr. W. G. Burgess.

Lonsdale £1,575 0 0
Blay 1,550 0 0
Ellingham & Sons 1,475 0 0
PURTON & JOHNSON, Fulwich Road, Dartford (accepted) 1,325 0 0

TORQUAY.

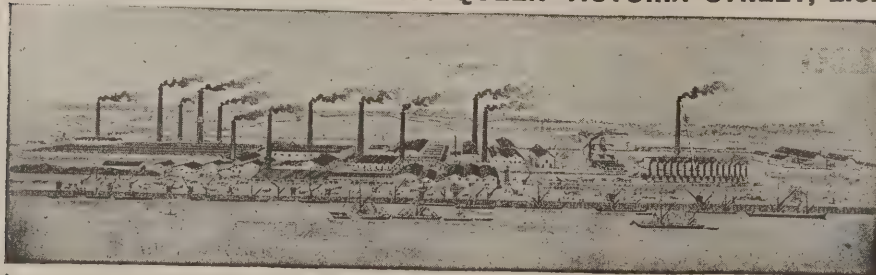
For the erection of a residence at Livermead. Messrs. ROWELL, SONS & LOCKE, architects, Newton Abbot.

McKellar £1,598 0 0
Yeo & Sons 1,356 0 0
Blake 1,308 0 0
Bovey & Sons 1,249 0 0
Drew 1,170 0 0
Mumford 1,165 0 0
Coles 1,104 0 0
Parker Bros. 1,099 0 0
Vanstone 1,030 0 0
Narracott 1,006 17 0
Tucker & Sons 964 9 2
H. C. Goss, Torquay (accepted) 926 0 0

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increase in the takings of close upon 6 per cent. Twelve months ago the Corporation were able to hand above 52,000*l.* towards the relief of the rates, and it is stated that a still larger sum will be available for that purpose.

THE Burslem Corporation anticipate that their electrical and destructor plants will be in working order by September 1. The scheme will cost 24,000*l.* By the means of a hire purchase system customers will be enabled to pay by instalments the cost of installing electric lighting and the cost of motors. The scale of charges for electrical energy will be as follows:—For lighting, 5*d.* per unit, or at the option of the consumer, on the maximum demand system of 7*d.* per unit for the first hour each day and 2*d.* per unit afterwards. For motors, 2*d.* per unit, or, at the option of the Corporation, 10*s.* per quarter per horsepower installed and 1½*d.* per unit.

THE Secretary to the Board of Trade was asked on Monday in the House of Commons whether his attention had been drawn to the public danger caused by the laying down of exposed rails charged with high electric currents without due safeguards; and, if so, what steps he proposed to take to prevent the danger of loss of life. Mr. Bonar Law in his reply said the Board of Trade are fully alive to the dangers which may arise from this method of traction unless it is adequately safeguarded. As has been previously stated, recommendations as to the steps to be taken to prevent accidents from contact with such rails have been made from time to time to railway companies and have been adopted by them, and the matter is one that receives unremitting consideration from the inspecting officers of the department in the course of their duties.

THE consulting electrical engineer to the Brighton Corporation has prepared a report in answer to the criticisms passed on the electrical-generating station in course of erection at Southwick. Mr. Wright declares that there is not the slightest chance of the general body of ratepayers having to contribute, as the scheme can always be made as self-supporting as the Brighton undertaking has been in the past. The cost will be about 86,000*l.* less than the 400,000*l.* sanctioned. Mr. Wright points out that the electric undertaking has been self-supporting from its first year of working, that if sold it would probably realise twice as

much as it had cost and that Brighton consumes per head more electricity than any town in England. Out of net profits it has also paid 14,000*l.* in relief of the general rates.

BUILDING AND BUILDERS.

THE Duke of Westminster has promised 1,000*l.* towards the fund for building a parochial institute for the parish of St. John's, Westminster, and has given 250*l.* towards the rebuilding of the City of London Lying-in Hospital, City Road.

THE Broadwater Baptist Mission church, near Worthing, was opened on Wednesday last. The building has been carried out from designs and under the superintendence of Messrs. George Baines & R. Palmer Baines, London, W.C., by Messrs. Frank Sandell & Sons, builders, of Worthing.

THE surveyor to the Chailey Rural Council has reported that he had inspected one of Mr. Justice Grantham's cottages at Barcombe and found the drains unsatisfactory. He had interviewed Sir William Grantham, who had promised to carry out his suggestions.

THE Falkirk Dean of Guild Court on the 6th inst. passed an unusually large number of plans, several of which involved the expenditure of large sums of money. At the close of the Court Provost Christie said it was gratifying to find a large increase in the applications. He hoped that indicated that an improvement in trade had begun and would continue.

THE St. Helens education committee intend to erect new schools at Thatto Heath at a cost of 12,000*l.*, and it was decided at the Council meeting to borrow this amount and 1,050*l.*, the estimated cost of a site for another school for the Parr district. The committee also propose to erect a public elementary school for 700 scholars, and a higher elementary school for 350 scholars in College Street.

THE building interests in New York have, according to a cable in the *Glasgow Herald*, contracted for 30,000 tons of fabricated steel, and contracts with various construction companies aggregating another 15,000 tons are now pending. It is expected that the probable adjustment of the long-

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pending labour war will result in a boom in the building trade. Fifteen thousand tons of steel have been sold to different railroads in the past week for building bridges.

THE surveyor at the Arundel Town Council reported at the last meeting that, although all the builders in the town had been asked to tender for the work of repairing the tidal tank of the sewage outfall no tenders had been sent in, the builders refusing to be held responsible for any accident which might occur while the work was in progress. It was decided that the surveyor, with a committee of three members of the Corporation, should carry out the work.

THE Local Government Board have issued a circular letter intimating that the King, in compliance with the resolution of the House of Commons, had ordered a return to be laid before the House, showing, as regards County and District Councils and Boards of Guardians, whether contracts for the execution of works specified any, and what, conditions as to wages to be paid by contractors to the persons employed by them, and requesting the Council to furnish a return accordingly.

THE Mersey Docks and Harbour Board at their last meeting approved of the following recommendations of the works committee:—To underpin a portion of the north wall of the Canada Dock, at an estimated cost of 8,500*l.*; to erect a single-storey shed on the north quay of the King's Dock No. 2, at an estimated cost of 31,000*l.*; and to increase, amongst other salaries, that of Mr. W. Brodie, head of the drawing and general offices, from 600*l.* to 700*l.*, and that of Mr. W. A. Ogletorpe, mechanical superintendent, from 500*l.* to 600*l.*

ON account of the serious subsidences which occurred some weeks ago in the neighbourhood of Brierley through the falling in of old pit shafts thorough search is being made in the Moor Street schools to ascertain if there was any danger of a repetition of these mishaps. A shaft has now been reached, and upon the brickwork lining of the shaft being broken through it was found that the interior was filled up. The shaft was also scooped out to some depth to determine whether the filling-up material rested on a scaffold. It was found that the shaft had been filled up all the way. A heading will now be driven to another

shaft a score yards or more away to ascertain if this also is filled up for its whole depth.

MR. J. W. BRADLEY, city engineer and surveyor for Westminster, in giving notice to occupiers and others of repaving works to be carried out by the City Council between now and October next, says that every possible provision has been made to secure that the work shall be completed with the utmost dispatch and with the creation of as little inconvenience as possible. "If at any time during the progress of the works," says Mr. Bradley, "you should think you are not receiving proper consideration at the hands of the contractor, and will communicate with me, I shall be happy to see that as little inconvenience as possible is caused to you and to the general public using the street."

MR. E. B. SAVAGE delivered a lecture on Tuesday before the Birmingham and District Clerk of Works and Building Foreman's Association, entitled "Experiences in Sewer and Drain Construction." The lecturer, on the question of the best sizes of pipes for single building, pointed out that the present tendency to use the extremely small size of 4 in. was of doubtful benefit. On the other hand, a 6 in. being somewhat too large, an intermediate, say 5 in., although not recognised as a stock size, should be pressed into service; in other words, the engineer should use the proper sizes, and no doubt manufacturers would only be too glad to supply any legitimate demand which might arise in consequence.

THERE are no more severe critics on new appliances than builders, for the task of carrying out large contracts does not ameliorate the feelings. When therefore we find so many heads of firms uniting to express satisfaction with Fishburn's labour-saving winch, there cannot be any doubt as to its merits. It is declared to be as cheap and quicker than most steam winches, to have saved a considerable amount of scaffolding, to have repaid its cost in one job, and in various other ways has gained profit for its owners, who willingly recommend it to other builders. All this must be satisfactory to Mr. Joseph Fishburn, of High Wycombe, who is the patentee, and who is in the happy position of continually receiving orders for the winch.

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A COMMITTEE for the relief of the unemployed in Liverpool has made an appeal for fresh funds. In alluding to the alleged boom in the building trade in the district, it is pointed out that it is largely building that does not affect the organised worker; joiners and others are imported to do the work, and when it is finished they go back home again. The larger contracts are being done by outsiders. A building, for example, at the present time is being done by a Leith firm, and men from Leith mainly employed; and for another factory the contract was let to a Stockport firm, who employed Stockport men. A large place of amusement is being erected by a Bolton firm, and Bolton men are being largely employed.

VARIETIES.

IMPROVEMENTS are to be carried out on the port of Ostend at an estimated cost of about 31,170*l*.

THE report of the Royal Commission on London's traffic is expected to be published at the end of next month.

THE borough engineer of Newport has submitted a report to the parks committee of the Corporation in favour of erecting a crematorium. The report will be considered at the next meeting of the committee.

THE Middlewich Urban Council have given their surveyor instructions to prepare plans of a sewage-disposal scheme. Application will be made to the Local Government Board for sanction to borrow 7,500*l*.

THE London County Council will consider next week a report of the housing committee recommending the expenditure of 29,000*l*. on working-class dwellings at Brixton Hill.

THE Keswick Urban District Council are to apply to the Local Government Board for a loan of 6,000*l*. for new sewage disposal works, to be in accordance with the plans and scheme of Mr. Balfour, Newcastle.

THE education committee of the Crewe Town Council asked for power to borrow 21,500*l*. for the erection of a new school. The recommendation met with considerable opposition on the score of extravagance—the cost being said to be 15*l*. per scholar—and was referred to another committee.

THE Bangor City Council have adopted a scheme of workmen's dwellings which has been under consideration for several years. The plans show forty-three houses, and the probable cost will be over 8,000*l*.

THE Colne Town Council have received the approval of the Board of Education for the plans of the proposed new school in Swan Croft, and the education committee are about to apply to the Local Government Board for sanction to the borrowing of 12,050*l*. for the building.

THE Local Government Board have informed the Louth Town Council that they decline to entertain the proposal to apply the proceeds of a sale of corporate land towards the cost of providing houses for persons of the middle class, and it was resolved that the money should be invested in Consols.

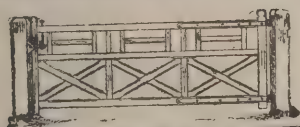
THE exhibition of carpentry and joinery and wood-carving, which will be held at Carpenters' Hall, London Wall, London, under the joint auspices of the Worshipful Companies of Carpenters and Joiners, will be opened on June 19 next, by the Right Hon. Lord Avebury, F.R.S., D.C.L., &c., who is an honorary freeman of the Carpenters' Company.

THE Walsall Town Council are making efforts to induce the Local Government Board and the County Council to agree to a postponement of the carrying out of a new sewage purification scheme, the cost of which is estimated at 80,000*l*. The reasons given are the developments at present taking place with regard to sewage purification and the fact that a Royal Commission on the subject has not yet issued its final report.

A LOCAL GOVERNMENT BOARD inquiry was recently held in Cefn, near Ruabon, in connection with a new sewerage scheme, and sanction was obtained to borrow a sum of 10,000*l*. Plans were prepared by the engineer to the Wrexham Rural District Council, tenders invited, and the tender of Mr. J. T. Jones, builder, Cefn, amounting to 9,138*l*., was accepted for the work, which will probably be commenced without delay.

THE Cretan Government propose to issue a set of stamps reproducing some of the most interesting features of the archæology of the island. The set of stamps will number nine, and will include historical scenes, ancient ruins, and

Entrance Gates in English Oak

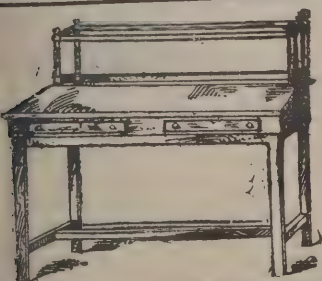


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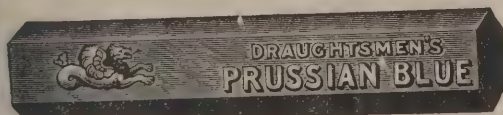
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For Index of Advertisers, see page x.

stamps from ancient coins and medals. The money imprints will include the coinage of Gortgna, Itanos and Cydonia, and there will be a medal of Ariadne. One of the ruins reproduced will be that of the Palace of Minos.

THE Admiralty have granted special permission to Captain Hickley, Mr. Phillips, Mr. J. C. Stewart and Mr. J. E. Miller, United States subjects, to visit the naval establishments and ships at Chatham. These gentlemen constitute a committee appointed by an American railway corporation to examine the principal European dockyards from an engineering standpoint, with a view to obtaining information to be used in the erection of the proposed dockyard at New Orleans.

THE Nottingham Board of Guardians have sanctioned resolutions consenting to the expenditure of a sum not exceeding 8,561*l.* in connection with the erection of the workhouse, this being in addition to the sum of 217,200*l.* and 17,627*l.* authorised by the Board in June 1902, and approving the borrowing of 9,553*l.* to defray expenditure sanctioned by the Board on September 14 and November 11, 1904, in respect of the erection of a greenhouse and pigeries. This will entirely complete the workhouse expenditure.

THE Stourbridge Guardians on the 7th inst. discussed a paragraph in the building committee's report as to tenders for stoves for certain wards. They ranged very much in figures, but only one at 38*l.* 3*s.* was stated to be according to specification of the architect. Several Guardians sharply criticised the suggestion of so much being given for stoves, or that about twenty stoves should be required for wards at all, after providing a hot-water heating system at a cost of 9,000*l.* The question was referred back to the building committee to obtain fresh tenders.

A REPLICA of the tablet which an anonymous American recently placed in the Hampstead parish church in memory of Henry Cort has been set up in the Lancaster parish church. It is of bronze, and bears a portrait in relief of "the father of the iron trade." The inscription is as follows:—"In memory of Henry Cort, born at Lancaster 1740, interred at Hampstead 1800, to whom the world is indebted for the arts of refining iron with mineral coal by puddling and rolling metals in grooved rolls."

WE have pleasure in announcing that Mr. T. H. Batstone has resigned the position held with his late firm from 1894, in order to occupy the post of managing director to the well-known and old-established firm of Hewetson, Milner & Thexton ("Hewetsons"), of Tottenham Court Road. This announcement affords a welcome opportunity for thanking those who have accorded him their patronage in the past, and who will, he trusts, continue to show their appreciation of his personal attention to their inquiries and favours.

THE Solihull District Council have decided that in future 6*s.* per "yard" (25 cwt.) should be paid to farmers for stones picked off the fields and used for the repair of the roads, provided that they would not pass through a 2½ inch gauge. The present price is 5*s.* per yard, but it was pointed out that 8*s.* 7*d.* was paid for quarry stone, which had to be carted to the roads. The proposal met with opposition. Some complained that there were almost as many oyster shells, sardine tins and broken bottles as stones in the farmers' heap of road pebbles.

A PART of the George's Dock site, Liverpool, was last week put up to auction by order of the City Council. The dock was built in 1771, but in 1900 three roads were cut, dividing it into three portions. One portion had been utilised by the Mersey Docks and Harbour Board as a site for new offices, the middle portion was reserved for the purposes of the Liverpool Corporation, and the remaining portion, containing about 6,807 square yards, with four important frontages, was offered for sale. Not a single bid was made and the site was reserved for private sale. The reserve price was not disclosed.

THE Staines Rural Council will apply to the Local Government Board for assent to a by-law permitting the erection of corrugated iron cottages. These are to contain one general room 16 feet by 13 feet, three bedrooms each 12 feet by 13 feet, and a washhouse. Such dwellings are designed for people with incomes of 18*s.* to 20*s.* per week. The surveyor stated that the cost of these buildings would be about 125*l.*, whereas if built under the present by-laws they would each cost 200*l.* The surveyor added that Mr. Justice Grantham had so frightened the Local Government Board that its assent to anything reasonable could now be easily obtained. It was suggested that the erection of these

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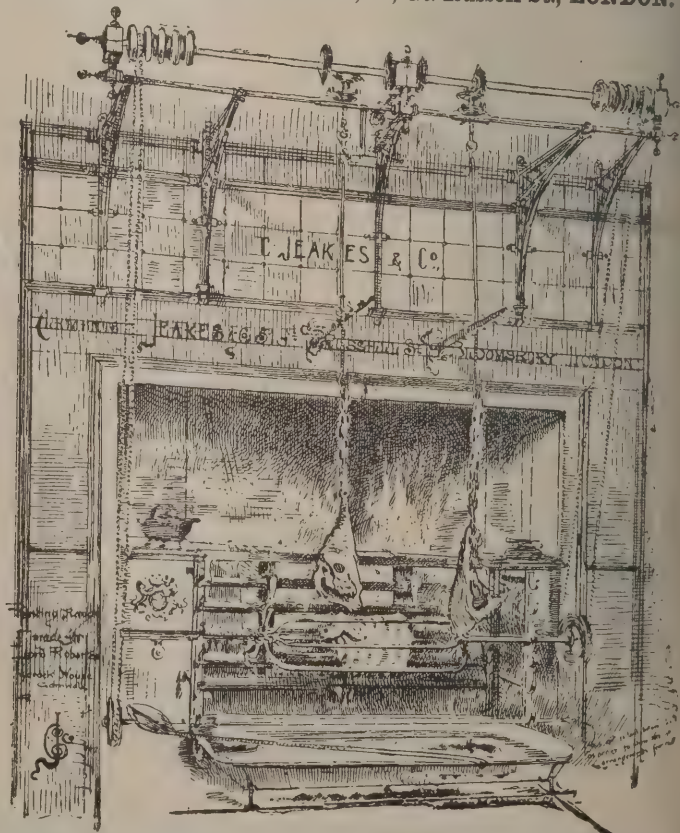
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buildings should be limited to certain areas to prevent the depreciation of property.

THE New York Senate committee make the following comments on a constitutional amendment authorising the State to issue 50,000,000 dols. road betterment bonds:—"It is believed that since the roads so improved would exist for the use of generations yet to come, it would not be unwise to cast upon them a portion of the burden of paying the debt contracted for the purpose of improving the roads. The proposed amendment is broad enough, so that if in the development of road improvement it shall seem wise to some future legislatures to pay the entire cost in the first instance of improving the roads in some poorer sections, and to permit the county and towns to repay to the State their share of the cost in partial payments, that may be done."

THE Leeds waterworks committee decided on the 30th ult. to recommend the appointment of Mr. C. G. Henzell, of Newcastle, to the office of waterworks engineer at a salary of 1,000*l.* a year. The other three remaining candidates out of seventy-five were Mr. F. W. McCulloch, Belfast; Mr. C. J. Batley, Oldham; and Mr. W. R. Barnett, Lancaster. Mr. Henzell, who is forty-two years of age, had charge of the construction of the Catcleugh reservoir for the Newcastle and Gateshead Waterworks Company. The extension scheme is estimated to cost two and a half millions sterling. The committee also recommend the acceptance of the tender of Messrs. M'Alpine & Co., of Glasgow, for the construction of Colsterdale reservoir, the tender amounting to 297,000*l.*

A COMMITTEE of the Brighton Corporation have recommended the acceptance of a private offer for the Aquarium. The Local Government Board recently refused to sanction a loan of 20,000*l.* for repairs conditional to accepting another offer. The present terms are to take the premises for thirty years at a rent of 800*l.* per annum, the Corporation putting the roofs and drains only in repair. The lessee will himself carry out the following works:—(a) The erection of a winter garden, substantially in accordance with the original plans. (b) The remodelling of the concert hall by enlarging the auditorium, lowering and widening the stage, and decorating and upholstering throughout. (c) The construction of a

new covered way from the turnstiles to the entrance of the main building. (d) The construction of a new level path from the turnstiles to the terraces.

MR. PERCY GRIFFITH, past president of the Society of Engineers, has presented to the Lincoln waterworks committee a report on the boring operations in connection with the city water supply. The period provided in the contract for the completion of the work expires on July 31, but deducting the sixteen months lost in consequence of the accident with the boring tool, the contractors will have until November 30, 1906. Judging from previous rates of progress, and assuming that no other unforeseen difficulty occurs, it is believed the boring will be completed by that date, if not earlier. The sandstone water should be tapped at a much earlier date than this; in fact, he suggested that the new supply would be obtained before the end of the present year, and should their circumstances at that time be as serious as they were at present, he had no doubt means could be devised for securing the Corporation the use of the supply pending the completion of the boring.

THE Wallasey District Council on the 8th inst. opened the school in Manor Road, Liscard. The accommodation provides for 1,148 children. Planned on the central hall principle, it comprises three complete departments, for boys, girls and infants. Each department is an entirely independent school, but the means of intercommunication are easy. The ordinary classrooms are on the ground floor, but certain special rooms have been arranged on the first floor at the north front—a science demonstration-room and practical science-room with balance-room attached. A feature of the girls' school is a specially fitted up cookery-room, also on the first floor. Ample ventilation is secured by opening casements and inlets, and the buildings are lighted throughout by electricity. It has been erected at a cost of 18,900*l.* by Messrs. W. H. Forde & Sons from the designs of Mr. Edmund Kirby.

THE Lowestoft Town Council are carrying out sea-defence works. A Local Government Board inquiry has been held into an application to borrow 850*l.* for the construction of a timber revetment at the foot of the South Cliffs. The timber revetment already constructed at the

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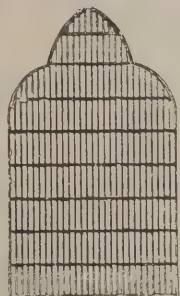
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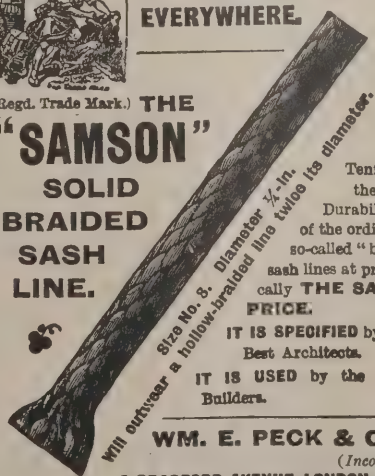
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foot of the cliff has done good work in protecting it, but it is now filled in with sand thrown over by the sea. The revetment proposed to be constructed is designed to protect the cliffs from abnormal high tides. The Local Government Board have given conditional consent, and the work was partly completed. The surveyor stated, in answer to the inspector, that the seas broke over the outer revetment at high tides, and the foot of the cliff suffered. This work was to prevent that. The length of the piles would be 13 feet 6 inches, and they would be driven in for an average 7 feet 6 inches. The old revetment was 4 feet 9 inches high above high-water ordinary spring tides, or 9 feet above ordinance datum.

We notice that the Great Central Railway Company are offering ample and admirable facilities to those desirous of spending Easter at places reached by their comfortable and picturesque route. Excursions are announced from London (Marylebone), Woolwich, Greenwich and Metropolitan stations to all the principal towns and holiday resorts in the Midlands, North of England, North-East and North-West Coast watering-places, Douglas (Isle of Man), Scotland and Ireland. The information has been concisely tabulated in the form of an A.B.C. programme giving the times of starting, fares, dates and times of return, &c., for any station (alphabetically arranged), which can be easily seen at a glance. Copies of this lucid guide can be obtained free at Marylebone Station, or any of the company's town offices or agencies. We also notice that the Great Central Company have issued an Easter souvenir card of an attractive nature depicting the harbingers of spring in the form of primroses and violets, and skilfully drawing attention to their Easter facilities, which is a distinct departure in railway advertising.

AN AMERICAN CONTRACT SYSTEM.

The various methods of paying for construction have been the subject of much discussion for many years, says the *Engineering Record*, but the latest of these to occupy a prominent place, the system of paying the actual cost plus

a fixed sum to the contractor, is comparatively novel. It was taken up by Mr. Frank B. Gilbreth, of New York and Boston, a few years ago. In 1902 a little over half his business was done in this way, while to-day all of it is on this basis. In view of the diversified character of the many large works undertaken by this builder, such as dams, power stations, shops and even complete villages, the increase in favour of the system of payment on a cost-plus-fixed-sum estimate deserves consideration.

The early system of contracting, under which the larger part of the construction undertaken to-day is carried on, was based on a lump-sum bid. In simple work of well-known character, where great speed is not required, this is probably the most satisfactory method to adopt. But as the difficulties increase the system gradually develops marked defects. Bidders cannot foresee all troubles that may arise, and they either largely increase their bids to cover these probable but unknown contingencies or else take the risk of being overwhelmed with financial disaster. Either the owner or the contractor must lose considerable money when difficult construction is undertaken on the lump-sum basis.

The second system of payment was devised to meet defects of the first method. It is the plan of paying the contractor for his services a percentage of the actual cost of construction, as shown by the books kept for the work. This frees the contractor from any bias toward skimping materials and workmanship. Where owner and contractor have confidence in each other the system is a good one, but sometimes, when the construction has proved unusually difficult and tedious, the heavy cost has caused bitter controversy between the two parties. The owner has claimed that the contractor made the work unusually expensive in order to increase his fees, while the contractor has claimed that the owner demanded impossible things.

Under the cost-plus-fixed-sum plan, which Mr. Gilbreth is now using on his work, the owner knows from the outset just what profit the contractor will make. It is not altered by deviations from the estimates of the cost, and the contractor has no incentive to produce anything but the best work. The owner can purchase the materials himself or allow the contractor to do so, the latter usually being the

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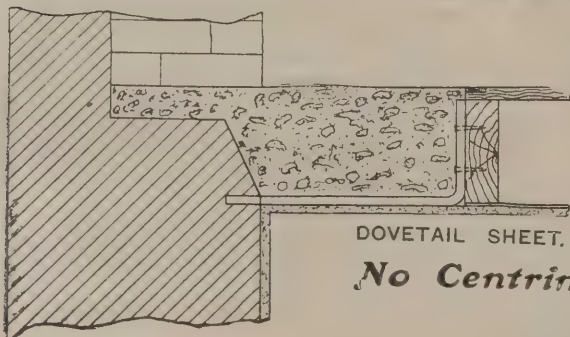
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better plan. Changes can be made in the plans without any objection by the contractor. When time is precious the foundations can be started before the details of the superstructure are completed. In short, the whole arrangement makes the contractor a sort of professional man, retained at a definite fee for a definite purpose. Such a system on large undertakings manifestly has much to commend it. Its merit as a preventative of controversy deserves recognition.

LONDON BUILDING ACTS AMENDMENT.

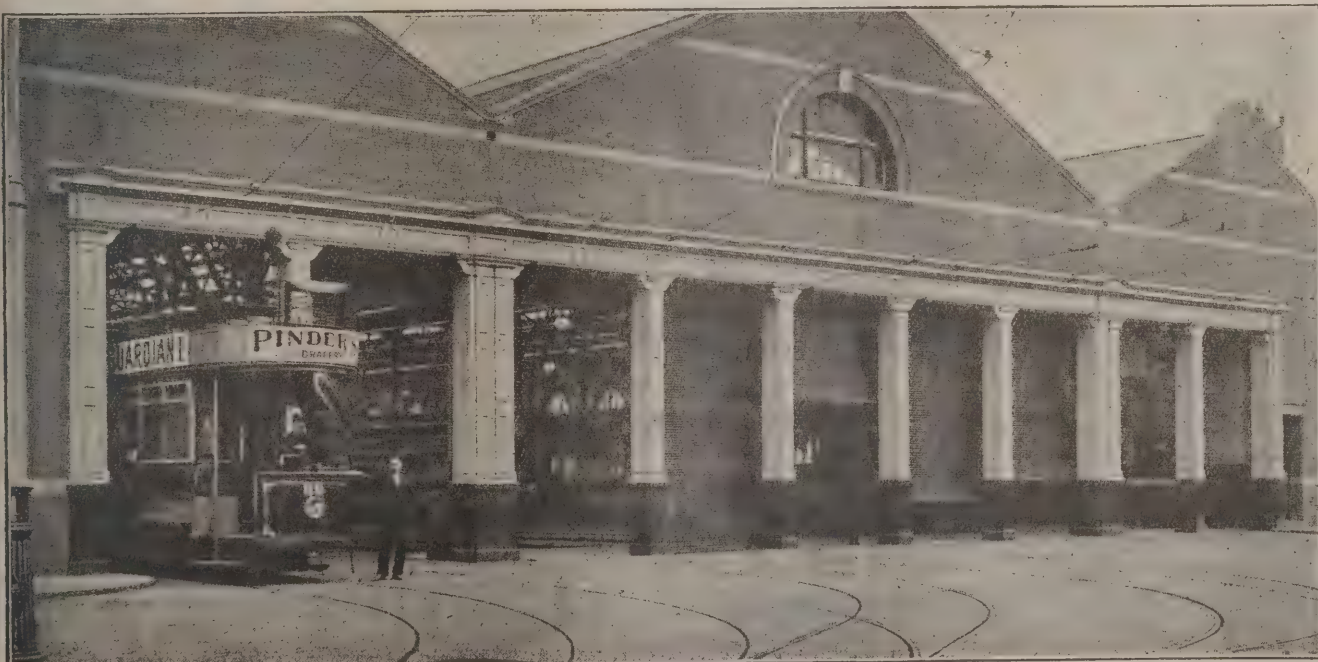
THE Building Act committee of the London County Council have prepared the following report:—

We have considered as to the course which it is advisable to take with regard to the provisions contained in the parts of the London Building Acts (Amendment) Bill, 1905, which have been withdrawn. The Council will remember that, as the result of a compromise arrived at on March 14, 1905, at the House of Commons, between the members of Parliament in charge of the London Building Acts (Amendment) Bill, and of the City of London (Escape from Fire) Bill and other opponents of the Council's Bill, it was agreed to drop all parts of the Council's Bill with the exception of Part VIII. (Means of Escape from Fire). Many of the suggested amendments which have thus been withdrawn not only affect the work of other committees of the Council, but in our opinion are quite as necessary in the public interest as those relating to escape from fire. We therefore think that the Council will desire that every effort should be made to introduce in the session of 1906 a Bill dealing with the more necessary amendments.

The Council has always welcomed suggestions or criticisms of its proposals for the amendment of the London Building Acts, and we have no doubt that it will wish that advantage should be taken of the opportunity which is afforded by the withdrawal of the majority of the suggested amendments of fully considering the views of the various bodies concerned, even though the adoption of this course may prevent us formulating our proposals in time to enable the Parliamentary committee to have all of them before the summer recess. Moreover, as many of the provisions

in the Bill introduced in the present session will form the basis of any future Bill for the amendment of the London Building Acts, and these provisions have been considered in detail by the Parliamentary committee, it appears to us that the standing orders relating to legislative proposals may be considered as not strictly applicable, or in any event that the Council would consider it a case in which, if necessary, some indulgence should be granted. The Bill which was introduced in the present session has been since the beginning of the year before the Corporation of the City of London, the Councils of the metropolitan boroughs and various professional and other bodies, but as some of the amendments are dealt with by reference to sections in the Act of 1894, it has been stated that difficulty is experienced in understanding them.

In order to remove this difficulty the Parliamentary committee, at our suggestion, gave instructions for the preparation of a document showing the effect of the Bill on the existing Acts, and we are of opinion that a copy of this document should be sent to the various bodies concerned with an intimation that the Council will be glad to consider any observations which they may wish to make on the Council's proposals, or any additional suggestions for the amendment of the London Building Acts. These observations ought, if possible, to be considered before the summer recess, and it would therefore seem desirable that the Council should fix June 10, 1905, as the last day for the submission of observations. It is hoped that all the bodies concerned will co-operate with the Council in an earnest endeavour to introduce in the next session of Parliament a Bill containing all necessary amendments to the London Building Acts. It is very probable that many persons will want a considerable number of copies of the document which was prepared by the Parliamentary committee, and we therefore propose that it should be placed on sale. We also think that a very useful purpose would be served if a memorandum on the same lines as the one which has already been sent to the members of the Council explaining in general terms the nature of the suggested amendments were sent to each member of the various bodies to whom the Bill will be sent. We recommend that, with a view to the introduction in the session of 1906 of a Bill to amend the



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London Building Acts, copies of the document prepared by the Parliamentary committee showing the effect of the London Building Acts (Amendment) Bill, 1905, on the existing Acts be sent to the Corporation of the City of London, the Councils of the metropolitan boroughs, and the various professional and other bodies concerned, with an intimation that the Council would be glad to be acquainted before June 10, 1905, with any observations which they may make on the suggested amendments to the London Building Acts, and that a copy of a memorandum on the subject, to be prepared by the chairman of the Building Act committee, be sent to each member of the various bodies referred to.

TEAK GROWING IN INDIA.

THE annual report of the Bombay Forest Department, which has just been issued, deals with the administrative year 1903-4, and is therefore somewhat belated. It must be recognised, however, that exceptional difficulty probably exists in procuring forest returns. Interest in the Bombay forests largely centres in Kanara, and it is therefore natural to turn first to the report dealing with the Southern Circle. This was compiled last year by Mr. Hugh Murray, who was in charge of the Circle. Mr. Murray very rightly emphasises the great importance of the Kanara forests as being the only forests in the Bombay Presidency capable of producing timber of large scantling in any appreciable quantity. He declares that the rise in the price of imported teak in Bombay, which proceeds from a steadily increasing demand for timber, is reacting most favourably on the sales in the Southern Circle. Moreover, it is tending to stimulate the demand for the cheaper and hitherto little-used timbers of the commonest species which abound in the Kanara forests. But he accompanies this agreeable information with a serious warning. Though the present yield is still far below full possibilities, he holds that unless the question of reproduction receives more attention than it has done in the past increased exportation must lead to subsequent disaster. The divisional officers, Mr. Murray asserts, have very little time to devote themselves to sylviculture. The reasons he assigns are the undue size of the existing divisions and the overwhelming amount of commercial

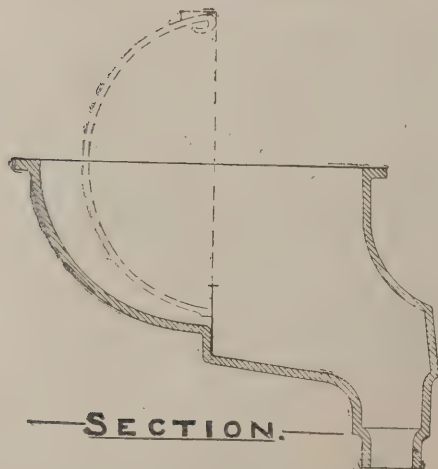
business, departmental work and general protection which absorbs the attention of the officers. One of the other points he complains of is that nothing is done to increase the low proportion of teak among the present growing stock, or to extend the area of teak-producing forests. The Kanara forests are a valuable property and ought to be wisely and profitably exploited. Even as it is, the financial results in the Southern Circle appear to be very satisfactory. There is a revenue of $13\frac{1}{2}$ lakhs as against an average of about 12 lakhs during the five preceding years, and the surplus amounts to nearly $5\frac{1}{2}$ lakhs. It is gratifying to note that the improvement in the prices is held, among other things, to indicate a return of agricultural prosperity. The total number of forest offences in the Circle was 3,988, which represents a material increase. Both Mr. Murray and the Commissioner of the Southern Division agree, however, that these figures are of no practical value as an indication of the actual amount of forest crime, which is probably very much larger. It is pointed out that subordinate magistrates do not seem to be aware of the necessity of passing adequate and deterrent sentences. The Central Circle of the Presidency was worked as usual at a loss, but the balance on the wrong side has been materially reduced, and last year only amounted to 72,000 rs. Here again it is complained that magistrates do not inflict sufficiently deterrent sentences upon people brought before them for setting fire to the forests. The Northern Circle shows a surplus of over two and a quarter lakhs, being an increase of nearly a lakh as compared with the previous year. The increase appears to be mainly due to a brisker demand for timber and firewood, and was achieved in spite of the fact that expenditure was somewhat larger than usual. Mr. Atkins, the Commissioner of the Northern Division, in reviewing the report, draws special attention to the importance of tracing and maintaining fire paths through the forests. In his belief forest fires are more often due to carelessness than to malicious acts. The jungle tribes obviously cannot be prevented from smoking, and it is to the half-consumed "bidee" that many outbreaks are due. "The important thing," says Mr. Atkins, "is to prevent the fires by fire paths from spreading so rapidly during the night that the measures for extinguishing them taken at daybreak will come too late."

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WALES.

For the erection of two ward pavilions, observation pavilion, administrative block, laundry and disinfecting block, discharge block and caretaker's cottage, Merthyr Tydfil, for the Merthyr Tydfil Urban District Council. Mr. THOS. E. HARVEY, A.M.I.C.E., architect. Quantities by Mr. E. A. JOHNSON, F.R.I.B.A., Merthyr Tydfil.

Williams	£18,221	10	0
Allen	17,500	0	0
Lattey & Co.	17,216	1	2
Jones Bros.	17,215	15	6
Davies	16,935	0	0
Brown	16,923	19	6
Thomas	16,498	10	0
Shepton	15,900	0	0
Lewis	15,827	0	0
Watts	15,226	13	11
Jones	14,900	0	0
Davies	14,450	0	0
Bowers	13,980	0	0
Thomas	13,900	0	0
JOHN LINTON, Newport (accepted)	13,403	12	2

For erecting a school at Hope, for the Flintshire County Council. Mr. S. EVANS, county surveyor and architect.

Samuel	£4,800	0	0
White & Co.	4,652	13	4
Higgins	4,260	0	0
J. E. & A. Whitehouse	4,207	12	7
Wycherley	4,189	0	0
Edwards	3,950	0	0
Parker Bros.	3,873	0	0
Mayers	3,838	0	0
Peters	3,750	0	0
Mills	3,708	7	8
Probert	3,630	6	0
Challiner	3,596	0	0
Kelly & Bros.	3,521	0	0
Wright & Sons	3,515	0	0
Blane	3,500	0	0
R. WILLIAMS, Brymbo (accepted)	3,300	0	0

WALES—continued.

For a surgery and dwelling-house to be built at Park Place, Tredegar. Mr. W. S. WILLIAMS, architect, Tredegar.

Davies	£1,028	18	7
Edwards	1,017	0	0
Vaughan	996	0	0
J. NEWCOMBE, Park Road, Tredegar (accepted)	990	0	0

For the erection of a mixed and infants' school at Cwmcuffin, Llanhilleth, Mon. Messrs. SWASH & BAIN, architects, Newport, Mon.

D. LEWIS, Llanhilleth (accepted)	£8,800	0	0
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For erecting county office extension, Mold, for the Flintshire County Council. Mr. S. EVANS, county surveyor and architect.

Jones	£3,520	0	0
Probert	3,049	10	6
Edwards	2,995	0	0
Rogers	2,961	8	0
Williams	2,693	19	4
Parker Bros.	2,675	0	0
Mayers & Sons	2,647	0	0
Wright & Sons	2,490	0	0
ROBERTS, Mold (accepted)	2,234	8	6

For new chapel, lecture-room, classrooms, &c., Glanadda, Bangor. Messrs. RICHARD DAVIES & SONS, architects, Bangor.

J. M. Jones	£4,823	0	0
W. Williams	4,674	0	0
E. Jones	4,400	0	0
W. Jones	3,604	0	0
R. Jones	3,575	0	0
R. & J. WILLIAMS, Upper Bangor (accepted)	3,404	0	0

For addition to premises of the Cardiff Pure Ice and Cold Storage Company, Newport. Mr. W. M. CORBETT, architect, Cardiff.

Jordan	£13,781	0	0
Knox & Wells	9,398	0	0
Partridge	9,349	0	0
Charles	9,215	0	0

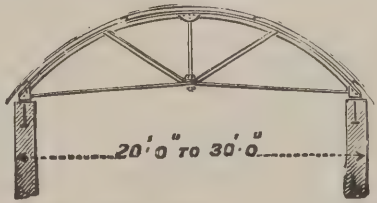
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WALES—continued.

For erecting a Congregational chapel at Llantwit Major.

Messrs. Cook & Edwards, architects, Bridgend.

Gaylard	£1,586	0	0
Price Bros.	1,498	0	0
Lloyd & Tape	1,466	8	0
Cooksley	1,400	0	0
Lloyd	1,389	0	0
Knox & Wells	1,379	0	0
CHATTERTON, Llantwit Major (accepted)	1,373	13	3
Preece	1,340	5	0
Jones	1,313	6	6

WELLS.

For providing and laying about 10 miles of 3-inch and 2-inch cast-iron mains, together with valves, meters, hydrants and service connections, and the construction of a concrete service reservoir, to contain 25,000 gallons, for the parish of Baltonsborough. Mr. WILLIAM PHELPS, engineer.

Langley & Westmoreland	£5,958	10	0
Dunthorn	5,413	7	1
Perkins & Son	5,395	0	0
Bevan & Co.	4,763	11	4
Firth & Co.	4,749	9	0
Wilkins & Son	4,676	0	0
Wood	4,618	17	5
Jameson & Son	4,446	15	8
Jenkins & Son	4,410	11	8
Meredith Bros.	4,394	13	0
Ambrose	4,337	19	7
Rowell & Sons	4,318	16	4
Clay Cross Co.	4,286	11	5
Osman	4,242	0	0
Banfield	4,045	7	1
Ball & Co.	4,044	12	2
Rutter & Son	3,935	13	5
Smith & Marchant	3,734	6	6
Wright & Son	3,720	16	5
Jesty & Baker	3,649	6	5
Woodward & Co.	3,602	9	4
Evered, Smith & Co.	3,583	12	5
Collingwood.	3,394	11	3

WHITCHURCH.

For the erection of Wesleyan chapel at Lightwood Green.

Mr. J. H. PICKARD, architect, Whitchurch.

Harding	£1,035	18	2
Dodd & Son	990	0	0
Manley	969	10	0
Edge	963	10	0
Stretton & Gibson	930	17	0
Kendall	864	0	6
CHESTERS & HOLLAND, Whitchurch (accepted)	845	0	0

WIDNES.

For enlargement of West Bank Council school. Mr. F. U. HOLME, architect, Liverpool.

Webster	£597	0	0
Davonport	590	0	0
Crake	586	0	0
Hall & Son	581	10	0
Holme & Green	575	0	0
Jones	565	0	0
Gerrard & Sons	563	0	0
Beech	555	0	0
Penney	553	0	0
Tyson	546	0	0
Podmore	545	0	0
Duthie & Dobson	531	0	0
Lucas & Son	529	10	0
Parker & Son	529	10	0
Rothwell & Sons	526	0	0
J. & E. Rimmer	512	0	0
J. MERCER, Ditton (accepted)	498	0	0

WILLESDEN.

For the erection of caretaker's quarters on site adjoining the magistrates' courts.

Bye	£540	10	6
Parker	495	0	0
Stewart	458	0	0
Christie	417	0	0
Godson & Sons	415	0	0
Aldridge & Son	405	0	0
Mather	378	0	0
SYCAMORE WORKS, LTD. (accepted)	346	0	0

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HEGGARTY & GAULT, Ballymena (*accepted*) . £5,657 16 11

MAIDSTONE.

For making-up Salisbury Road. Mr. T. F. BUNTING, surveyor.

Jesse Ellis & Co., Ltd. £252 6 10
W. T. BURROWS (*accepted*) 172 2 0

For making-up part of King Edward Road.

Jesse Ellis & Co., Ltd. £402 1 3
W. T. Burrows 329 14 0
CLARK & EPPS (*accepted*) 295 0 0

MANCHESTER.

For foundations of the new infirmary at Stanley Grove. Messrs. E. T. HALL & BROOKE, architects.

HAROLD, ARNOLD & SON, Leeds and Doncaster (*accepted*) . £26,360 0 0
There were nine tenders.

TRADE NOTES.

THE Penistone and District isolation hospital is being warmed and ventilated by means of Shorland's patent Manchester stoves and Manchester grates.

MESSRS. JOHN SMITH & SONS, Midland Clock Works, Derby, have just received an order for a large clock for Whittlesford Church, near Cambridge. It is to strike the hours, chime the quarters, and show time on one dial.

THE Kent education committee are prepared to receive designs, illustrations and specifications of fixed and movable partitions for dividing schoolrooms. Full particulars must be submitted not later than April 29 to Mr. F. W. Cook, 44 Bedford Row, London, W.C.

NEW CATALOGUE.

THE new catalogue of Messrs. C. C. Dunkerley & Co., Ltd., Manchester, suggests the remarkable variety of iron and steel sections, with girders and stanchions, which are to be found in their great warehouse in Store Street. From large-built girders to hoop-iron, the steel trade may be said to be represented in their premises, and the load upon the ground must be difficult to sustain. The catalogue gives sizes and weights and a table of safe loads, which are taken at one-fourth the breaking strain for girders and one-fifth for stanchions. It is a complete manual for those who use iron and steel and is of a convenient size.

MR. FRANK E. CAWS, of Sunderland, architect and civil engineer, died on Saturday last in his fifty-fifth year.

THE Shanghai Municipal Council have decided to inquire into the question of overhead wires with a view to ascertaining, for the information of the public, that every reasonable precaution is being observed for the protection of life in the public streets in connection with the electric tramways to be introduced there.

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HARDENS.

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SIDE, DRIES IN ABOUT
15 HOURS ACCORDING TO
WEATHER.

ELECTRIC NOTES.

THE Hammersmith Borough Council have been informed that a profit of 5,919% has been made on the past year's working of the municipal electric-light scheme.

THE Sheffield Electrical Contractors' Association attended a recent meeting of the electric-light committee of the City Council, and protested against the Corporation undertaking wiring work and furnishing fittings. It is stated the prices at which the work is done must involve the department in a loss. The committee promised to consider the specific instances mentioned by the deputation.

THE recent fatal accidents from touching the live rail not having proved a sufficient warning to prevent people from crossing the electric railway line near Southport, to their own great danger, three youths were on Monday fined 5s. and costs each for trespassing on the Lancashire and Yorkshire Railway, and the magistrates intimated that future cases would be severely dealt with.

FOR the past three years the Croydon tramways have been worked under lease from the Corporation by the British Electric Traction Company, Ltd. During the last three years of the old horse cars 10,000,000 passengers were carried, but during the three years of the electrified system 40,000,000 have been carried. In the last twelve months the population of Croydon, about 145,000, has been carried almost one hundred times over.

THE Corporation of Greenock and the tramway company have agreed on a revised scale of rates for electricity for the next five years, subject to certain conditions on the eve of settlement. The rates are as follows:—First 500,000 units at $1\frac{1}{2}d.$ per unit, next 200,000 units at $1\frac{1}{4}d.$ per unit, then 200,000 units at $1d.$, and anything further at $.85d.$ per unit. The revenue from these rates is expected to amount to about 5,000*l.* per annum.

THE Glasgow Town Council at their meeting on the 6th inst. considered the following telegram from the Mayor of Chicago:—"Chicago, the first great city in America, following the lead of Glasgow, declares for municipalisation of street cars by 25,000 majority. Will you give the manager of your municipal tramways a vacation of thirty days to visit Chicago to confer with me? All expenses, first-class

travelling and hotel bills, will be paid by me. Answer.—"The request is to be granted.

A MANIFESTO published by the Democrats in connection with the mayoral election in Chicago includes the following:—"We fully believe in municipal ownership and operation of gas plants, electric-light plants and telephone systems, and demand from the Legislature that they give the city all reasonable and necessary power to carry out this policy. And especially we ask that the present Legislature immediately authorise the city of Chicago to sell electric light to private consumers, thus enabling the city to extend its present electric-lighting plant and furnish light at a reasonable price to private consumers."

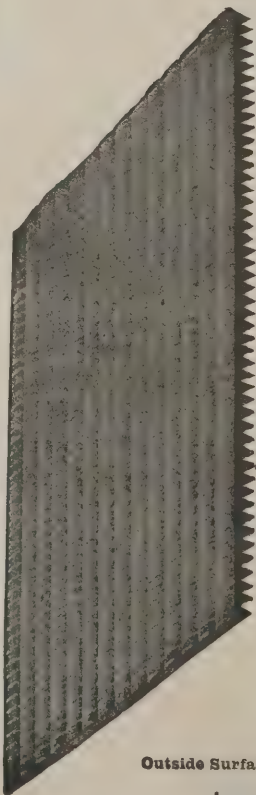
AN inquiry has been held at Norwich into an application by the Town Council for a loan of 30,000*l.* for the purposes of their electric-light undertaking. The undertaking was acquired in 1903. In the course of the inquiry Mr. H. Ross Hooper, the Local Government Board inspector, said that when the Corporation purchased they were purchasing machinery which was out of date, machines which were not economical to work. He (the Inspector) wanted to see the report on which the Corporation bought. This concern was purchased at an expenditure of nearly a quarter of a million, and it included machines which were of no value.

THE South Shields Town Council on Monday awarded the contracts for the construction of the permanent way and track of the new tramways. The total amount was 56,000*l.* The tender of Messrs. William Underwood & Brother, Dukinfield, amounting to 42,903*l.*, was accepted for the same work. The tender of the same firm for the construction of copper rail bonds and the bonding of tramways (Part 2) for 770*l.* was also accepted. The tender of Messrs. Dick, Kerr & Co., London, amounting to 2,695*l.*, for generators, of Messrs. J. & H. McLaren, of Leeds, for engines, amounting to 3,400*l.*, was accepted.

THE annual accounts of the Leeds municipal electric tramways have been presented. The number of fares paid was 64,223,666, an increase of 3,484,432 on the preceding year. Very little extra miles of lines came into use during the year, the only extensions being in a few suburbs. The receipts amount to about 295,000*l.*, or 17,000*l.* more than during the previous twelve months. There has been an

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Advertisements for Tenders, Building Land, Situations Vacant or Wanted, &c., can be left at those Offices, and copies of "The Architect," "Builders' Reporter," and other publications of Messrs. GILBERT WOOD & CO. can be obtained as early as at the City Office, Imperial Buildings, Ludgate Circus, E.C.

EDITORIAL NOTICES.

In view of the many difficulties which are certain to arise in connection with the law, practice rules and procedure under the Workmen's Compensation Act, we have added to our staff A VERY EMINENT BARRISTER, who has made the subject a special study, and will be glad to answer in the columns of this paper any questions relating to the complicated matters arising from the provisions of this difficult Act. Our LEGAL ADVISER will further answer any legal question that may be of interest to our readers. All letters must be addressed "LEGAL ADVISER," Office of "The Architect," Imperial Buildings, Ludgate Circus, London, E.C.

The Editor will be glad to receive from Architects in London and the Provinces results of Competitions and Tenders and other particulars of Works in progress in which they may be interested.

The authors of signed articles and papers read in public must necessarily be held responsible for their contents.

No communication can be inserted unless authenticated by the name and address of the writer—not in every case for publication, but as a guarantee of good faith.

Correspondents are requested to make their communications as brief as possible. The space we can devote to Correspondence will not usually permit our inserting lengthy communications.

TENDERS, ETC.

*** As great disappointment is frequently expressed at the non-appearance of Contracts Open, Tenders, &c., it is particularly requested that information of this description be forwarded to the Office, Imperial Buildings, Ludgate Circus, London, E.C., not later than 2 P.M. on Thursdays.*

REPLY TO LEGAL QUERIES.

DITCH (W. T. T.).—Your letter was unaccountably mislaid. You can certainly clear the ditch of the thorns, it being yours and on your land.

CONTRACT (Infant).—An infant may be restrained by injunction from committing a breach of agreement for service beneficial to himself.

COMPETITIONS OPEN.

HARROGATE.—May 24.—For proposed Primitive Methodist orphanage at Harrogate. Conditions may be obtained from Rev. J. T. Barkby, Riche Mont, Harrogate.

HIGH WYCOMBE.—May 31.—Secondary school, accommodation for 175 pupils. No premium offered. Mr. T. J. Rushbrooke, borough surveyor, 77 Easton Street, High Wycombe.

KING'S NORTON.—April 26.—For the erection of a public library in Church Hill, King's Norton.—Architects must be resident in King's Norton or practising in Birmingham. Particulars may be obtained from Mr. A. W. Cross, surveyor, 10 Newhall Street, Birmingham.

RADCLIFFE.—April 29.—For the erection of a free public library. Premiums of 50*l.*, 30*l.* and 20*l.* will be awarded. General conditions and instructions, with an outline plan of site, may be obtained from Mr. S. Mills, clerk, Council Offices, Radcliffe, Manchester.

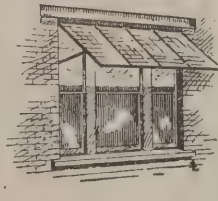
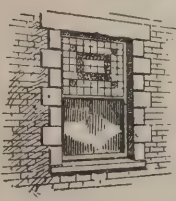
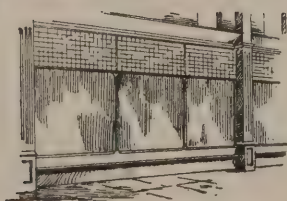
ROCHESTER.—May 15.—For the erection of a municipal technical institute at Rochester. Three premiums of 50, 20 and 10 guineas will be awarded. Copies of the instructions and a plan of the site can be had from Mr. W. Banks, surveyor, Guildhall, Rochester.

CONTRACTS OPEN.

ALNWICK.—April 22.—For taking-down and re-erecting Little Mill bridge, for the Alnwick Rural District Council, Mr. H. W. Walton, clerk, Fenkle Street, Alnwick.

ASKAM-IN-FURNESS.—April 24.—For erecting a manager's house, weigh-office and other buildings at the Askam-in-Furness Gasworks. The Council Buildings, Station Road, Dalton-in-Furness.

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BARROW-IN-FURNESS.—May 15.—For the construction of a steel road bridge over the Walney Channel, uniting Barrow Island and Walney Island; the bridge will consist of eight fixed girder spans and one opening span, on cylinder foundations. Sir Benjamin Baker, 2 Queen Square Place, Queen Anne's Mansions, Westminster.

BARRY.—May 1.—For the erection of a new girls' school to accommodate 398, together with a caretaker's house, cookery kitchen, and manual instruction-room, at High Street, for the Barry Urban District Council. Mr. G. A. Birkenhead, architect, Caledonian Chambers, Cardiff, and 101 Holton Road, Barry. Mr. T. B. Tordoff, clerk, Barry.

BATLEY.—April 25.—For the erection and completion of four houses, outbuildings and boundary walls in Snowden Street. Mr. John H. Brearley, architect, Batley.

BELFAST.—April 24.—For the erection of pump-house, quay walls, &c., in connection with the generating station for the tramways and electricity committee.

BELFAST.—April 27.—For the erection of a library in the Oldpark Road. Messrs. Graeme-Watt & Tulloch, 77A Victoria Street.

BOSTON.—April 29.—For erection of a new infirmary, laundry, boiler-house and mortuary at the workhouse, Boston, Lincs. Mr. James Rowell, architect, Church Lane, Boston.

BRIDGEND.—May 1.—For the erection of two shops and dwelling-houses at Wyndham Street, Bridgend. Mr. P. J. Thomas, architect and surveyor, Bridgend.

BURNLEY.—April 29.—For the erection and completion of a new church on the site of the present iron church in Briercliffe Road. Messrs. Haywood & Harrison, architects, Accrington.

CHEPSTOW.—April 24.—For alterations and additions to the National schools, Chepstow. Mr. W. H. Dashwood Caple, architect, Church Street Chambers, Cardiff.

DENTON.—May 1.—For two houses, Manchester Road, Denton, Lanes. Mr. Ernest Woodhouse, architect, 88 Morley Street, Manchester.

DONCASTER.—May 1.—For the erection of new Baptist church. Messrs. John Wills & Sons, architects, Derby.

DUBLIN.—May 15.—For the erection of an electric generating station. Mr. John P. Griffiths, engineer to the Dublin Port and Docks Board, East Wall, Dublin.

DUNDALK.—April 28.—For altering and enlarging the Greenore Railway Saloon, Quay Street, Dundalk. Mr. John F. McGahon, architect, Roden Place, Dundalk.

GATESHEAD.—April 27.—For the erection of stables at Tyne Road East. Mr. N. Percy Pattinson, borough surveyor, Town Hall, Gateshead.

IRELAND.—April 29.—For the erection of warehouse and shop, for Messrs. Joseph Revington & Sons, The Mall, Tralee. Mr. Robt. Fogerty, architect, Limerick.

KEIGHLEY.—April 28.—For Wesleyan Sunday schools, Temple Street, Keighley. Mr. Wilson Bailey, architect, Tanfield Buildings, Bradford.

LONDON.—April 25.—For the construction of conveniences and a caretaker's lodge at the playground, Morton Road, N. Mr. J. Patten Barber, borough engineer, Town Hall, Upper Street, N.

LONDON.—April 25.—For the erection of a building for stores at the rear of the town hall, Edmonton. Mr. Henry W. Dobb, architect, Town Hall. Mr. William Francis Payne, clerk.

LONDON.—May 11.—For an iron emergency staircase at New Beckton school, East Ham. Mr. R. L. Curtis, 11 and 12 Finsbury Square, E.C.

LONDON.—May 15.—For the erection of a disinfecting station for the Kensington Royal Borough Council, excluding machinery and apparatus. Mr. William Weaver, borough engineer. Mr. William Chambers Leete, town clerk.

MACCLESFIELD.—May 1.—For the erection of new boundary walls at the workhouse, Macclesfield. Mr. Jabez Wright, architect, King Edward Street, Macclesfield.

MANCHESTER.—May 3.—For alterations and extensions of infirm wards at the Withington workhouse. Messrs. Charles Clegg & Sons, architects, Manchester. Mr. David S. Bloomfield, clerk.

NEWCASTLE-UNDER-LYME.—April 26.—For the erection of the King's Memorial Baths, Brunswick Street. Mr. J. B. Langley, architect, 49 Deansgate, Manchester.

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NORTH SHIELDS.—April 22.—For the conversion of the Union British schools, Norfolk Street, North Shields, into fire-station, &c. Mr. John F. Smillie, borough surveyor, Tynemouth.

REDRUTH.—May 1.—For additions and improvements to the Druids' Hall, Redruth. Mr. Horace W. Collins, architect, Clinton Road, Redruth.

ROCHDALE.—April 25.—For the erection of conveniences for ladies and gentlemen, and the reroofing of a portion of the mansion at Falinge Park. Mr. S. S. S. Platt, borough surveyor, Town Hall, Rochdale.

SALISBURY.—May 3.—For erection of a new post office at Salisbury, for the Commissioners of H.M. Works and Public Buildings. The Secretary, H.M. Office of Works, &c., Storey's Gate, London.

SCOTLAND.—May 1.—For the erection of a timber and concrete pier, buoy, coal and ship stores, dwelling-house, &c., at Oban. Mr. D. A. Stevenson, engineer to the Board, 84 George Street, Edinburgh.

SETTLE.—April 25.—For the construction of a covered concrete service reservoir to contain 66,000 gallons, collecting well, catch-water drains, conduit, straining chamber, valve wells, excavating trench for, laying and jointing of cast-iron water-mains, building break-pressure tank and laying service pipes, &c., in the township of Benthams. Mr. T. A. Foxcroft, engineer and surveyor, Town Hall, Settle.

SHEFFIELD.—May 2.—For works required in connection with the erection of refuse destructor at Primrose Meadows, Heeley:—(1) Excavator, bricklayer and mason; (2) carpenter and joiner; (3) ironfounder; (4) slater; (5) plumber and glazier; (6) painter. Mr. Chas. F. Wike, C.E., city surveyor, Town Hall, Sheffield.

SILLOTH.—April 24.—For alteration to the Balmoral hotel, Silloth, Cumberland. Mr. George Armstrong, architect, 24 Bank Street, Carlisle.

SOUTHEND-ON-SEA.—April 27.—For the erection of a public library in Victoria Avenue, Southend-on-Sea. Mr. William H. Snow, town clerk, Southend-on-Sea.

STANFORD.—May 1.—For the rebuilding of the superstructure of Stanford bridge, having a span of about 98 feet

over the river Teme, in the parishes of Stanford and Shelsley Kings. Mr. J. H. Garrett, bridge warden, Shire-hall, Worcester.

STOCKPORT.—May 1.—For the erection of the Chestergate new schools in Hardman Street, Chestergate. Messrs. Cheers & Smith, architects, Blackburn.

SUTTON.—April 28.—For the erection of a telephone exchange, for the Commissioners of H.M. Works and Public Buildings. Secretary, H.M. Office of Works, &c., Storey's Gate, London, S.W.

SWAFFHAM.—April 29.—For the erection of additional nurses' quarters in the workhouse, Swaffham, Norfolk. Mr. Louis F. Eagleton, architect, King Street, King's Lynn.

TAUNTON.—April 27.—For proposed new infirmary and detached building for servants' quarters, at Taunton school. Mr. F. W. Roberts, architect, Taunton.

THURNSCOE.—April 27.—For the erection of six new classrooms, &c., at the Thurnscoe provided school, near Rotherham. Mr. J. Vickers Edwards, county architect, by 10.30 A.M. on 27th inst.

WALES.—April 24.—For erection of a chapel and alterations to existing hall at Abercynon. Mr. Arthur Lloyd Thomas, engineer and architect, Church Street Chambers, Pontypridd.

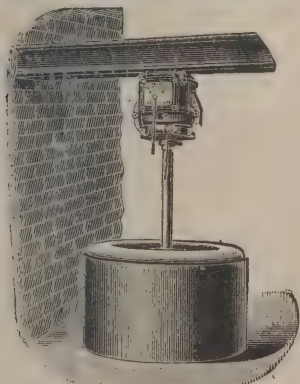
WALES.—April 25.—For erection of a residence at Aberystychan. Mr. D. J. Lougher, architect, Bank Chambers, Pontypool.

WESTBURY.—April 22.—For the erection of a residence in Lower Road, Westbury, Wilts. Mr. W. H. Stanley, architect, Market House Chambers, Trowbridge.

WINDSOR.—April 27.—For the erection of a new police and fire station in St. Leonard's Road, Windsor. Mr. E. A. Stickland, borough surveyor, Alma Road, Windsor.

THE Manchester sanitary committee recommend that the city surveyor be instructed to proceed at once with a scheme for the erection of working-class houses on a site already purchased in Hulme. The accommodation will be for 200 tenants and the cost is expected to be 29,000l.

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BROMLEY (KENT).

For the erection of the Bromley and Beckenham smallpox hospital. Mr. JOHN LADDS, architect. Quantities by Messrs. ALFRED BOXALL & SONS.

Sturry Building Co.	£14,484	3	8
Gathercole Bros.	13,784	0	0
Denny & Son	12,881	0	0
Leslie & Co.	12,832	11	3
Corben	12,233	0	0
Lowe	12,227	0	0
Lovatt & Co.	12,215	0	0
Spencer, Santo & Co.	12,172	0	0
Hyde	12,113	10	0
Ennis Bros.	11,884	0	0
Norris	11,879	0	0
Lonsdale	11,868	0	0
Knight	11,753	0	0
Perry & Co.	11,672	0	0
Parker	11,582	0	0
Podger & Son	11,580	0	0
Graty	11,397	0	0
Martin, Wells & Co.	11,380	0	0
Wallis & Sons	11,248	0	0
Oak Building Co.	11,175	4	0
J. Smith & Sons	11,163	0	0
Minter	11,006	0	0
Brightman	11,000	0	0
Kirk & Randall	10,924	0	0
W. Smith & Sons	10,823	0	0
Miskin	10,814	3	10
Jones & Andrews	10,685	14	8
Lawrence & Son	10,674	0	0
Nash	10,609	0	0
Hawkins	10,585	8	3
Somerford & Son	10,532	0	0
Sharpington	10,422	0	0
Wallis	9,822	0	5
Coles	9,815	13	7
BLAY, Dartford (accepted)	9,684	18	1

CARDIFF.

For the erection of artisans' dwellings in Canton. Mr. W. HARPUR, borough engineer.

Maggs & Co.	£3,609	0	0
Griffiths & Son	3,282	0	0
Burgess	3,050	0	0
Dunn	3,000	0	0
North & Stephens	2,974	7	5
Knox & Wells	2,750	0	0
Ransom	2,700	0	0
Morgan	2,700	0	0
Clouter	2,600	0	0
Venning	2,595	5	10
Blight	2,280	0	0
Bond	2,240	0	0
F. SMALL, Godfrey Street (accepted)	2,175	0	0
Borough engineer's estimate	2,300	0	0

COVENTRY.

For pulling-down old premises and erection of new shops, houses, &c., for the Co-operative Society. Messrs. HARRISON & HATTRELL, architects.

Wootton	£1,695	0	0
Hill	1,675	0	0
Haywood	1,674	10	0
Cleaver	1,650	0	0
Lord	1,635	0	0
Hancox & Co.	1,633	0	0
Exors. of Garlick	1,620	10	0
Kelley & Sons	1,605	10	6
Worwood	1,597	0	0
Wincott	1,595	0	0
Ault	1,569	0	0
Goode & Shaw	1,555	0	0
Bowles & Son	1,550	0	0
E. Harris	1,500	0	0
C. BLOCKLEY, Stoke (accepted)	1,442	3	3

CHESTERFIELD.

For alterations to the market hall and other works.

J. WRIGHT (accepted)	£713	1	8
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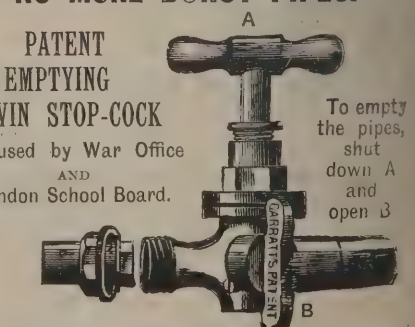
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Highfield Road sewer.

King	£118	0	0
Soan	107	15	0
J. G. PICKARD, Turner's Hill (accepted)	100	0	0
De la Warr Road.			
Pickard	435	0	0
C. & H. Gasson	427	8	0
King	393	12	0
Soan	377	4	0
H. YOUNG, East Grinstead (accepted)	355	11	0

GRIMSBY.

For lavatory at town hall. Mr. H. GILBERT WHYATT, borough engineer.

Edwards	£414	14	0
Waterman	398	0	0
Wilkinson & Houghton	385	0	0
Cook	369	5	0
Holme & Richardson	365	0	0
GILBERT & KIRTON (accepted)	337	14	6

HARBURY.

For alterations, reparation, additions and new stabling at The Hall. Mr. C. M. C. ARMSTRONG, architect, Warwick.

Bloxham	£1,903	0	0
Cashmore	1,899	0	0
Kimberley	1,875	0	0
Bowen	1,791	0	0
Smith & Son	1,687	0	0
F. Smith & Sons	1,637	0	0
Hollowell	1,625	0	0
Parnell & Son	1,624	0	0
Davis	1,579	0	0
C. HOPE, Berkswell (accepted)	1,464	0	0

GREAT YARMOUTH.

For the erection of new higher elementary schools for 820 children, for the education committee. Messrs. OLLEY & HAWARD, architects.

Eastoe	£13,697	10	0
Carter & Wright	13,499	0	0
Moore & Son	13,150	0	0
Hawes & Son	12,900	0	0
Beech	12,879	0	0
Gunns	12,449	0	0
Chastaney	12,429	0	0
Youngs & Son	12,397	0	0
Grimble	12,270	0	0
Harman	12,199	0	0
SPENCER, SANTO & Co., Felixstowe (accepted)	11,596	4	8

LONDON.

For reversing the stepped flooring in two classrooms in each department of the Gillespie Road school, Islington, so as to secure side lighting, and also for providing incandescent pendants in two rooms in the girls' department.

McCormick & Sons	£258	0	0
Grover & Son	246	0	0
Stewart	232	0	0
Peattie	232	0	0
Williams & Son	212	0	0
Stevens Bros.	209	0	0
Marchant & Hirst, 136 Highgate Road (recommended)	196	0	0

For providing and fixing a complete system of low-pressure hot-water apparatus to the twenty-one classrooms, three halls, cloak-rooms, lavatories, &c., at the Timbercroft Road school, Woolwich.

Cannon & Sons	£965	0	0
Stevens & Sons	827	0	0
Grundy	797	0	0
Brightside Foundry and Engineering Co.	699	0	0
Comyn Ching & Co.	670	10	0
Yetton & Co.	650	0	0
Wippell Bros. & Row, Exeter (recommended)	638	0	0
Macintosh & Sons	584	0	0

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Messrs. S. Henderson & Sons, Ltd., Biscuit Works, Edinburgh, write:—"A fire broke out in our factory during the dinner hour on January 18, 1905, when the May-Oatway installation (put in since our previous fire) saved a very serious loss. We now have a pleasing sense of security in having an automatic system which not only gives immediate warning to our own staff, but calls the Fire Brigade as well." Loss under £50.

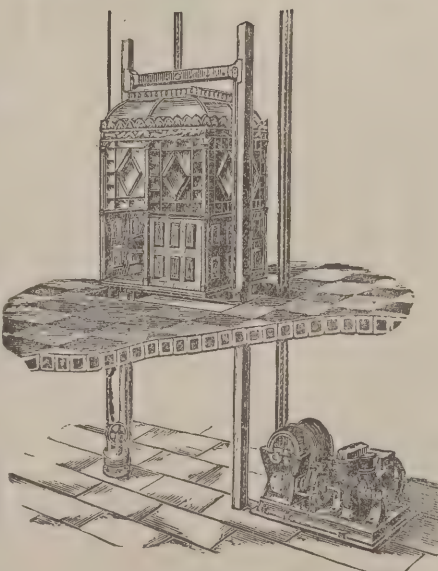
MAY-OATWAY FIRE ALARM.—Rt. Hon. Richard Seddon, P.C., Premier, writes:—"This system has been largely adopted in New Zealand, and has given the greatest satisfaction." (The Government are the largest users protecting Schools, Asylums, &c.)

Mr. H. Jenkinson, Printer, Leeds, writes:—"Fire March 16 and December 12. Both instantly signalled to Fire Station by the May-Oatway Fire Alarm, and resulting in comparatively little loss." Claims paid, £10 and £80 respectively. What have you done to limit your loss?

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LONDON—continued.

For supplying an auxiliary boiler and also for providing additional heating surface on the ground, first and second floors at the Arthur Street school, Peckham.

Yetton & Co.	£475	0	0
Grundy	397	0	0
J. & F. May	366	0	0
Cannon & Sons	359	0	0
Palowkar & Sons	313	0	0
G. & E. Bradley	307	10	0
J. Defries & Sons, Ltd., 147 Houndsditch (recommended)	306	0	0

For altering the stepped flooring in a room in each of the girls and infants' departments of the Kilburn Lane school, Paddington, W., and providing new lobbies.

Sealy	£292	0	0
Neal	286	0	0
W. R. & A. Hide	263	0	0
Polden	254	0	0
General Builders, Ltd.	247	0	0
Chinchen & Co.	244	0	0
Thompson & Beveridge	239	0	0
Heady	237	0	0
E. Triggs, 92 The Chase, Clapham (recommended)	226	0	0

For the erection of hall, classrooms, boundary walls and other works at Portobello Road school, Kensington.

C. Wall	£9,110	0	0
Chinchen & Co.	9,089	0	0
General Builders, Ltd.	8,896	0	0
Leslie & Co.	8,409	0	0
Kearley	7,827	0	0
Rice & Son	7,821	0	0
Lathey Bros.	7,815	0	0
Lawrance & Sons	7,804	0	0
Patman & Fotheringham	7,781	0	0
J. Simpson & Son	7,663	0	0
Stimpson & Co.	7,590	0	0
E. Triggs	7,580	0	0
W. Johnson & Co.	7,492	0	0
J. & M. Patrick, Wandsworth (recommended)	7,290	0	0

LONDON—continued.

For the supply of motor generators in connection with the electrical working of the London County Council Tramways.

Johnson & Phillips	£19,817	0	0
British Electric Plant Co.	18,728	0	0
British Thomson-Houston Co.	17,934	0	0
Siemens Brothers & Co.	17,415	15	0
Phoenix Dynamo Manufacturing Co.	17,187	0	0
Siemens Brothers & Co. (alternate tender)	15,986	15	0
British Westinghouse Electric and Manufacturing Co.	16,329	0	0
British Westinghouse Electric and Manufacturing Co. (alternate tender)	15,917	0	0
Brush Electrical Engineering Co.	15,590	0	0
General Electric Co.	15,491	0	0
Electric Construction Co.	14,940	0	0
Dick, Kerr & Co., Ltd., London	14,747	10	0
Electrical Co.	14,364	0	0
Dick, Kerr & Co., Ltd., London (alternate tender) (recommended)	13,660	0	0
Bruce, Peebles & Co.	12,800	0	0

(Not to specification)

For supply of electric wiring material for the Greenwich electricity generating station.

Simplex Steel Conduit Co.	£1,697	11	11
McGeoch & Co.	1,480	0	9
Edison and Swan United Electric Light Co.	1,424	16	0
Armorduct Manufacturing Co.	1,423	14	9
Verity's, Ltd. (incomplete tender)	1,144	4	0
Conduits & Fittings, Ltd., London (recommended)	1,407	0	0

For repairs and alterations to Lambeth, Westminster, Charing Cross, Waterloo, Temple, Blackfriars, All Hallows and Old Swan piers.

Shelbourne & Co.	£6,387	0	0
Westminster Construction Co.	4,596	17	10
Piper	4,158	14	7
Tilbury Contracting and Dredging Co., Ltd., Mark Lane, E.C. (recommended)	3,830	7	0

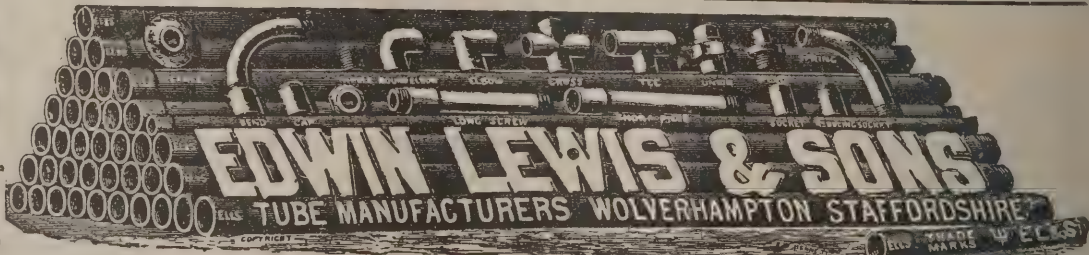
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LONDON—continued.

For adapting the deaf centre in connection with the Park Walk school, Chelsea, for use as a laundry centre.

J. & M. Patrick	£290	0	0
Hooper & Son	290	0	0
W. & C. Brown	282	0	0
Lathey Bros.	246	0	0
General Builders, Ltd.	237	0	0
Thompson & Beveridge	212	0	0
Triggs	194	0	0
S. Polden, Camden Works, Shepherd's Bush (recommended)	183	0	0

For adapting and furnishing the science-room at the Invicta Road school (Greenwich) for the purpose of a full working practical science-room.

Belcher & Co.	£357	15	0
J. & C. Bowyer	237	0	0
Downs	234	0	0
Groves	228	0	0
Smith & Sons	227	0	0
Holliday & Greenwood	212	0	0
Leng	208	0	0

J. Marsland & Sons, 1 York Street, Walworth (recommended).

For painting exteriors of undermentioned schools for County Council:—

Ethelburga Street, Battersea.

W. & C. Brown	£269	0	0
Lole & Co.	187	0	0
Bulled & Co.	165	0	0
Johnson & Co., Ltd.	153	0	0
Lathey Bros.	131	0	0
Gurling	129	0	0
Garrett & Son	125	0	0
E. TRIGGS, 92 The Chase, Clapham (accepted)	109	0	0

Ann Street, Finsbury.

Lole & Co.	£465	0	0
Green	338	0	0
Bouneau	286	10	0
Vigor & Co.	280	0	0
Chappell	280	0	0
STEVENS BROS., Yonge Park (accepted)	279	0	0

LONDON—continued.

Southampton Street, Camberwell.

Line	£211	0	0
Holloway	196	0	0
Smith & Son	191	0	0
King & Son	188	0	0
Banks	149	17	6
Sayer & Son	148	0	0
Brittain	148	0	0
J. APPLEBY & SONS, Cornwall Works, Lambeth (accepted)	140	0	0

Chequer Street, Finsbury.

Martin	£265	0	0
Haydon & Son	223	2	0
Bouneau	214	12	0
Stevens Bros.	186	0	0
Chappell	185	0	0
Vigor & Co.	182	10	0
A. W. DERBY, 60 Mayfair Avenue, Ilford (accepted)	164	0	0

Detmold Road, Hackney.

Shurmur & Sons, Ltd.	£162	0	0
Unsigned	146	10	0
Woollaston & Co.	135	0	0
Stevens Bros.	135	0	0
Willmott	126	0	0
Barrett & Power	126	0	0
Munday & Sons	118	0	0
J. STEWART, 174 West Green Road (accepted)	116	10	0

Richard Street, Islington.

McCormick & Son	£212	0	0
Porter	202	0	0
Kirby	193	0	0
Patman & Fotheringham, Ltd.	192	5	0
Stevens Bros.	172	0	0
Barrett & Power	160	0	0
Harris & Co., Ltd.	159	0	0
Marchant & Hirst	154	0	0
F. T. CHINCHEN & Co., Kensal Green (accepted)	140	0	0

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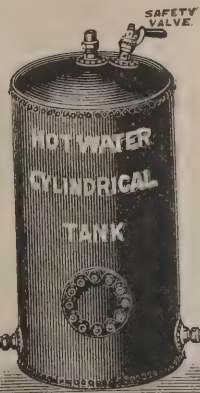
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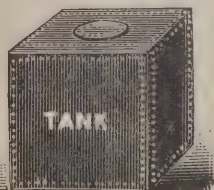
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LONDON—continued.*Hindle Street, Hackney.*

Woollaston Bros.	£218	0	0
Unsigned	189	10	0
Willmott	175	0	0
Grover & Son	168	0	0
Haydon & Sons	148	8	0
BARRETT & POWER, St. Thomas's Works, Hackney (accepted)	120	0	0

Berger Road, Hackney.

Sheffield	£209	0	0
Symes	164	0	0
Shurmur & Sons, Ltd.	147	10	0
Stewart	136	15	0
Unsigned	133	0	0
Derby	130	0	0
BARRETT & POWER, St. Thomas's Works, Hackney (accepted)	115	0	0

Netherwood Street, Hampstead.

Eady	£231	0	0
Peattie	187	5	0
Chidley & Co., Ltd.	170	0	0
Chappell	155	0	0
GENERAL BUILDERS, LTD., Wharf Road, Notting Hill (accepted)	155	0	0
Chinchen & Co.	147	0	0

Lower Chapman Street, St. George-in-the-East.

Sheffield	£325	0	0
Symes	218	0	0
Derby	211	0	0
Munday & Sons	204	0	0
Haydon & Sons	202	12	0
VIGOR & Co., King Street, Poplar (accepted)	178	0	0

Frogmore, Wandsworth.

Read	£79	0	0
Jewell	70	0	0
Hudson Brothers	63	0	0
Tucker	54	0	0
Rice & Son	49	0	0
C. GURLING, 36 Ethelburga Street (accepted)	39	15	0

LONDON—continued.*Rosebery Avenue, Holborn.*

Hornett	£230	0	0
Leng	168	0	0
Holloway Bros. (London), Ltd.	165	0	0
Peattie	155	13	0
Sims	131	0	0
Green	123	0	0
F. T. CHINCHEN & Co., Kensal Green (ac- cepted)	99	10	0

Thornhill Road, Islington.

McCormick & Son	£180	0	0
Williams & Son	164	0	0
Patman & Fotheringham, Ltd.	158	10	0
Kirby	153	0	0
Stevens Bros.	139	10	0
Harris & Co., Ltd.	137	0	0
Marchant & Hirst	135	0	0
J. GROVER & SON, Wilton Works, Islington (accepted)	108	0	0

Beresford Street, Newington.

Hornett	£397	0	0
Williams	317	10	0
Smith & Son	305	0	0
Goad	280	0	0
Greenwood, Ltd.	278	0	0
Appleby & Sons	277	0	0
Maxwell Bros., Ltd.	268	0	0
W. SAYER & SON, 86 New Kent Road (ac- cepted)	258	10	0

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setts. Mr. W. J. ROBINSON, city surveyor.

J. & W. Stewart	£7,077	9	6
Workman & Co.	6,233	12	6
Colhoun	5,922	18	9
J. & J. Ballantine	5,862	16	4
Stark & Sons	5,588	10	0
Starkey	5,449	9	6
J. MULLAN, Glasgow (accepted)	4,959	4	11
Wilson	4,919	4	2

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10 HOURS, and GRADUALLY
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SIDE, DRIES IN ABOUT
15 HOURS ACCORDING TO
WEATHER.**

measure 20 feet by 10 feet. It is intended to display Hall's distemper, a material which is familiar to all concerned in building, as well as the Sisso white japan. The interior is fitted up as a modern drawing-room. The walls are decorated in Hall's distemper of a delicate heliotrope shade pattern No. 61 in their shade book). A picture rail, skirting and panelling show the particularly brilliant, hard and lustrous surface of their white enamel. The frieze is treated in stencil with a charming original design of tree decoration, incorporating several colours of Hall's distemper, so as to emphasise how easily this material lends itself to rapid and



effective manipulation of even the most elaborate designs in stencil work. The *tout ensemble* of the interior of the stand is a very pleasing example of that form of interior decoration which is coming so much into vogue in these days. The front elevation shows a frieze with plastered festoons distempered white on a delicate cream background. The lower walls are also covered with Hall's distemper in a delicate green shade. The wall on the left side of the stand is covered with art canvas distempered and with a landscape frieze in varied colours. The exterior woodwork is treated with Sisso white japan. The stand is ingenious and has been carried out cleverly.

Messrs. Samuel Elliott & Sons, Ltd., will display their mouldings, which are all of good contours and smoothly cut, as well as a large amount of joinery. Their work shows

that no foreign importations can surpass English productions.

Messrs. L. Lewis & Co. again bring before the eyes of the public materials of which builders have approved. Their damp-course resists pressure as well as damp; their roofing felt removes many inconveniences, and their special slaters' felt serves similar purposes under other conditions.

Messrs. H. & F. Bonten's, Ltd., collection of wrought-iron sections and mouldings is to be more numerous than is usually seen. What adds to the interest is that we can see by means of full-sized examples how they can be combined to form shop-fronts, doors, door frames, gates, including ornamented collapsible gates, railings, enclosures, brackets, scrolls, pillars, columns, girder and joist encasings, cornices, and a great variety of ornaments, &c. Students of construction will find an advantage in studying the examples, for they will enable them to realise the numerous advantages which iron offers in general construction.

In one respect the most interesting stall in the exhibition will be that of Messrs. James Austin & Sons, Ltd. For 130 years the manufacture of sash lines and other kinds of ropes used in building has been carried on by the firm. No other exhibitor in the hall can claim to retain so long a hold upon the building trade. We often hear it said that the rope-maker's craft has suffered like others, but Messrs. Austin can defy such criticism, for their products have withstood all rivalry and retain the old-fashioned tenacity of fibre.

Fashions vary in respect of paints. Sometimes a dead surface alone meets the taste of users. Of late years the preference is for an enamelled surface, which is sometimes produced by means of varnish. "Ripolin" is a paint which not only produces an enamelled surface, but one which endures, for the gloss is not of a transient kind. Its quality can be ascertained by an examination of the specimens.

The Kitchen Bath Filment Co., of 515 Queen's Road, Sheffield, will show their combination bath, sink and wash-boiler fitments. One arrangement is a bath fitted underneath a sink, the latter being of white enamelled iron secured to a hard wood frame, which lifts up when the bath is required for use. At one end is a wash boiler heated by gas, which also provides the hot water for the bath when required. Another fitment is shown in combination with

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one of their patent ranges, whereby the water for the bath is heated with the ordinary kitchen fire. The bath is located underneath the sink, and when required for use turns out from one end on a pivoted and swivelled outlet. At the price these combination fittings are offered the smallest cottage need not be built without a bath. The stall is accordingly deserving of notice by all who take interest in the cottage problem.

Messrs. Barrows & Co., Ltd., of Banbury, are exhibiting an 8 nominal horse-power portable engine, a combined engine, boiler and mortar mill, a London pattern timber trolley and a 200 gallons capacity tumbler cart. The portable engine is of the makers' well-known design, having a cylinder 10 inches diameter by 13-inch stroke. The leading points claimed for it are—fewness of parts, simplicity of construction, exceptional economy of fuel and quickness in getting up steam and the lightness of draught. It is very well made; there is nothing to get out of order, and its freedom from parts and intense simplicity adapt it thoroughly for the contractor. The combined engine, boiler and mortar mill will undoubtedly be found very useful in many cases where the ordinary separate type of mill and portable engine would be out of the question. It occupies but little space, and can, therefore, be used in confined basements, &c. It can be drawn directly on to the site and set to work within an hour, and is consequently specially suited for small jobs where it is not worth the trouble and expense of fixing a separate mill and engine. The mortar pan is 6 feet diameter, of the makers' well-known under-driven type, which design they claim to be far superior to the self-delivering stationary pan, as the mortar can be taken out of a revolving pan mill in a much firmer or less sloppy state than it has to be in in order to leave a self-delivering mill, and it will be found in actual practice that a man can empty a revolving pan mill in far less time than any self-delivering mill with a pan of similar size would require to empty itself. It is fitted with hard, thick, false bottom plates in pan, heavy rollers, steel upright shaft with hardened steel toe-pieces and friction rollers under pan. The engine is of the vertical type, and so arranged as to be quite independent of the mortar mill framing, thus doing away with any chance of being thrown out of line by strains or shocks from the mill itself. The

boiler is also of the vertical type, with two cross-tubes of ample capacity to supply steam to the engine. The whole is mounted on two rolled steel joists 8 inch by 5 inch by 5 inch, connected by strong cast-iron cross-pieces, and mounted on high travelling wheels with swivelling fore-carriage. The makers claim that this machine is the most successful and most up-to-date in the market. It is, they state, exceptionally economical in fuel, and, being well designed and constructed, is capable of getting through a large amount of work. It is fitted with an extra shaft and pulley for driving a saw table or other light machine. The timber trolley is of the "London" pattern, having a body 9 feet by 4 feet 2 inches, to carry 2 tons. The wheels are fitted with patent axles. It is really a very useful trolley, and should be inspected by all builders and contractors. The tumbler cart is of 200 gallons capacity, and is provided with new improved self-balancing eccentric axle. It is specially adapted for carrying mortar or street sweepings, &c.

The *Brilliant Sign Co., Ltd.*, will have a representative collection of their letters, signs, tablets. But it is in the streets of London and of many large towns throughout this country and elsewhere that the value of the manufactures can be best appreciated. The signs can be recognised without difficulty, and they always serve the purposes for which they were intended, owing to their combination of brilliancy and definite character in the lettering.

There are other exhibitors to whose specialities we shall afterwards draw attention. But our readers will see from the foregoing remarks that the Building Trades Exhibition of 1905 will not be less interesting than those which have previously been held under the able management of Mr. H. Greville Montgomery. In our issues of April 28 and May 5 further notices will appear of the exhibition. As in former years the Proprietors of this Journal will have a particularly interesting exhibit of architects' drawings kindly lent them, which will well repay a visit. Among many other exhibits we shall refer to next week will be those of the Carron Co., Art Pavements and Decorations, Ltd., Diespeker & Co., The Adamant Co., W. Carson & Sons, Cakebread, Robey & Co., The Brilliant Sign Co., The Patent Victoria Stone Co., &c.

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A SCENIC INTERIOR.

As old Chippendale furniture, with its soft brown tints relieved by greyish blue tapestries, is always suggestive of the charm and comfort of home life, it is to a house furnished in that way that Colonel Grey and his wife are supposed to return from India in Mr. J. M. Barrie's play, "Alice Sit-by-the-Fire," at the Duke of York's Theatre. The taste and judgment of Messrs. Oetzmann, of Hamp-

NEW CATALOGUES.

MESSRS. PECKETT & SONS, Atlas Locomotive Works, Bristol, have issued an abridged list of their tank engines, which are manufactured with a special view to meet such diverse needs as those of slate quarries, brickyards and contractor's work in general. The "Cranmore" class has a tractive force of 3,124 lbs., while the "Ebbw Vale" class, for the heavy work on mineral railways or mixed-traffic lines, has



"ALICE SIT-BY-THE-FIRE."—ACT I. THE HOME COMING.

stead Road, London, W., have enabled them to give a scene which shall be comfortable without ostentation and artistic without affectation. The accompanying illustration shows Act I., "The Home Coming." A similar colour scheme of brown and blue is to be found in the second act, and altogether the stage setting is both agreeable and appropriate.

a tractive force of 20,442 lbs. Messrs. Peckett find that class 474 is a favourite with contractors. The cylinders are bolted together and are inside the frames, thereby insuring steadier running. As all the moving parts, except the coupling rods, are inside, the risk of the engine being damaged through coming in contact with obstructions by the line is minimised. The tractive force is 10,626 lbs.

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The engine will haul on a level 568 tons, and 165 tons up an incline of 1 in 50. The list is especially intended to be of assistance to possible purchasers. There are illustrations of fifteen different classes, each being accompanied by a brief description of the engine and of its capabilities. It was impossible to include the prices, as these are controlled by the fluctuations of the market. Messrs. Peckett state their willingness to give quotations for engines suitable for any gauge of railway or class of work, constructed for burning coal, wood, or oil as fuel, together with photographs and full specifications. They are prepared to give references to users of their engines all over the country. It is with legitimate pride that they say that more than half their orders are repeats from old customers, and many of the others are prompted by personal knowledge of the capabilities of the engine. One peculiarity of the locomotives is their compact appearance, which suggests their tractive efficiency.

The new catalogue of the Brilliant Sign Company, Ltd. (of which 50,000 copies are to be distributed), announces that "with the advent of 1905 the company have decided to supply the original and perfect brilliant letter to the trade unfixed, with explicit instructions and cements for fixing, at special reduced prices." This arrangement will no doubt extend the business, which has already attained a success which is remarkable. Business cannot dispense with announcements, and the catalogue shows them in a variety which is surprising. Fascias, projecting signs in several materials, and letters of every kind in demand can all be obtained from the company. The catalogue is a treatise on a class of work which is every year gaining in importance.

We have received two catalogues from Messrs. Peter Patrick & Son, Otley, Yorks; one for entrance and wicket gates, and the other for field gates, sheep-pens, stock bars and sundry farm requisites. The Wharfedale saw mills are fitted up with the best patent machinery and turn out articles which are eminently satisfactory. The general specification for large entrance gates is as follows:—3 inches thick, and posts for same 8 feet long by 8 inches by 8 inches; the wicket gates are 2½ inches thick, and posts 8 feet by 7 inches by 7 inches. The wicket gates are hung with

bands and crooks, not butt hinges. Ten designs of entrance gates in English oak are given, varying in price from 14/ to 7/ 15s. The same designs may be had in less expensive woods. In addition there are four separate designs for wicket gates which would be an attraction to any house. Messrs. Patrick & Son are ready to give quotations to anyone wishing for gates according to a particular design. The prices given include delivery at any railway station in the United Kingdom. The two catalogues will be of use to anyone requiring this class of goods, with sound workmanship and moderate prices.

VARIETIES.

It is proposed to rebuild six bridges at the port of Bristol at an estimated cost of 34,000/.

A COMBINATION infectious disease hospital for Berwickshire is to be erected near Gordon at a probable cost of about 4,000/.

THE villagers of Healing, in Lincolnshire, have been successful in their opposition to the proposed erection of a mill in the district at a cost of 100,000/.

AN international exhibition of milling and allied trades will be held in Paris, at the Galerie des Machines, from April 29 to June 4. Section 5 comprises lighting, heating and ventilation.

THE post of gas engineer and general manager to the Rotherham Borough Council has been awarded to Mr. J. S. Naylor, Rochdale Road Gasworks, Manchester. The salary attached is 500/ per annum.

AT Durham town hall an inquiry was held by Mr. A. A. Malet, inspector of the Local Government Board, into an application by the Corporation of Durham to borrow 18,615/ in connection with the new sewage-disposal scheme.

THE Scarborough Corporation have decided that 250 of the ordinary lights in the various streets should be converted into incandescent lights, and when this has been done practically half the lamps in the town will have incandescent lights. It is hoped that before long the whole of the 1,555 lights in the town will have been so converted.

INTERESTING TO ARCHITECTS.

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As there will be a largely increased sale of this journal, and the advertisement space is limited, all orders for Advertisements in this Special Number should be sent by **WEDNESDAY** afternoon next to secure insertion.

THE Hampstead Borough Council borrowed 9,477*l.* from the London County Council for purposes of wood paving. The work was carried out at less cost than was anticipated, and there was a balance left of 2,135*l.* The Borough Council have decided to ask the London County Council to accept this amount in part repayment of the loan.

THE joint committee of the County Councils of Middlesex and Surrey have decided that it will be unnecessary to build a new bridge at Kingston, and that the increased traffic in consequence of the tramways crossing the Thames will be met by increasing the width of the bridge on the Surbiton side to 55 feet. As far as possible the existing characteristic features of the bridge will be retained.

THE Heywood Town Council have authorised the preparation of plans and the obtaining of tenders for 12 bacterial filters 60 feet in diameter, a sedimentation tank and an Adams lift at the sewage works, at an estimated cost of 12,000*l.* It was anticipated that there would be no increased call on the rates on account of the expenditure, as savings would be effected in other directions.

THE Northwich education authority have been informed by a firm that not only will they pay the fees of their apprentices who are to attend the day classes in technical instruction, but they guarantee the education authority against any loss in connection with the classes for two years. Employers in Mid-Cheshire have been invited to send their apprentices to the classes, which are to be held on two half-days each week.

THE law and parliamentary committee of the Westminster City Council recommend that the London County Council be informed that, as it is very doubtful whether the revolving light on the tower at the London Coliseum is a sky sign within the meaning of the London Building Act, and having regard to the fact that the County Council approved the plans and elevation before the building was erected, the City Council does not feel justified in taking any further action in the matter.

THE Edinburgh and District Water Trust have been informed by Mr. Tait, the engineer, that after the introduction of the Talla water the Trustees would cease to have the relief they had at present from the Waterworks Clauses Act to lay on a supply of water constantly at such pressure

as would make the water reach the top storey of the highest houses within the limits. In order to effect that he proposed a number of new pipings, which were estimated to cost over 25,000*l.*

THE Croydon County Council on Saturday inaugurated their first scheme under the Housing of the Working Classes Act 1890 (Part III.). Eighty-seven houses have been erected on a site of three acres, close to Woodside station. Seven acres have yet to be built on, and the purchase of five more is contemplated. Seventy-five houses are already occupied at rentals of 6*s.* 6*d.* and 7*s.* 9*d.* per week. The cost of the present portion of the scheme is about 30,000*l.*, and the annual income, with all the houses let, is estimated at 1,655*l.*

THE Anstruther Harbour Commissioners have received a reply from the Board of Trade to a memorial asking approval for the extension and improvement of the harbour at an estimated expense of 36,000*l.* The Board of Trade, among other conditions, states that the local authority must provide two-thirds of the cost and the Exchequer one-third. This was held to be an impossible condition for Anstruther to comply with, and it was resolved to ask the Board of Trade to modify it in the circumstances of the port, and of the clamant need there was for harbour extension.

THE Sheffield Corporation have appointed a committee to present a special report to the Council, as early as possible, as to the possibility of postponing certain expenditure which the Council have already sanctioned, or been asked to undertake, during the coming financial year on capital account, and as to the desirability of limiting or otherwise the borrowing of money for the repaving of existing streets, also to report on the propriety of investing the finance committee with further powers of control over all kinds of expenditure by committees, and to make such recommendations thereon as they may deem expedient.

DRAINAGE and sewage purification works were undertaken by the Town Councils of Dumfries and Maxwelltown, following upon an inquiry regarding the pollution of the river Nith held in May 1902. The towns being divided by the river, it was considered impracticable to carry out a joint purification scheme, and independent schemes on the same lines and on plans furnished by the same engineer—Mr. W. Allan Carter, C.E., Edinburgh—have been carried

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out. That for Dumfries has been completed at a total cost of about 40,000*l.*, and is now in operation. The Maxwelltown works will when completed have cost 26,000*l.*

MR. HERRING, engineer to the Edinburgh and Leith Gas Commissioners, has prepared a report on the subject of public and private lighting in the city. He shows that public lamps with flat flame burner, using 2½ feet of gas per hour, with an illuminating power of 6¾ candles, cost at 2*s.* 5*d.* per 1,000 cubic feet, 21*s.* 4*d.* per burner per annum; using 2½ feet per burner per hour, giving 8½ candle-power, the cost is 23*s.* 9*d.* per annum; and 3 feet per burner, giving 13¼ candle-power, costs 28*s.* 6*d.* per annum. With incandescent lighting, a burner using 2 feet per hour, giving 50 candle-power illumination at the rate of 2*s.* per 1,000 cubic feet, would cost 15*s.* 8*d.* per burner per annum; a 3-feet burner, giving 90 candle-power, would cost 23*s.* 6*d.* per annum.

THE Derwent Valley Water Board have let four contracts for the iron pipes to be used for the conveyance of water to the districts to be supplied, the first and second of these contracts having been entrusted to the Staveley Coal and Iron Company, Ltd. Contract No. 1 is for about 9,000 tons of pipes, 45-inch, 27-inch and 24-inch diameter; and contract No. 2 is for 10,000 tons, chiefly 45-inch diameter, and all 12 feet long. Contract No. 3, which was for about 12,500 tons of 45-inch pipes, was secured by the Stanton Iron Company; while contract No. 4, which has just been given out, and is by far the largest of the whole, comprises no less than 31,000 tons of varied diameters, the Staveley Company being given as their proportion about 25,000 tons of the larger sizes, and the Sheepbridge Company some 6,000 tons of the smaller ones.

A BILL has been submitted for the approval of the United States Congress which provides for an annual license fee of 25 *dols.* for a master builder, who must secure his license by passing an examination before a board to be composed of two architects in active practice, two master builders, and the inspector of buildings of the district or his assistant. Each applicant shall pay 10 *dols.*, such fee to be used for the expenses of the board. Under the proposed Bill a master builder, before receiving a license, will be required to file a bond for the proper per-

formance of all work. It will be unlawful, if the Bill passes, for any unlicensed person to engage in the work of constructing or reconstructing buildings, or knowingly to employ an unlicensed person for such work. It is said that the purpose of the Bill is not to interfere in any way with minor repairs by carpenters.

THE Austrian Consul-General at Rio de Janeiro remarks in a recent report that in consequence of the enlargement and improvement of the harbour of Rio de Janeiro, the works of demolition connected therewith and the reconstruction of a number of streets, there is a large demand for iron and steel girders, cement and other materials used in building. The construction of the new docks necessitates the erection of a large number of extensive warehouses, and, moreover, hundreds of modern houses will be built in place of the old buildings. These works will soon be commenced, and although iron and steel girders have not hitherto been made use of, yet it is probable that in the new buildings these will supersede the old-fashioned wooden materials. The Consul-General adds that harbour works and various improvements are projected in other towns in Brazil, some quarters of which are about to be entirely modernised.

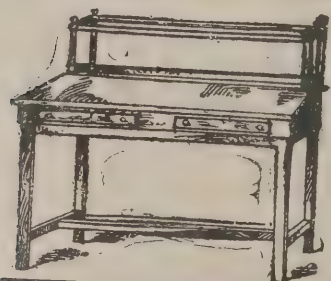
ELECTRIC NOTES.

THE sum of 2,750*l.* has been promised by the Southport electricity committee in aid of the rates, as compared with 2,500*l.* last year.

A LOCAL GOVERNMENT BOARD inquiry has been held at Sunderland into the Corporation's application for sanction to borrow 15,000*l.* for purposes of electric lighting and 9,585*l.* for street and bridge improvement. There was no opposition.

THE electric-light committee of the Southwark Borough Council received an offer from a private company to supply electric current for public street lighting at the rate of 2*d.* per unit. On the recommendation of the committee the Council decided to take no action in the matter.

THE Dunfermline Town Council have been recommended by Mr. Cohen, consulting electrical engineer, London, that they should enter into an agreement for a



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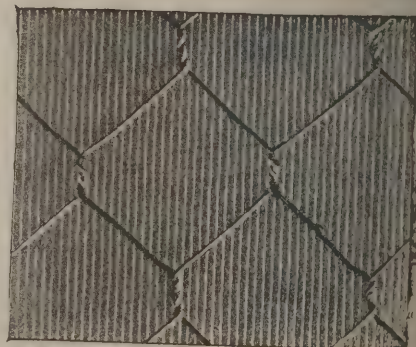
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period not exceeding five years with the Fife Electric Power Company to give a supply of electricity in bulk. It is pointed out that on expiry of the agreement the Corporation could erect a generating station if it were found that the light had been largely taken advantage of.

LEITH Town Council will have to relay the section of the tramways system from the foot of Leith Walk to Pilrig at an estimated cost of 3,000*l*. This section was relaid about four years ago at a cost of several thousand pounds, and it was hoped that the heavy rails then laid would suffice for the new system now being installed. The rails were banded for electricity, iron connections being placed between the two rails at intervals. It is now found, however, that the part of the rails on the inner side of the groove is much worn.

THE Dalkeith Town Council have sent the draft agreement concerning the proposed tramway service to the Suburban Electric Tramways, Ltd. The Council propose to retain the power to control the Sunday traffic. The proposed conditions include one that the company shall, within one year from the date of the passing of the provisional order, substantially commence the work of laying down the tramways, and within two years have the same open for the conveyance of passengers. There is a limitation that the fares shall not exceed one penny per mile, and that on workmen's cars the charge shall not be above half that rate.

BUILDING AND BUILDERS.

THE Rotherham Borough Council have approved of the plans prepared by the Corporation architect for the erection of lock-up shops with offices over the same, and for the reconstruction of the market shops and shambles at an estimated cost of 17,249*l*.

THE contract for the erection of a new Cotton Exchange in Oldhall Street, Liverpool, was on Saturday signed with the Waring-White Building Company, London. The amount was 133,000*l*, this being the lowest tender. The building is to be completed within eighteen months. The architects are Messrs. Matear & Simon, Century Buildings, North John Street, Liverpool.

THE attention of municipal authorities and consumers is called to the fact that there is reason to suspect that certain quantities of the so-called natural Portland cement from abroad have been sent out in bags bearing the names of one or other of the Irish cement works.

IN the course of extensive alterations at Panton Hall, near Market Rasen, while a number of men were hauling a roll of lead, weighing about half a ton, to the top of the building, the rope broke. The lead fell on some steps, which were demolished, and the workmen, some of whom were on the steps, had miraculous escapes, some of them receiving slight injuries.

THE Metropolitan Water Board on the 14th inst. decided that tenders be invited for the completion of the Staines reservoirs communication works in the New River district at an estimated cost of 152,400*l*. The scheme comprises an aqueduct, reservoirs and pumping machinery at Kempton, a pumping station at Cricklewood, and a reservoir at Fortis Green, the expenditure incurred up to the present amounting to nearly a million. The complete scheme was estimated to cost 1,270,000*l*, but it has been modified by reducing the size of the Fortis Green reservoir.

CARDIFF master builders have met the employees in conference in reference to the notice of the masters for a reduction of wages and an alteration of hours. The masters at the beginning of the winter gave six months' notice, in accordance with the rules, to terminate the present agreement as to wages and hours, and the notice expires on May 1. Unless the parties arrive at an agreement before that time a general lock-out will ensue. The masters ask for a reduction of $\frac{1}{2}$ d. per hour in the wages and a certain alteration in the working hours during the winter months.

AT the Liverpool Labour Council a complaint was made that joiners, painters and labourers' work had been and was still being done in connection with volunteer drill sheds by army instructors. Reference was made to one particular shed where whitewashing, painting, glass repairing and woodwork was said to have been done by instructors during the winter. These kinds of jobs have previously been done by tradesmen, generally some connected with the corps. It was resolved to write the commanding officer

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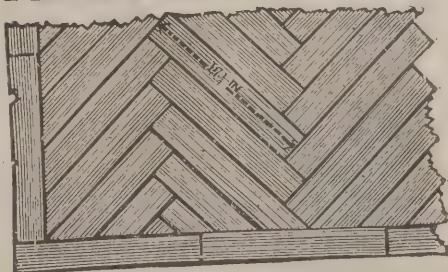
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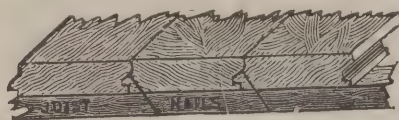
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of the corps mentioned protesting against such work being done by other than authorised tradesmen; and it was further decided that, if necessary, a similar communication be sent to the officer commanding the north-western district.

MR. ARNOLD-FORSTER has stated that it has not been decided to abolish the system of triennial contracts for repairs altogether, but it is the intention in those cases in which the work can be done satisfactorily and efficiently to replace the present triennial contract system by the employment of day labour. It is understood that this plan has been adopted by the Admiralty with success. Instructions have been issued to the various general officers commanding, requesting them to inquire and report whether the conditions of the various divisions of their commands are suitable for the adoption of the new method.

On Saturday, at Hammersmith, an inquest took place on the body of an employé of the Hammersmith Town Council. On February 16 the deceased and four others were engaged at the municipal electricity works loading a van with empty cable drums. The drums, which weighed several hundredweights, were rolled up some planks. There was no crane or hoist for the men to use, and one of the drums slipped and rolled on deceased. He was taken to the West London Hospital with fracture of the spine, and remained there till his death. The jury returned a verdict of "Accidental death," and added a rider that they considered the Borough Council should have provided proper appliances and sufficient men to load the drums.

ECONOMICAL BUILDINGS IN LIVERPOOL.

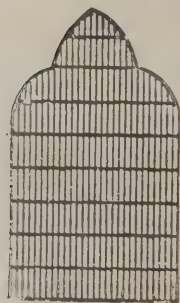
A novel experiment in house building, to which we have made frequent reference, has just been made in Liverpool, and if this prove satisfactory there is every reason to believe, says the *Liverpool Courier*, that the financial cloud which has ever darkened the prospect of housing reform will be removed.

It is by the ingenuity of the city engineer (Mr. John A. Brodie) that the road to the solution of the problem has been opened, and his novel and enterprising scheme has reached its consummation chiefly by his sagacity and zeal and the loyal assistance of his staff. The scheme was for

the erection of concrete cottages upon a principle never before attempted. It was probably the latter fact which led to such a stern opposition being raised to the proposal. Despite extraordinary difficulties which were bound to arise in the carrying out of such a novel project, the work has been accomplished, and to-day a block of buildings unique in design and in method of construction stands in Eldon Street, a monument to the presiding genius at the city engineering department.

The building, which is three-storeyed, has been constructed out of material which in the ordinary course of events would probably have been deposited at the bottom of the sea. Clinkers compose the constituent part of the building material. In the first instance, the clinkers were crushed and mixed with a proper proportion of cement. The solution was then filled into huge moulds, and slabs were formed representing a complete wall, floor, or roof of a room. The openings for doors, windows, &c., as well as fireplaces and flues, were made in the slabs, which when matured weighed in some cases 11 tons. These slabs were moulded at one of the refuse destructor depôts and conveyed a distance of two miles to the site. The spectacle of the wall of a room standing upright upon a waggon and being dragged by a traction engine through the streets naturally aroused the public curiosity, and consequently there has been an extraordinary interest evinced in the building operations at Eldon Street. A huge travelling crane has been employed to place the slabs in their different positions, and the care and precautions observed in handling such heavy and cumbersome things may be judged from the fact that not a single accident has occurred. The slabs or walls were first secured together with bolts, then dovetailed and finally cemented. A steel frame has been embedded in the slabs, which have been placed under severe tests and proved sound. The entire work of erection was carried out within six months. The building wears an attractive appearance and presents a remarkable contrast to the adjoining property. But apart from mere attractiveness the tenements are of a perfectly sanitary character, and in every way most suitable for the accommodation of the poorest people of the city. There has been an early demand for the tenements, all of which will be occupied at once.

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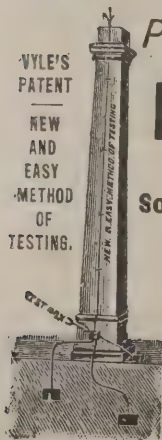
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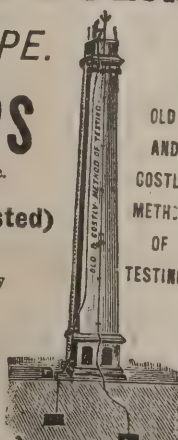
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The main object in view, having provided a healthy place of abode for the poor, is to secure a return in rents to cover the interest and sinking fund on the money borrowed. It is estimated that there will be a 5 per cent. return on the capital expenditure, which would, no doubt, be regarded as eminently satisfactory.

CHICAGO'S FREIGHT SUBWAYS.

IN 1899 the Illinois Telegraph and Telephone Company began to build a series of tunnels under the streets of Chicago for the purpose of carrying the wires and cables of the company's automatic telephone system. This network of tunnels is now utilised, says the *Scientific American*, for a quite different purpose than that for which it was originally constructed. This further use is as a system of electric traction for the handling of freight, express and mail. The company, now incorporated under the name of the Illinois Tunnel Company, was granted a franchise for this purpose in July 1903. It is controlled by the leading railroads which enter Chicago. Something of the immense importance of this undertaking to Chicago will be gleaned from the following account. Perhaps similar systems of tunnels will some day be built in other American cities.

The great advantage of a system of freight haulage of this kind is apparent at a glance. Far below the surface of Chicago's streets scores of electric locomotives are pulling freight-trains that are taking thousands of tons of coal into the boiler-rooms of skyscrapers, without dirt, noise or sign of effort in the street. They are removing tons of ashes, and caring for the excavations from the basements of buildings in course of construction. More than this, they are hauling daily many thousands of tons of freight which was formerly carried over the pavements in waggons. On February 15, 1905, the company entered into a contract with the Government under which all of Chicago's second, third and fourth-class mail matter will be transferred from the railway stations to the new post office through the tunnels. A further plan to utilise the tunnels for mail purposes involves the building of chutes connecting the street-corner mail boxes with boxes in the tunnel, where

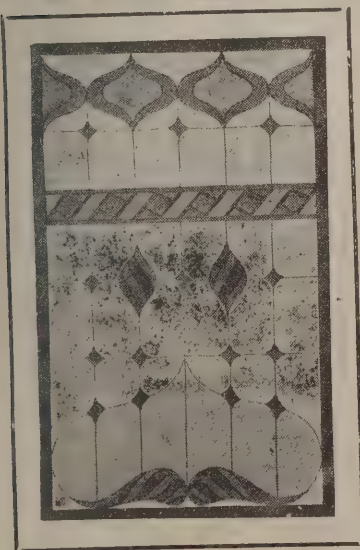
the mail can be collected by cars. When the new schemes are perfected and added to the present pneumatic tube service for first-class mail, Chicago will have the most perfect underground mail facilities in the world. Eight hundred and eighty tons of mail will be handled in the tunnels daily in special locked United States cars. The system will be in operation by June 1.

Without noise, dirt, smoke, or the slightest delay to traffic, the central business district of Chicago has been honeycombed with these tunnels. Twenty-eight miles already have been constructed and extensions are projected.

Fourteen per cent. of the railway mileage of the world centres in Chicago, and operates to and from a business district $1\frac{1}{2}$ miles square. This is the territory of the freight subways. In it are thirty-eight railway stations, and every working day more than 112,000 tons of freight are moved to and from them. This situation has caused great congestion in the streets, and this the subways have met and relieved. The cars of the tunnel company are run directly into the railway freight-houses, loaded, and run through the tunnels to the consignees. Here the cars are run into the basement of the warehouse through an opening cut in the masonry, raised to the desired floor on elevators and unloaded. If the goods are not intended for immediate delivery, the cars are run into the company's storehouses and kept there till required. Every building on the route of the tunnel can be connected to it by a lateral shaft for the above purpose.

The work on the telephone tunnels was planned in 1899, but did not actually begin until September 1901. It was found that the space below the paving was almost completely taken up by water and gas-pipes, sewers and the conduits of other companies. After investigation of the soil underlying Chicago, it was decided to build a deep-tunnel conduit system, as this could be done without danger to adjoining property or without interfering with other corporation rights. After considerable difficulty in securing the final municipal permit to construct the system as planned—in fact, numerous alterations were necessary—and in making an accurate survey of the streets, the company was at length allowed to begin work on the undertaking. The trunk line tunnels were to be 12 feet 9 inches by 14 feet and the branch tunnels 6 feet by 7 feet 6 inches.

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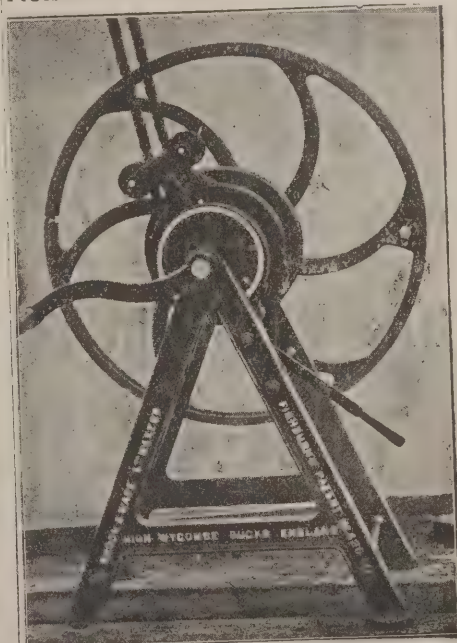
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The work was carried on almost entirely in firm clay, which was encountered about 19 feet below the street grade. The pneumatic system was used more for protection against labour troubles than for other reasons, for should the workmen go out on strike, there would be no damage if the work were left for a time in an uncompleted state. The airlocks, placed just outside the seven shafts, had iron doors embedded in concrete, and were long enough to accommodate the work, in some cases as many as ten cars being in a lock at once.

The work was carried on by miners working in three shifts of eight hours each, the nature of the soil permitting the work to be done in this way. The distance excavated averaged about 21 feet at each of fourteen working headings, and 12 miles of tunnels were virtually completed in about ten and a half months.

The concrete was placed in the bottom of the excavation and thoroughly tamped, the lagging placed on top of the concrete, iron ribs made of channel bars being placed on the bottom 3 feet apart and the lagging laid at the sides against these ribs. The concrete was then thrown behind the 2-inch plank lagging in 6-inch layers. The use of concrete absolutely avoided any chance of settlement of the earth, as it was tamped into the entire space between the lagging and the excavation, no matter how irregularly the digging or mining had been done. For part of the work steel lagging plates were used as a special precaution, on account of the extra weight of the concrete. In proceeding with the work the face of the preceding day's work was cleaned and a plaster coating of cement, made in proportions of one to one, sand and cement, was plastered on the old work, forming a seal and making the structure almost entirely a homogeneous one. The 6 by 7½ lateral tunnels were constructed with 13-inch bottoms and 10-inch walls of concrete. The trunk system tunnels were built with 21-inch bottoms and 18-inch walls. The cement used for the making of the concrete was American Portland (Atlas and Chicago A.A.), and the company subjected each and every barrel to a fourteen-day test under rigid specifications. On the straight work mixtures of five parts broken stone and screenings, or five parts mixed gravel and sand to one part of cement were used, while at the intersections

a mixture of four parts stone or gravel to one of cement was adopted.

A large equipment of small tramcars, some 900 in number, built to run on a 14-inch gauge, double-track system, was provided to dispose of the excavated material. The cars were hoisted by power-driven elevators up the shafts to the head-houses and the material dumped into waggons. Much of this was deposited on the lake front, a special 10-ton, stiff-leg derrick being provided for unloading the waggons. In this way much valuable land was added to Grant Park. At one shaft near the river an endless chain drew the cars up an incline on to stagings or platforms extending over dumped scows moored to the dock below, and the cars were then emptied into these. The platforms could be raised and lowered as required, so as not to interfere with the river traffic.

The steepest grade in the tunnels is 1.75 per cent. and the grades at the railway terminals do not exceed 12 per cent. The latter steep grades form the approaches to the tunnels, which are built with the rails some 30 feet below the street level. The four-way intersections have curves of 20-foot radius, and the sharpest curves on the main lines are of 16-foot radius.

The track is 2-foot gauge, laid with 56-lbs. T-rails fastened by bolted clamps to cast-iron chairs embedded in the concrete floor of the tunnel. Part of the system is overhead trolley, while the rest is of the Morgan third-rail traction system. This latter consists of a perforated metal plate (½ inch thick and 4 inches wide) forming a rack which is bolted between two lines of timber stringers. These serve to protect and support the rail. A special construction for the tunnel work was devised in the use of chairs of bent steel channels to support the rack. The locomotives are of the class used in mine haulage work, but are peculiar in the method of taking current. The rack rail serves both for traction and as a third-rail conductor, the current being led to motors, geared to the axles, with suitable controlling devices. The track rails are used for the return current. The wheel base of the locomotives is 24½ inches. With one 75-horse-power motor the weight is about 3 tons; with two 80-horse-power motors about 5 tons. The trolley locomotives are of the ordinary type used in mine systems.

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J. ELWELL, Sherbourne Street, Birmingham (accepted)	145	0	0

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For alterations and addition to Scole House, Norfolk. Mr. ARTHUR J. LACEY, architect, Norwich.

Wade	£1,218	4	0
Ludkin	1,175	0	0
Gunton & Palmer	1,160	0	0
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For the erection of a central hospital between Kingussie and Kincil. Mr. A. CATTANACH, architect, Kingussie.

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D. & M. Fraser, Kingussie, carpenter	998	0	0
Fraser & Munro, Kingussie, plumber	516	17	6
Gray & Son, Inverness, slater	228	19	0
James Hay, Grantown, plasterer	255	0	0
Munro & Sons, Inverness, painter	14	0	0

WALES.

For erecting a caretaker's house, with boundary wall and outbuildings, for the Ebbw Vale Urban District Council. Mr. T. J. THOMAS, surveyor.

Lewis	£310	12	0
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For erecting a pair of villas, Murcum Street, Caerleon, Newport (Mon). Messrs. J. H. RENNIE & Co., architects, Newport.

J. CHARLES, Crindan, Newport (accepted) . £1,849 0 0

For the construction of sewage-disposal works, including settling-tanks and percolating filters, formation of road, laying land, 9-inch sewers, with manholes, flushing-chambers, &c., for Acrefair, Cefn Bychan and Newbridge, in the parish of Cefn, near Ruabon, for the Wrexham Rural District Council. Mr. J. PRICE EVANS, engineer, Wrexham.

Buckley	£11,994	18	4
Taylor	11,676	4	2
Read & Son	10,455	18	0
Billings & Co.	10,571	0	0
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Williams	9,708	19	9
J. T. JONES, Cefn, Ruabon (accepted)	9,135	0	0

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For the erection and completion of residence at Wimbledon Park. Messrs. W. E. TUTT & Co., architects.

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THE BUILDING TRADES EXHIBITION.

THE Exhibition of the Building Trades in the Agricultural Hall at Islington will be opened on Thursday next, the 27th inst., by the Right Hon. Lord Windsor, First Commissioner of Works, and as at the present moment there is a decided improvement in the Building Trades, it is being run at a very opportune moment. Among the numerous shows which are held in succession in the hall there can be no question about which is the most important. As Ruskin says:—"Every man has at some time in his life interest in building," and in no other class of work is there such a combination of science and art. In international exhibitions building may appear to lose some of its interest, and indeed it is a common opinion that from Hyde Park in 1851 to St. Louis in 1904 construction was inadequately represented. The building exhibitions at Islington compensate to some extent for the shortcomings of those enterprises which are supposed to be world-wide in extent.

At the present time the exhibition has a peculiar interest. The unsettled state of the world during late years has had the effect of raising an obstacle to legitimate speculation. In some places the investments in building have diminished in amount. But one of the results has been that manufacturers have endeavoured to surpass themselves, and this fact will be exemplified in many sections of the approaching exhibition. It is not possible to have improvements in materials which are supplied by nature, but in artificial compounds which are intended to rival them, greater strength and endurance have been attained. The additional experience gained, for instance, has not been lost on the *Columbian Fireproofing Co., Ltd.*, and their concrete floors and peculiar system of girders will be deserving of attention from architects.

Unfortunately the by-laws which are enforced in English towns are not favourable to construction in concrete, the material which is now receiving most attention on the Continent and in America. If the authorities were more just towards invention we might expect to have a larger area of the hall occupied with illustrations of systems which would promote safety and economy. But in spite of the indif-

ference there is still a wide field in which by-laws are inoperative. The *New Expanded Metal Co., Ltd.*, are able to produce floors and partitions, and their stall will show how far armoured concrete can be employed for the interiors of buildings. It will be a practical demonstration of the system. The stall will be a light steel-framed structure, about 16 feet by 16 feet on plan, with a suspended expanded steel and concrete floor 3 feet off the ground, and a suspended ceiling 9 feet above the floor, with roofing over that. The floor has two spans of 8 feet by 16 feet long, one span being completed flooring and the other flooring in progress showing the method of construction. The ceiling will exemplify different applications of their lathing, and with regard to the roof, on one side will be some roofing in situ, and on the other some expanded metal and concrete slabs on R.S.J. purlins about 4 feet apart. There will be also included partitions and walling upon the framework, both hollow and solid, to show the company's different systems, and some encased steel-work for the same purpose. Expanded steel and concrete steps will be placed up to the floor, and a wood-framed door and sash will be fixed into the walling, and work in as various systems and details as possible will be presented so as to make the exhibit instructive to the trade. In the forecourt will be exhibited goods made up with iron bar and expanded metal, such as fencing, tree-guards, lockers, baskets, builders' screens, riddles, &c.

At present the *London Fireproof Platewall Co., Ltd.*, confine operations to partitions which are used not only in public offices in London but for borough councils, so that their work is in keeping with the by-laws. The company claim that the partitions are fireproof, sound-proof and vermin-proof, and cost less than lath and plaster.


Messrs. Hodkin & Jones, Ltd., of Sheffield and London, will exhibit their corrugated-bar system of fire-resisting floors, which they claim are cheaper and stronger than other existing forms. Two pieces of flooring are to be shown; one being 8 inches thick, having 6-inch corrugated bars embedded, and the other piece of flooring 6 inches thick, having corrugated bars 4 inches deep. The object of this form of bar is to eliminate all flanges,

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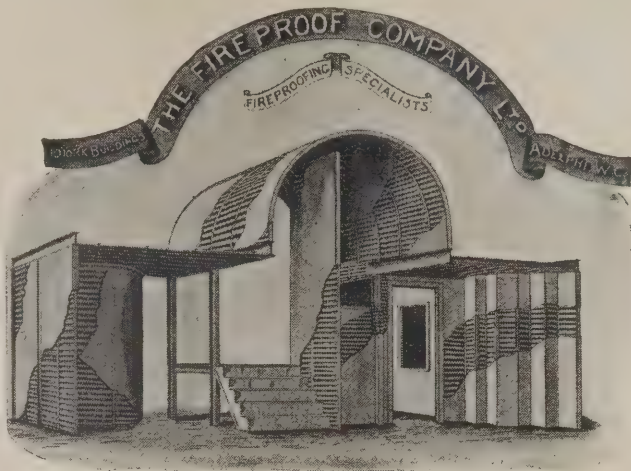
HOUSE AT MERSTHAM.

CALEDONIAN STATION HOTEL, EDINBURGH:—HALL AND STAIRCASE.

which are the chief cause of longitudinal cracks, common to fireproof floors.

The *Fireproof Co., Ltd.*, 10 York Buildings, W.C., are showing a well-appointed exhibit of the various kinds of work to which their specialité of dovetail corrugated sheeting, &c., may be applied. Among the work it is intended to illustrate may be mentioned the London County Council fireproof staircase enclosures, fireproof lift enclosures, both of which can be finished at 3 inches in thickness, and suspended ceilings of shallow section dovetail corrugated sheeting. The latter is used as a permanent centring to concrete floors, thereby avoiding all use of wood centring, so that all work in the building can be carried on without interruption while the concreting is in progress. The exhibit also shows the utility of the sheeting for forming straight partitions, ordinary divisions to rooms finishing at 2 inches in thickness, and being fire, sound, damp and vermin-proof, the nature of the sheeting allowing practically any kind of plastic material to be used with same. For irregular work with sharp returns, panelling, &c., the sheeting is admirably adapted. For curved work, girder and stanchion casings, &c., it is by reason of its peculiar form of construction most suitable. The illustration will suggest the character of the exhibit. Complete buildings with or without steel framework have from time to time been erected upon this system, the interior and exterior walls being plastered to a total thickness, in most cases, of not

exceeding 2 and 3 inches, sand and cement being used as the outside covering to the sheeting, and being finished in



such manner as desired by the client, either rough-cast, pebble-dash, hand-floated or lined to represent masonry.

The *Havelock Patent Plaster Partition Company*, of 63 Finsbury Pavement, E.C., will have a unique demonstration of the rigidity and lightness of the patent partitions they are showing. A large piece of partition about 14 feet by 8 feet will be shown carrying itself by lateral pressure on the two sides, and is unsupported either at the top or bottom. This is achieved by the blocks being so constructed as to tenon into one another. These partitions have been used at St. James's Palace and other important buildings.

According to the opinion of some admirers concrete seems likely to supersede stone. That change will never take place in England—at least until our quarries are exhausted. The stone trade, it is to be hoped, will be properly represented. Among the varieties which are coming into favour is Weldon stone, which is one of the

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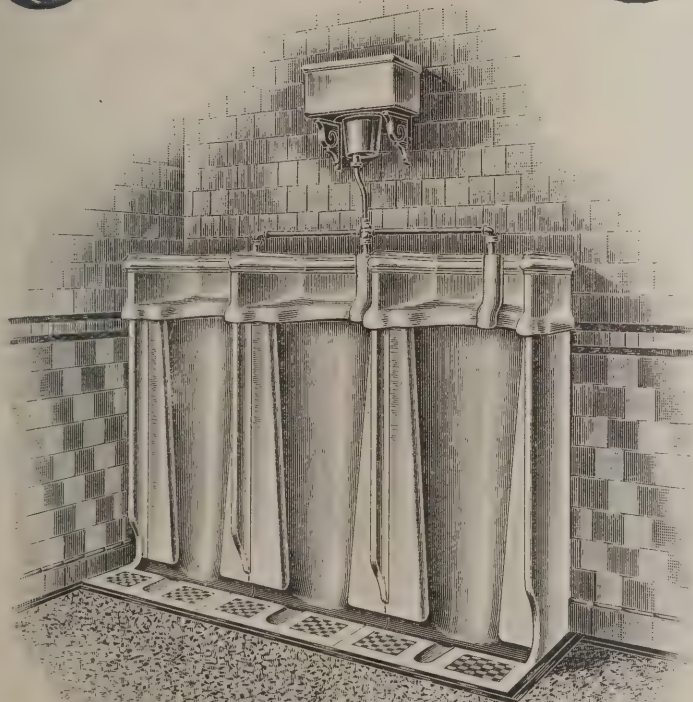
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lower oolites. Specimens are to be exhibited by *Mr. John Rooke*, and it is well to remember that stone of the same formation was used in the cathedrals of Peterborough and Ely. *St. Dunstan's*, in Fleet Street, is a more familiar example. What can be done with a mineral substance under new conditions is to be seen in the adamantine clinker of *Messrs. Towers & Williamson*, which is invaluable for use in stables.

Messrs. Stanley Bros., Ltd., have brought glazing to perfection, and bricks of different and suitable colours will be shown.

Messrs. Tucker & Son, Ltd., Loughborough, are to exhibit bricks of various sizes and forms, which have been found especially useful in sanitary works.

An impetus has been given to the manufacture of tiles by the latest styles of domestic architecture. All householders do not, however, approve of the change from slates. However well they look on a sunny day, many varieties of tiles are disposed to slip, and the absence of one spoils a roof. *Messrs. Colthurst & Symons*, of Bridgwater, overcome that difficulty by their patent tiles, which are so held together they can resist storms.

Poole might be supposed to be distant from the centre of the fictile industry. But the Romans, who were not wanting in shrewdness, worked beds of potters' clay in the district. It is hardly necessary to say that *Messrs. Carter & Co.* have demonstrated that the beds are not exhausted, for their tiles, mosaic and faience, are known in other countries besides England. At Islington they will show an ambitious work, viz. an alcove in grey terra-cotta with seats, and within an elaborate fireplace in glazed faience (dark green), shown below with a panel in slipwork which appropriately displays the arms of the borough of Poole. A terra-cotta plinth borders the stand, at the corners of which fine vases are placed. Stands showing some of their latest wall-tiling are set on a floor of tiles and mosaic, thus in small space exemplifying the chief products of the firm.

"Opalite" has been "one of the most successful of modern inventions." We understand that about 250,000

square yards have been fixed in London alone. Yet it was only introduced about ten years ago. "Opalite" is a strong tile or plate having a rough granulated backing (*Shelmerdine's patent*) fluxed into the material at the time of manufacture, thus insuring a secure key for fixing to any structure. It has been very largely used in hospitals, mortuaries, bath-rooms, &c., in fact, all places where cleanliness and light are of first importance. Its close joint and highly-polished surface also preclude the secretion of any fungi or vermin. It is also possible to execute any design in "Opalite," and examples of dadoes will be seen which have been produced by *Mr. William Griffiths*, who is the London concessionaire.

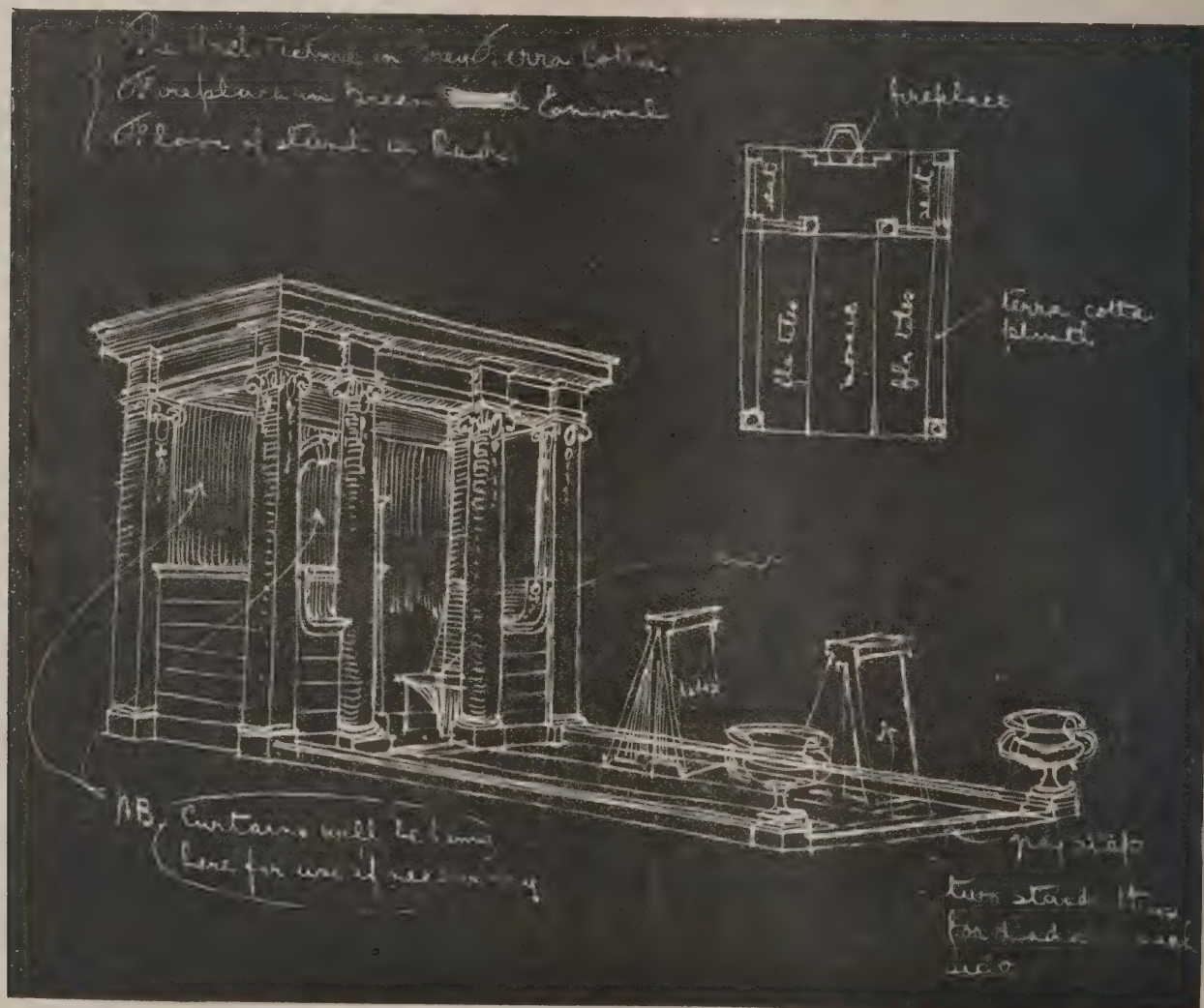
The *Mosaic Manufacturing Co.* do not confine themselves to one variety; marble mosaic as well as glass and gold mosaic and work with ceramic tesserae can be seen at their stand. The specimens are effective, and as an English company they merit encouragement.

Another English manufacture which by its intrinsic merits has worked itself into general favour is *Cloisonné Glass*, which is produced at a cheap rate. The designs are in a refined style, and the material is adapted both for transparent and subdued lights.

Messrs. Bratt, Colbran & Co. are known as the patentees of the "Heaped" and "Valley" firegrates, which are found to be auxiliaries in affording protection against fire. But in addition to the fireplaces they make all accessories, whether mantels, tile-linings or hearthstones. They are also known for well-designed door furniture. Their stall may consequently be considered as up to date, and it will show interesting works in wood and metal.

The collection of timbers by *Messrs. William Oliver & Sons, Ltd.*, suggests the extent of their business. All the woods used in construction or decoration can be supplied by them. Practically their stall serves as a museum of timber, and thus helps in affording instruction to the general public.

The stand of *Messrs. Sissons Bros. & Co., Ltd.*, must attract the attention of the most casual visitor, for it will



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EDITORIAL NOTICES.

In view of the many difficulties which are certain to arise in connection with the law, practice rules and procedure under the Workmen's Compensation Act, we have added to our staff A VERY EMINENT BARRISTER, who has made the subject a special study, and will be glad to answer in the columns of this paper any questions relating to the complicated matters arising from the provisions of this difficult Act. Our LEGAL ADVISER will further answer any legal question that may be of interest to our readers. All letters must be addressed "LEGAL ADVISER," Office of "The Architect," Imperial Buildings, Ludgate Circus, London, E.C.

The Editor will be glad to receive from Architects in London and the Provinces results of Competitions and Tenders and other particulars of Works in progress in which they may be interested.

The authors of signed articles and papers read in public must necessarily be held responsible for their contents.
No communication can be inserted unless authenticated by the name and address of the writer—not in every case for publication, but as a guarantee of good faith.
Correspondents are requested to make their communications as brief as possible. The space we can devote to Correspondence will not usually permit our inserting lengthy communications.

TENDERS, ETC.

* * *As great disappointment is frequently expressed at the non-appearance of Contracts Open, Tenders, &c., it is particularly requested that information of this description be forwarded to the Office, Imperial Buildings, Ludgate Circus, London, E.C., not later than 2 P.M. on Thursdays.*

COMPETITIONS OPEN.

HARROGATE.—May 24.—For proposed Primitive Methodist orphanage at Harrogate. Conditions may be obtained from Rev. J. T. Barkby, Riche Mont, Harrogate.

HIGH WYCOMBE.—May 31.—Secondary school, accommodation for 175 pupils. No premium offered. Mr. T. J. Rushbrooke, borough surveyor, 77 Easton Street, High Wycombe.

RADCLIFFE.—April 29.—For the erection of a free public library. Premiums of 50*l.*, 30*l.* and 20*l.* will be awarded. General conditions and instructions, with an outline plan of site, may be obtained from Mr. S. Mills, clerk, Council Offices, Radcliffe, Manchester.

ROCHESTER.—May 15.—For the erection of a municipal technical institute at Rochester. Three premiums of 50, 20 and 10 guineas will be awarded. Copies of the instructions and a plan of the site can be had from Mr. W. Banks, surveyor, Guildhall, Rochester.

CONTRACTS OPEN.

ASHTON-UNDER-LYNE.—May 2.—For disinfecter house, mortuary and making macadam roads on the site of isolated hospital at Hartshead. Mr. J. Lowe, sanitary surveyor, Health Department, Town Hall Chambers.

BARKISLAND.—May 5.—For the erection of a villa residence, boundary walls, &c., at Barkisland, Yorks. Mr. C. H. Petty, architect, 12 Waterhouse Street, Halifax.

BARNSTABLE.—April 29.—For alterations to the fire brigade station. The Borough Surveyor, Barnstable.

BARROW-IN-FURNESS.—May 15.—For the construction of a steel road bridge over the Walney Channel, uniting Barrow Island and Walney Island; the bridge will consist of eight fixed girder spans and one opening span, on cylinder foundations. Sir Benjamin Baker, 2 Queen Square Place, Queen Anne's Mansions, Westminster.

BARRY.—May 1.—For the erection of a new girls' school to accommodate 398, together with a caretaker's house, cookery kitchen, and manual instruction-room, at High Street, for the Barry Urban District Council. Mr. G. A. Birkenhead, architect, Caledonian Chambers, Cardiff, and 101 Holton Road, Barry. Mr. T. B. Tordoff, clerk, Barry.

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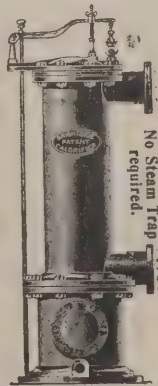
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BELFAST.—May 15.—For the erection of a small auxiliary goods office, 44 feet by 20 feet, in brickwork, with slated roof, for the Great Northern Railway Company, at terminus, Grosvenor Street. Mr. W. H. Mills, engineer-in-chief, Amiens Street Terminus, Dublin.

BILSTON.—May 20.—For the erection of boys, girls and infants' departments for 1,200 children, with cookery, manual training centres and special science classrooms, at Stonefield, Bilston. Messrs. Bailey & McConnell, architects, Bridge Street, Walsall.

BISHOP SUTTON.—May 6.—For the reconstruction of offices and latrines and the execution of alterations and renovations at the Council schools, Bishop Sutton, Somerset. Mr. Wm. F. Bird, architect, Midsomer Norton, Somerset.

BOSTON.—April 29.—For erection of a new infirmary, laundry, boiler-house and mortuary at the workhouse, Boston, Lincs. Mr. James Rowell, architect, Church Lane, Boston.

BRIDGEND.—May 1.—For the erection of two shops and dwelling-houses at Wyndham Street, Bridgend. Mr. P. J. Thomas, architect and surveyor, Bridgend.

BRIDGEND.—May 1.—For new Baptist chapel and school-room at Bridgend. Mr. P. J. Thomas, architect and surveyor, Bridgend.

BRIDGWATER.—May 8.—For the erection of the proposed new building for the Bridgwater Co-operative Society, Ltd. Mr. John Wyatt Hill, architect and surveyor, King Street Chambers, Bridgwater.

BRIDLINGTON.—May 2.—For the erection of farm buildings at Bridlington. Mr. J. Earnshaw, architect, Carlton House, Bridlington.

BUILDWAS.—May 3.—For the construction of new stone piers and other work in connection with the existing abutments of Buildwas bridge. Mr. A. T. Davis, county surveyor, Shire Hall, Shrewsbury.

BURNLEY.—April 29.—For the erection and completion of a new church on the site of the present iron church in Briercliffe Road. Messrs. Haywood & Harrison, architects, Accrington.

CARDIFF.—May 9.—For the erection of thirty-six houses at Cardiff, for the Great Western Railway Company. Engineer, Newport Station.

CHACEWATER.—April 29.—For renovating the Chacewater Wesleyan church, Cornwall, including new slating to roof, plastered front, iron railings, gates, &c. Mr. J. Crothers, coal merchant, Chacewater.

DEARHAM.—May 1.—For alterations and additions to Dearham Council school, Cumberland. Mr. J. Forster, the Courts, Carlisle.

DENTON.—May 1.—For two houses, Manchester Road, Denton, Lancs. Mr. Ernest Woodhouse, architect, 88 Morley Street, Manchester.

DEWSBURY.—May 1.—For the erection of four houses, &c., in Healds Road, Dewsbury Moor. Messrs. John Barton & Son, architects and surveyors, Halifax Road, Dewsbury.

DEWSBURY.—May 1.—For the erection and completion of the roof, &c., at the Dewsbury Pioneers' Industrial Society's warehouse, Wellington Road, including mason, joiner, plumber and slater's work. Messrs. Holtom & Fox, architects, Corporation Street, Dewsbury.

DEWSBURY.—May 1.—For the erection of two houses and stabling in Hartley Street, Dewsbury. Messrs. John Barton & Son, architects and surveyors, Halifax Road, Dewsbury.

DONCASTER.—May 1.—For the erection of new Baptist church. Messrs. John Wills & Sons, architects, Derby.

DUBLIN.—May 15.—For the erection of an electric generating station. Mr. John P. Griffiths, engineer to the Dublin Port and Docks Board, East Wall, Dublin.

FALMOUTH.—May 6.—For additions and alterations to the existing premises and the erection of a hospital at the Royal Cornwall Sailors' Home and Hospital, Falmouth. Drawings and specification may be examined at the Home.

HEADINGLEY.—April 29.—For bricklayer and carpenter and joiner's work (labour only), and the plumber, plasterer, slater and painter's work in erection of four villas, Headingley. Messrs. James Charles & Sons, 98 Albion Street, Leeds.

ILFORD.—May 9.—For the erection of a temporary shelter in connection with the Ilford isolation hospital at Grove

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road, Chadwell Heath. Mr. Herbert Shaw, engineer and surveyor to the Council, Town Hall, Ilford.

ILFORD.—May 8.—For the erection of a cottage at the outfall works, Water Lane, Ilford. Mr. H. Shaw, engineer and surveyor, Town Hall, Ilford.

IPSWICH.—For building a chimney-shaft at Ipswich. Messrs. Cranfield Bros., Dock Roller Mill, Ipswich.

IRELAND.—April 29.—For the erection of warehouse and shop, for Messrs. Joseph Revington & Sons, The Mall, Tralee. Mr. Robt. Fogerty, architect, Limerick.

IRELAND.—May 15.—For alterations and additions to premises at Convooy, co. Donegal. Mr. M. A. Robinson, Richmond Street, Londonderry.

KNOWLE.—May 9.—For converting store into mortuary at the county asylum, Knowle, near Fareham. Mr. W. J. Taylor, county surveyor, The Castle, Winchester.

LANDRAKE.—May 8.—For repairs to the Landrake Church tower. Mr. W. Menhinick, Landrake Village, Cornwall.

LONDON.—For foundations and other works (Contract No. 1) in erection of the Union Jack Club, Waterloo Road, S.E. Mr. Harry B. Measures, architect, Atterbury Street, Grosvenor Road, S.W.

LONDON.—May 9.—For the construction of a new carriage shed and other works at Old Oak Common, Acton, for the Great Western Railway Co. Engineer, Paddington Station, London.

LONDON.—May 11.—For an iron emergency staircase at New Becton school, East Ham. Mr. R. L. Curtis, 11 and 12 Finsbury Square, E.C.

LONDON.—May 15.—For the erection of a disinfecting station for the Kensington Royal Borough Council, excluding machinery and apparatus. Mr. William Weaver, borough engineer. Mr. William Chambers Leete, town clerk.

LUDDENDEN.—April 29.—For mason and bricklayer (labour only), carpenter and joiner, slater and plasterer plumber and glazier's work required in the erection of two dwelling-houses in Ive House Lane, Luddenden, near Halifax. Mr. Thos. Kershaw, architect, L. and Y. Bank Chambers, Halifax.

MACCLESFIELD.—May 1.—For the erection of new boundary walls at the workhouse, Macclesfield. Mr. Jabez Wright, architect, King Edward Street, Macclesfield.

MAIDENHEAD.—May 5.—For the erection of a police station at Maidenhead, consisting of seven cells, quarters for eight single constables, five residences for officers and constables, and petty sessional court, together with stabling, wall, outbuildings, &c. Mr. Joseph Morris county surveyor, Broadway Buildings, Reading.

MANCHESTER.—May 3.—For alteration and extensions of infirm wards at the Withington workhouse. Messrs. Charles Clegg & Sons, architects, Manchester. Mr. David S. Bloomfield, clerk.

MILVERTON.—May 6.—For the erection of a detached residence at Milverton, Somerset. Mr. F. W. Roberts, architect, 2 Hammet Street, Taunton.

PENGAM.—May 6.—For the erection of four houses at Gilfach, Pengam, near Cardiff. Mr. W. Harris, architect, Gilfach, via Cardiff.

POWICK.—May 6.—For the erection of infant schools at Powick, near Worcester. Mr. A. Hill Parker, architect, 5 Foregate Street, Worcester.

RAMSGATE.—May 13.—For the construction of a flight of concrete steps, &c., at the Marina, Ramsgate. Mr. T. G. Taylor, borough surveyor, Albion House, Ramsgate.

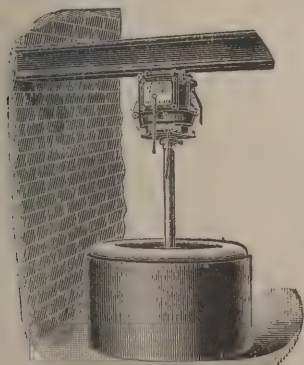
REDRUTH.—May 1.—For additions and improvements to the Druids' Hall, Redruth. Mr. Horace W. Collins, architect, Clinton Road, Redruth.

SALISBURY.—April 29.—For building a cellar at the Anchor brewery, Gigant Street, Salisbury. Messrs. John Harding & Son, architects and surveyors, 58 High Street, Salisbury.

SALISBURY.—May 3.—For erection of a new post office at Salisbury, for the Commissioners of H.M. Works and Public Buildings. The Secretary, H.M. Office of Works, &c., Storey's Gate, London.

SCOTLAND.—May 1.—For the erection of a timber and concrete pier, buoy, coal and ship stores, dwelling-house, &c., at Oban. Mr. D. A. Stevenson, engineer to the Board, 84 George Street, Edinburgh.

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SCOTLAND.—May 1.—For the mason, carpenter, plumber, slater, plaster and painter's work of a villa at Stotfield, Lossiemouth. Mr. John Wittet, architect, Elgin.

SEASCALE.—May 3.—For the mason, bricklaying, slater, plasterer and plumber trades in the erection of two villas at Seascale, Cumberland. Mr. A. Huddart, architect, 9 Lower Street, Whitehaven.

SHEFFIELD.—May 2.—For works required in connection with the erection of refuse destructor at Primrose Meadows, Heeley:—(1) Excavator, bricklayer and mason; (2) carpenter and joiner; (3) ironfounder; (4) slater; (5) plumber and glazier; (6) painter. Mr. Chas. F. Wike, C.E., city surveyor, Town Hall, Sheffield.

STANFORD.—May 1.—For the rebuilding of the superstructure of Stanford bridge, having a span of about 98 feet over the river Teme, in the parishes of Stanford and Shelsley Kings. Mr. J. H. Garrett, bridge warden, Shirehall, Worcester.

STOCKPORT.—May 1.—For the erection of the Chestergate new schools in Hardman Street, Chestergate. Messrs. Cheers & Smith, architects, Blackburn.

SWAFFHAM.—April 29.—For the erection of additional nurses' quarters in the workhouse, Swaffham, Norfolk. Mr. Louis F. Eagleton, architect, King Street, King's Lynn.

TAYLORTON.—May 4.—For the bricklaying, joiner, plumber, plasterer and slaterwork in connection with the erection of a small-pox hospital at Lower Taylorton, near Stirling, for the Stirling combination hospital committee. Mr. Andrew H. Goudie, Burgh Buildings, Stirling.

TIVERTON.—May 3.—For alterations to 16 Fore Street, Tiverton. Mr. W. Barrons, Deepway, Tiverton.

TRURO.—April 29.—For works at St. Anthony-in-Rose-land Council school, for the Cornwall education committee. Mr. Sampson Hill, architect to the committee, Green Lane, Redruth.

WALES.—May 1.—For the erection of a new girls' school to accommodate 398, together with a caretaker's house, cookery kitchen and manual instruction-room, at High Street, Barry. Mr. G. A. Birkenhead, architect, Caledonian Chambers, Cardiff.

WALES.—May 5.—For the erection of a stone bridge at Cwmyglo, Llanarthney. Mr. John Saer, clerk, 7 Hall Street, Carmarthen.

WALES.—May 8.—For the erection of a new chapel for Carey Baptist church, at Bridgend Road, Aberkenfig. Messrs. J. & F. J. Hurley, architects, 10 Bridgend Road, Aberkenfig.

WALES.—May 9.—For the construction of new station buildings at Aberdare, South Wales, for the Great Western Railway Company. The Engineer, Neath Station.

WALES.—May 13.—For the erection of a boys' school, and the execution of works connected therewith at Caegarw, Mountain Ash. Mr. W. G. Thomas, architect, Public Offices, Mountain Ash.

WESTON-SUPER-MARE.—May 13.—For the erection of a new girls' school, Locking Road, Weston-super-Mare. Messrs. Hans F. Price & William Jane and Messrs. S. J. Wilde & Fry, architects, Weston-super-Mare.

WILSDEN.—May 11.—For a detached house at Wilsden, Yorks. Mr. Wilson Bailey, architect, Tanfield Buildings, Bradford.

WIMBORNE.—May 1.—For alterations and additions to choir gallery in the Wesleyan church, Wimborne. Rev. W. H. Groves, M.A., Wimborne.

WINDSOR.—May 1.—For alterations at the Guildhall, Windsor. The Borough Surveyor, Alma Road, Windsor.

WOOLER.—May 4.—For the erection of a pair of houses at Glendale Road, Wooler. Mr. George Reavell, jun., architect, Alnwick.

WOOLWICH.—May 3.—For erecting a large heater-room at the Brook Fever hospital, Shooter's Hill, Woolwich. Mr. W. T. Hatch, M.I.C.E., M.I.M.E., engineer-in-chief, Metropolitan Asylums Board, Embankment, London, E.C.

WORTHING.—May 2.—For the erection of a brick wall fronting Lyndhurst Road and Ham Road. The Borough Surveyor, Liverpool Road.

It is proposed to erect at Kingstown, near Dublin, an Eiffel tower. The structure will stand at least 120 feet high, and will contain some spacious apartments at the base.

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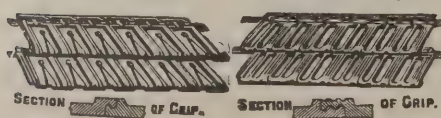
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ABBOTS LANGLEY.

For the erection of a seven-roomed house and bath-room for Mr. G. W. Saull. Messrs. BARRETT & DRIVER, architects, 23 York Place, Baker Street, W.

Flint Bros.	£385	0	0
Halse	339	0	0
E. GLENISTER, Abbots Langley (accepted)	272	10	0
Homer (declined)			

BARROW-IN-FURNESS.

For the erection and extensions to the Corporation electricity works, Buccleuch Street.

W. GRADWELL & Co., Barrow-in-Furness (accepted)	£4,271	8	0
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BERROW.

For alterations and additions to South Farm, the residence of Mr. R. H. C. Evered. Mr. JOHN WYATT HILL, architect. Quantities supplied.

Lynham	£385	0	0
Roberts	350	0	0
GLED BROS. (accepted)	340	0	0

BEWCASTLE.

For the erection of a stone bridge across the Kirk Beck at Shopford, Bewcastle. Mr. JAMES MURRAY, district surveyor, Kirklington, Carlisle.

T. Telfer	£772	12	8
J. SCOTT & Sons, Newcastle-on-Tyne, Carlisle (accepted)	665	4	0

BLYTH.

For making-up streets and providing and laying about 520 lineal yards of kerb. Mr. ROBERT GRIEVES, surveyor.

Contract No. 1.			
Thompson	£446	10	1
Simpson	368	18	7
McLaren & Co.	351	0	7
J. ROBSON, Newcastle-on-Tyne (accepted)	308	9	1
Contract No. 2.			
Simpson	116	0	0
Thompson	108	1	4
McLaren & Co.	100	14	8
J. ROBSON (accepted)	95	4	0

BRIGHTON.

For the erection and completion of a septic tank installation for the disposal of sewage at the Southwick generating station.

W. A. FIELD & Co. (accepted)	£1,248	0	0
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BRIDGWATER.

For road-making, channel-curb, asphalt paving and drains on the Ashleigh estate, Somerset, for Mr. Albert Lewis (second contract). Mr. JOHN WYATT HILL, surveyor.

Bryer	£466	0	0
GLED BROS. (accepted)	457	0	0

For the erection of five terrace houses in Ashleigh Road, for Mr. Albert Lewis. Mr. JOHN WYATT HILL, architect.

Quantities supplied.			
Stockham	£1,799	0	0
Scott	1,682	0	0
Geen	1,650	0	0
Bryer	1,495	0	0
Fursland	1,250	0	0
Gled Bros.	1,199	0	0

CLYDEBANK.

For the construction of about 2,000 yards of 12-inch and 9-inch pipe sewers, with manholes, &c., Clydebank (Scotland). Mr. GEORGE ROSS, burgh surveyor.

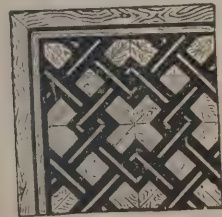
Brebner	£2,700	0	0
Macfarlane	2,524	15	8
Drysdale	1,999	14	0
Duncan	1,935	0	1
J. & J. Neilson	1,926	18	11
Stewart	1,855	11	8
Kirkwood, Kerr & Co.	1,834	3	4
Stark & Sons	1,778	5	9
McLaughland, Anderson & Co.	1,768	11	6
Scott	1,591	18	10
Hutchison	1,495	0	0
D. WINTON, Duntocher (accepted)	1,417	8	1

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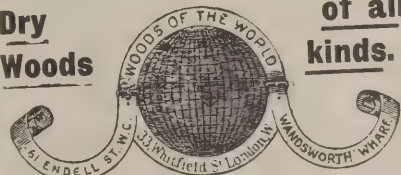
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J. Thomasson & Sons, Bolton	Loss £48.
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Cleington Spinning Co., Dundee	No claim.
H. Jenkinson, Leeds	Loss £10.
Do.	Loss £60.
J. Ireland & Sons, Dundee	Loss £25.
Name withheld by request, Glasgow	No claim.
(Signalled and fire put out; sprinkler did not act)	
Shaw, Walker & Co., Glasgow	Loss £225.
Aberdeen University Press	No claim.
Olark & Co. (Ltd.), Anchor Mills	Under £50.
S. Henderson & Sons, Ltd., Edinburgh	Under £50.

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Sir Chas. Tennant, The Glen	Loss £100,000.
Long Acre Motors, &c.	Loss £250,000.

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Mr. ALFRED HOPKINSON, architect, Bury.

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Thompson & Brierley.	8,920	0	0
Brierley.	8,899	0	0
Warrington.	8,650	0	0
J. BYROM, LTD. (accepted)	8,500	0	0

DARTFORD.

For supply and fixing of hot-water heating apparatus at Gore Farm upper hospital, for the Metropolitan Asylums Board.

Moorwood, Sons & Co., Ltd.	£6,234	0	0
Kinnell & Co., Ltd.	6,200	0	0
Fraser & Co., Ltd.	6,200	0	0
Burroughes & Sons	5,967	0	0
Worsley	5,838	0	0
Wenham & Waters, Ltd.	5,790	0	0
Lea, Son & Co.	5,734	0	0
Goodwin	5,700	0	0
G. & E. Bradley	5,695	0	0
J. & F. May	5,657	0	0
Humphrey & Co.	5,615	0	0
Boaz & Co.	5,377	10	0
Wood	5,327	0	0
Death & Ellwood.	5,200	8	1
Lancashire Heating Co.	5,200	0	0
Brightside Foundry & Engineering Co., Ltd.	4,995	0	0
Freer	4,885	0	0
Potter & Sons	4,660	0	0
R. DAWSON & Co., LTD., Hartley Works, Stalybridge (accepted)	4,200	0	0

EAST MOLESEY.

For house and premises. Mr. D. G. ANDREW, architect.

Potterton	£1,920	0	0
Brade, Pater & Co.	1,649	0	0
Atkinson	1,560	0	0
Nibblethwaite	1,533	0	0
Bailey & Fry	1,450	0	0
Butt Bros.	1,425	0	0
Wheatley & Sons.	1,337	0	0

HALIFAX.

For rebuilding the Kebroyd Mills, Triangle. Messrs. JACKSON & Fox, architects.

Accepted tenders.

Crawshaw Bros., mason	£1,767	10	0
C. & W. Whiteley, joiner	1,293	0	0
Berry, ironfounder	1,065	0	0
Rushworth & Firth, slater	578	0	0
Stafford, plumber	241	0	0
Berry, painter	39	10	0

HATHERSAGE.

For the erection of five dwelling-houses and conveniences at Hathersage, near Sheffield. Quantities by Messrs. HALL & FENTON, architects, Sheffield.

Gillan	£2,415	0	0
Malthouse & Ward	2,410	0	0
Martin & Hughes	2,266	0	0
Drake	2,098	0	0
Moore	2,095	0	0
White	2,090	0	0
Wilson & Kenington	2,072	0	0
Bertram	2,000	0	0
Dyson & Son	1,708	12	0
Reed	1,500	0	0
W. C. MANDER, Millmount Road, Meersbrook, Sheffield (accepted)	1,458	0	0
Charlesworth	1,438	0	0
May & Sons	1,375	0	0
Hancock	1,358	0	0
Symonds, mason	994	8	0
Hodkin, joiner	490	0	6

HITCHIN.

For erection of a house at Norton Road, Garden City. Mr. W. B. STONEBRIDGE, architect.

Foster & Co.	£1,562	0	0
Redhouse	1,420	0	0
Nash	1,329	0	0
Corby	1,322	0	0
Miles Bros.	1,300	0	0
Raban & Son	1,200	0	0
Sinfield	1,147	0	0

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For new mission hall at Liscard, Cheshire. Mr. J. R. MEWTON, architect, 59 Hamilton Square, Birkenhead.

Williams	£736	7	0
Williams	670	0	0
Snape	629	0	0
Rothwell	625	0	0
Ellidge	614	4	6
Allen	590	0	0
Roberts	554	0	0
Bellis	530	0	0
McLachlan	528	11	0

LONDON.

For the erection of fencing at the Belmont Asylum.

Brooker	£555	0	0
Stenning & Son, Ltd.	545	0	0
Marshall	544	10	0
Turner & Son	535	13	0
J. & S. Legate	437	15	6
Rowland Bros.	377	10	0
Thames Steam Sawmills	358	0	0
ENNES BROS., Erith (accepted)	342	0	0

For cleaning and painting works at Park Hospital, Hither Green, Lewisham.

Langdon & Clark.	£5,477	0	0
Dean & Co.	3,205	7	1
Kazak	2,917	2	10
Fenn	2,551	0	0
Higgs & Hill, Ltd.	2,444	0	0
Wontner & Co., Ltd.	2,365	0	0
R. & E. Evans	2,227	0	0
Horswill	2,204	0	0
Cole	2,109	0	0
McCarthy	1,991	13	8
Inns	1,883	0	0
Proctor & Son	1,550	0	0
H. KENT, Lewisham, S.E. (accepted)	1,535	0	0
Engineer-in-chief's estimate	1,400	0	0

LONDON—continued.

For supply of furniture and fittings for the central library, Brook Green Road, W.

In wainscot (oak).

Ripper	£2,838	10	0
Fire Resisting Corporation	2,666	0	0
Waring & Sons	1,997	0	0
Bartholomew & Fletcher	1,982	0	0
Wallace & Co.	1,911	7	6
Parkins	1,911	0	0
Dearing & Son	1,861	0	0
Harper & Co.	1,854	0	0
Finch & Co.	1,812	17	6
Lefever	1,795	0	0
Elliott's Moulding and Joinery Co.	1,748	12	9
Hammer & Co.	1,700	0	0
Goodall, Lamb & Heighway	1,679	12	0
White	1,641	0	0
Educational Supply Association	1,624	0	0
Roberts's Stores	1,619	13	0
North of England School Furnishing Co.	1,425	14	6
LIBRARY SUPPLY Co. (accepted)	1,420	0	0

In pitch pine..

Fire Resisting Corporation	2,586	0	0
Bartholomew & Fletcher	1,862	0	0
Waring & Sons	1,837	0	0
Ripper	1,800	0	0
Finch & Co.	1,741	15	0
Dearing & Son	1,741	0	0
Harper & Co.	1,735	0	0
Lefever	1,710	0	0
Wallace & Co.	1,581	7	6
White	1,461	0	0
Elliott's Moulding and Joinery Co.	1,402	16	6
Goodall, Lamb & Heighway	1,351	15	6
Roberts's Stores	1,304	15	6
Library Supply Co.	1,215	0	0
Educational Supply Association	1,214	0	0
G. M. Hammer & Co.	1,200	0	0
North of England School Furnishin g Co.	851	7	0

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Siemens Brothers & Co.	2,465	3 7
St. Helens Cable Co.	2,446	11 3
British Insulated and Helsby Cables	2,438	17 6
Western Electric Co., London (recommended)	2,232	4 9
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Dennis & Co.	2,151	3 6

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For reconstruction of the internal fittings of the Crown Court, Sessions House, and heating and ventilation.
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McKenzie & Co.	£2,307	13 0
Wallace & Co.	2,120	16 10
Fire Resisting Co.	1,714	18 0
Goodall, Lamb & Heighway	1,677	0 0
Cox Bros.	1,635	0 0
G. Wallis & Sons	1,568	0 0
Lascelles & Co.	1,480	0 0
Corben & Co.	1,378	0 0
Avard	1,362	0 0
Pearce & Sons	1,272	0 0
Barden & Head	1,270	0 0
Seager	1,245	0 0
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Contract No. 2.

Browning	560	0 0
Hayward & Co.	493	0 0
Dargue, Griffiths & Co.	477	5 0
Kite & Co.	460	0 0
Bolton, Lane & Co.	458	0 0
Brightside Engineering Co.	429	15 0
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Tice & Co.	399	10 0
W. Fox	397	0 0
G. Wallis & Sons	392	0 0
Lancashire Heating Co.	390	0 0
Tamplin & Makovski	387	3 9
Phillips	385	0 0
R. & J. Pearson	379	0 0
Haynes Bros.	372	0 0
Corben & Co.	359	0 0
Potter & Sons	355	0 0
Cook & Sons	348	18 6
Freer	336	0 0
Elmore & Son	328	0 0
Goodwin	318	0 0
Cruttenden & Son	312	0 0

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First contract for foundations of the Manchester Royal Infirmary. Messrs. EDWIN T. HALL, London, and JOHN BROOKE, architects.

Morrison & Sons	£38,475	0 0
Leslie & Co.	37,200	0 0
Hodkinson	33,800	0 0
Foster & Dicksee	31,970	0 0
Lovatt	30,418	0 0
Brown & Sons	27,000	0 0
Normanton & Son	26,959	0 0
Neill & Sons	26,902	0 0
ARNOLD & SON, Leeds and Doncaster (accepted)	26,360	0 0

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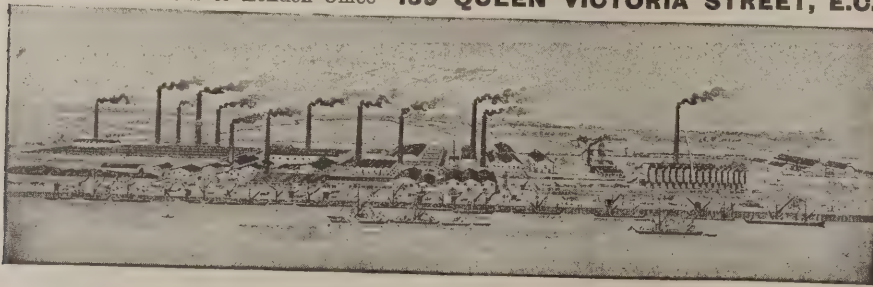
For house and shop, for Mr. J. Cozens. Mr. JOHN WYATT HILL, architect. Quantities supplied.

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Fursland	844	0 0
Davis & Son	665	0 0
Allen	625	0 0
Stockham	599	0 0
Bryer	595	0 0
PALMER & SON (accepted)	581	0 0

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WHILE a labourer was at work in a recently emptied brick-kiln at Peterborough the arch gave way and the man was buried in the fall of hot bricks. His groans guided the rescuers, and after five minutes exertion he was uncovered. His arms were severely burnt. His body was blistered and turned all over through the contact with the bricks, and there is no doubt that had he not been extricated when he was he would have been literally baked alive. It was expected that he would recover.

ONE of the largest steel firms in South Staffordshire has announced that they have just booked orders for two years forward. The contracts include plates, angles, T's, large bars and miscellaneous sections for engineers, structural engineers and similar heavy consumers. The prices at which these orders have been booked are an advance upon anything that has prevailed since the spring of last year, and further advances are anticipated with confidence. Girders and plates have risen to 5/ 15s. to 6/ 10s. boiler plates to 6/ 15s. and 7/ 5s., and angles to 5/ 10s.

THE Brighton Town Council have adopted a recommendation by the resident electrical engineer suggesting the appointment of an architect in connection with the premises proposed to be erected in Bread Street. It was resolved that Mr. Thomas Garrett, of 30 Ship Street, should be engaged as architect to prepare plans and specification, and to superintend the construction of the new buildings, at a remuneration of 5 per cent. on the cost of the work, such remuneration to be inclusive of all architect's services and out of pocket expenses, except the preparation of quantities.

THE new church for the Royal Marine Artillery at Eastney, the foundation-stone of which was laid on March 16, 1904, is now on the point of completion. The work of the contractors for the fabric has been finished. The remaining minor details are being carried out by the works department under the superintending engineer of Portsmouth Dockyard. These consist of the carving of the capitals of the pillars, the instalment of electric lighting, the fitting up of the organ and the placing of the seats.

REPRESENTATIVES of masters and men in the New York building trades at a meeting on the 22nd inst. signed an agreement to refer their differences to arbitration. About

100,000 men and 1,000 masters were represented. The frequent disputes in the building trades have delayed many New York improvements for years. Owing to the unsettled conditions and the uncertainty as to the period in which buildings could be finished, work that would otherwise have been started has been postponed. It is expected that a result of the settlement will be a building boom.

VARIETIES.

AN American firm has contracted with the Japanese Government to build a complete steel plant at Kuri at a cost of 1,250,000 dollars.

THE Darlington Corporation are seeking permission to spend another 50,000/ on the extension of the municipal gasworks. These and the waterworks provide revenue that relieves the rates to the extent of nearly 2s. in the £.

THE gas committee of the Manchester Corporation out of their profits for the past year will contribute 50,000/ for the relief of the rates, while the tramways will contribute 46,000/.

ON Friday, May 26, at three o'clock, the new buildings of the City of London College, in connection with the scheme of commercial education, will be opened. These buildings have been acquired at a cost of about 30,000/.

AN international competition for prizes offered by the Association of Italian Manufacturers for the Prevention of Accidents in Factories is to be held during the Milan Exhibition of next year. The prizes consist of six gold medals and 9,500 lire.

THE Camelford Rural District Council are asking county councils throughout the country to support a petition to the Local Government Board to approach Parliament for powers to permit rural district councils to sell or let pieces of roadside waste land for building or any other purpose.

PENGE was transferred from the London County Council area to Kent some years ago. The London County Council claimed from Penge the sum of close upon 80,000/. An inquiry took place at Spring Gardens about two months ago. According to the award just announced, Penge has to receive from the Council a sum of nearly 5,000/.

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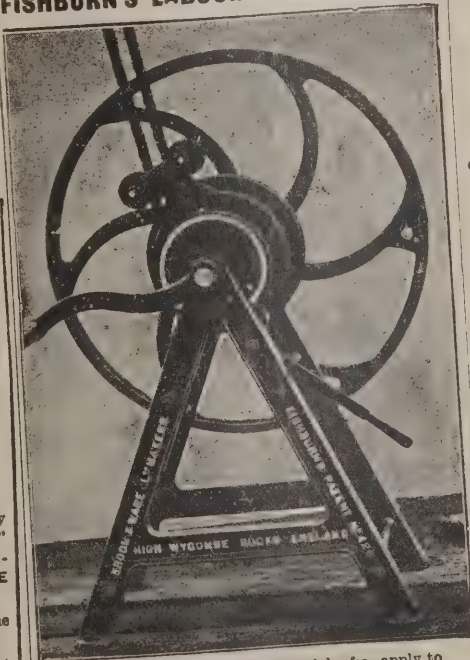
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THE Local Government Board have refused to sanction the borrowing of money by the Runcorn Urban District Council to enable them to connect their waterworks with the Vyrnwy mains of the Liverpool Corporation. The Local Government Board state that a provisional order must be obtained, and this will entail a delay of eighteen months in carrying out the scheme.

THE Birmingham education committee have adopted the report of the technical education and evening schools sub-committee, which recommended the establishment at the municipal technical school of a course of instruction in practical sanitation, together with the formation of a Sanitary Board to supervise such teaching. It was stated that in Birmingham and round about there were 120 sanitary authorities.

THE Aberdeen Town Council at their last meeting discussed at length whether Jarrah wood blocks should be laid in St. Nicholas Street instead of 4-inch granite cubes. The tramways and streets and roads committee recommended that the thoroughfare be laid with granite cubes. This report was adopted by a large majority.

THE Local Government Board have sanctioned the application made by the Foleshill Rural Council for a loan of 22,000*l.* on account of Bedworth sewerage scheme, and it was decided to apply to the Public Works Loans Commissioners for that amount. The plans by Mr. T. F. Tickner, architect, for a hospital for infectious diseases other than smallpox were approved, and it was decided to ask the Local Government Board's permission to borrow for the purpose 9,250*l.*

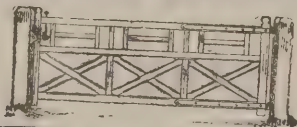
FIGURES have been collected showing the number of accidents arising in the construction of the Simplon tunnel. Since 1898, when the work was commenced, thirty-nine persons have lost their lives, including the engineer, Signor Bianco, and two other officials, who were killed in the tunnel on February 24 last. The accidents to workmen have totalled no less than 5,536, many of which, however, were of a minor character. Twenty-eight were of a very grave nature, entailing life-long disablement. There were no epidemics of disease during the whole time of the work, and in consequence the deaths from disease were very few in number.

THE seventh session of the International Railway Congress will open at Washington on May 4, when about 1,500 railway men will meet to discuss matters relating to the administration of railways. Delegates will arrive in New York on or about April 29. The delegates will afterwards proceed to Washington, where they will be received by the President. The Congress will sit from May 4 to May 14, after which a grand tour of inspection covering 2,600 miles will be made, and the following cities and places will be visited:—Altoona, Pittsburg, Cincinnati, St. Louis, Chicago, Buffalo (including Niagara Falls), Schenectady, Montreal, Boston, &c. The tour closes at New York on May 30.

LIÈGE EXHIBITION.—On and after the 1st proximo the service by the Harwich route between London and Liège will be greatly accelerated. Passengers leaving Liverpool Street station at 8.40 P.M. will be due at Liège at noon the following day. Dining and breakfast cars will be attached to the boat trains between Liverpool Street station and Parkeston Quay, Harwich. By this service passengers are enabled to enjoy a night's rest and breakfast on the steamer before landing at Antwerp. Through carriages will run from alongside the steamer to Liège and *vice versa*. The Great Eastern Railway Company have also arranged for cheap return tickets available for seven days in connection with the Exhibition, which will enable passengers to break their journey at Brussels.

THE Scarborough Town Council have received the report of a consulting engineer as to the damage sustained by the Marine Drive, at the foot of Castle Hill, in the storm of January last. Mr. James Walker (engineer to the Tyne Commissioners) recommends remedial works with the utmost possible expedition, as owing to the blows of the sea, the pressure of water at the back and the absence of support at the toe the structure has been so severely shaken that it is in the first stage of disintegration. Unless it is strengthened in a thoroughly satisfactory manner another severe storm may cause a breach. The damaged portion, Mr. Walker points out, is roughly 540 yards in extent, and he suggests the construction against the front of this section of three concrete-in-mass buttresses, 83 feet, 95 feet and 228 feet in length, at an estimated cost of 8,000*l.*

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THE BUILDING TRADES EXHIBITION.

ANYONE who looked on the Building Exhibition at noon on Wednesday would hardly be able to recognise how much trouble was necessary in order to make all the stalls appear complete. He might be excused if he thought that chaos had come again. Everything appeared to be in disorder, and as each set of workmen were compelled to labour in a restricted space it seemed as if a completion would never be reached. Superficial observers may not realise how much skill is required in order to make a building exhibition appear to be perfect. Building, and of a delicate kind too, has to be executed with many of the structures. All the parts must fit perfectly or it will be supposed that the materials are unshapely. Allowance is rarely made for the difficulties which accompany the erection of these small structures. Columns, arches, partitions, flooring, all have to be put together with expedition and yet to present the appearance of careful and systematic labour.

On such occasions the difference between English and foreign workmen becomes plain. One becomes excited by the novel circumstances, the other is as cool as if arranging shows in a hurry were his everyday occupation. In elaborateness we believe the present Exhibition to surpass its predecessors, but everything was in its place when Lord Windsor arrived to take his part in the opening ceremony.

Lord Windsor, in rising to declare the Exhibition open, said that if any proof were necessary of the undoubted success, importance and usefulness of the Building Trades Exhibition it could not be better found than in the ever-increasing number of exhibitors. In 1895 they numbered ninety-two, and during the last five biennial exhibitions the number has been consistently mounting up, until in 1905 the total is 317. This result likewise demonstrates that the manufacturers of the industries allied to the building trade find it worth their while to place their inventions and improvements before the public. And, furthermore, that it is becoming more worth while for visitors to come. Lord Windsor laid stress on the subject of smoke abatement, in connection with which there is a special exhibit. In the past the question has been neglected, and more especially in this country, whether in London or the chief

manufacturing provincial cities. In London the smoke nuisance is almost unbearable when it manifests itself in visitations of yellow fogs and killing vegetation. Smoke has a disastrous effect on building stone, necessitating the renovation or renewal of old stonework. The aid of chemists in warring against the evil by means of preservatives is not to be despised, but it is far better to secure a prevention than a cure. An even more vital question to everyone in the present day is fire prevention. It is impossible for a large body of men to aggregate without serious danger from this evil. But vast strides have been made within the past few years, and they may be seen and realised by an inspection of many of the exhibits dealing with the danger. We have to recognise the constantly altering methods of building which are effected by the discovery of new materials. The streets of London exemplify this fact well. It is the duty of the architect to use these advantages properly and with a regard to truth. No one can be quite happy in the contemplation of a jerry-built house, and yet cheap construction is a necessity. To strike the happy medium must be the goal of every architect and every builder.

Mr. Fitzroy Doll, Mayor of Holborn, proposed a vote of thanks to Lord Windsor. He said he did so more especially as a member of the great profession of architects—perhaps the greatest of all professions—the profession that has supplied man's earliest wants and still continues indispensable to the human race. Lord Windsor was, in his opinion, deserving of sympathy in his official capacity. The Board of Works are the victims of a disastrous economy. The House of Commons seemed incapable of realising the actual material advantages arising out of the existence of fine buildings. Paris has not made this error, and now enjoys the profits. Eleven million pounds are spent by travellers in Italy, who are attracted by the architectural glories and their associations.

Mr. Greville Montgomery, in seconding the vote of thanks, alluded with conscious pride to the success of the Building Trades Exhibition. For the first time in the history of the Exhibition the entire building was absolutely



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full of exhibitors, every one of them being connected with the trade. When he (Mr. Montgomery) commenced his connection with the show some ten years ago the display was most miscellaneous, and included shooting galleries and sweetstuff stalls.

Lord Windsor, in returning thanks, read an apology from Sir Aston Webb, R.A., who was unable to fulfil his promise to attend owing to a Council meeting of the Royal Academy. Lord Windsor expressed his pleasure in attending not only in his official capacity, but as one who had taken a life-long interest in architecture and its allied arts and industries.

The stand of the *Patent Victoria Stone* is to be found in the gallery. To the initiated it may be said to be a compendium of building under new conditions. There is a bungalow which is constructed with the slabs, and which, besides possessing sanitary conditions, has the stability that is essential. Cottages constructed in that way would be a boon in country districts. The company also show two varieties of their paving slabs, which are familiar to pedestrians in towns all over the country. Then we see staircases with rectilinear and curved treads. It is needless to say that by the material the most difficult problems in such work can be overcome. The balustrading is of admirable design, and a part is laid out on a curved plan to show the facility with which all arrangements can be met. There are some elaborately carved columns and panels, vases which may be called elegant, and much else which is worth attention. There is a fine pilaster, and as a rival some Gothic panelling of excellent style. Altogether the combination will suggest the capabilities of Victoria stone.

The *Carron Company* will be certain to attract general attention by their comprehensive display, which ranges from three stable stalls to boiling pans. If all their specialties appeared they would occupy the entire hall. No one should fail to see their grates in the seventeenth-century style. The originals were executed at Carron Works from 1780 to 1800. Since that time the designs were so greatly admired by architects and other experts visiting the works that the company decided to reproduce the old examples. With this object the services of Mr. John

Kinross, an architect whose authority is undoubted, were secured, and he arranged the design. The success which resulted has been beyond doubt, and for an ocular demonstration we would point to the "Shrine" and the "Bacchanalian" grates. The first is suitable for a boudoir or study and the other for a small dining-room. The "Radiant" fires show all the most modern improvements. The bottom grate is concave in shape and has a movable front bar or trivet. The bar is removed from the vertical to the horizontal as soon as combustion has set in, thereby allowing the heat to be uninterruptedly diffused. The designs are artistic and the "Radiant" grate is of a very ornamental character. The other exhibits of the Carron Company include cooking-ranges, stoves, portable ranges, chimneypieces, firedogs, &c. In an age of iron and steel the Carron Company hold a position which is unquestioned.

We referred last week to the *Columbian Fireproofing Company* as likely to show some of the effects which additional experience has produced in dealing with their material. One of their specialties is a section of a circular drain in concrete and metal which all sanitary engineers should carefully consider. The diameter is about 5 feet and the thickness is 3 inches. The surface is as smooth as a perfect casting in fine metal. It would be difficult in cast-iron to obtain as satisfactory a section with such uniformity of thickness, for everyone knows that with large castings there is a risk that, although the specified weight per yard can be assured, uniformity of thickness cannot be guaranteed; an excess of metal may be found in one part with a corresponding diminution in another. The pipe is an undoubted *tour de force*. The method of arranging the steel armour around is shown. Another object which is also important is an arrangement in concrete to serve for linings of Mansard roofs. They are not always easy to construct, and we may add that when in position they do not always appear to correspond with the original design, for optical allowances must be made which are not always easy to determine. By the *Columbian Company's* method the conditions of a Mansard roof can be realised, and by the adoption of their system the risk of fire is so minimised as to appear almost trifling. The girders and other metalwork employed are also exhibited.

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The Jesse Haworth Memorial Church, Walshaw, near Bury, Lancashire.

The Cathedral Church, Pretoria, South Africa.

St. Matthias Church, Barbadoes, West Indies.

St. Thomas's Church, Newport, Isle of Wight.

St. John's Church, Forton, Gosport.

St. Paul's Church, Peterborough.

Linslade Parish Church, Leighton Buzzard.

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Works have been carried out under the direction of the late Sir ARTHUR W. BLOMFIELD, A.R.A., J. L. PEARSON, Esq., R.A., F.S.A., Messrs. BOOTH & CHADWICK, Manchester, and other eminent Architects.



The pavilion of *Ripolin, Ltd.*, is a model of good taste. It is in the Adam style with delicate columns, medallions, ornament and mouldings. It would be admired by Paris decorators. The whole is covered with Ripolin in various tones, all being equally soft and restful to the eye. The enamel on the columns is so fine as to suggest mechanical polishing, but it is simply brushwork and an excellent medium. The pavilion is so successful it merits preservation.

The specimens of W. Duffy's patent system of doweled paving in Jarrah and other woods are shown in the three stalls of the *Acme Flooring Company*. The blocks of D quality are prepared from the finest timber, thoroughly seasoned and rift sawn, so that only the fine grain of the wood is to the wearing surface. Particular attention is paid to insure freedom from knots and that there shall be no sap. In addition to the D quality two others, only slightly inferior, may be obtained. The roadways laid by the company for the Tower Bridge in 1895 are still in perfect preservation. The London School Board employed the "immovable Acme system" for fourteen years, and the present education authority have continued to do so. Not a single one of the 9,000,000 blocks supplied in 330 schools and extensions have been rejected. The blocks will wear through to the dowel and beyond it. We might mention that not more than eighty blocks are required for each 100 yards super.

There have been many attempts to prevent the rain coming through roofs, rotting the timber supports, penetrating any plaster covering and falling into the room beneath. *Watson's Patent Fluted-Faced Tile* is well adapted to achieve this object. The fluting insures the equal distribution of rain over the tile as well as channels for its downflow. The ridges are about 2 inches above the bottom edges of the upper tile. In case of a roof abutting against a wall the fluted tiles form an admirable key for cement filleting. The fluting is more than utilitarian, for it is decorative as well. Vertical tiles for gabling may be had in many patterns from the manufacturer, Mr. Charles Watson, Napton-on-Hill, near Rugby.

The *Hard York Non-slip Stone Company* this year exemplify how a pavement that usually is monotonous in colour may be varied. In addition to their flags of a

natural grey tone they show flags which are coloured, and a sufficient area has been laid down to suggest the effect. The perfection to which the system has been carried is seen in their "non-slip mosaic flags," which are adapted for corridors. In order to indicate the strength and tractability of the ordinary non-slip flag, a number of carvings have been made. Various samples are shown of steps and landings. As a further test non-slip mouldings have been used in the decoration of the stall.

Messrs. Brookes, Ltd., of Halifax, show their blue and grey Ystehede granite, which can be polished, picked and fine axed, and is well adapted from the uniformity of grain for ashlar. From its strength it can be used as setts for tram lines and for kerbs. Specimens are also exhibited of Swedish, Irish, Welsh and English granite, and Norwegian dock copings. *Messrs. Brookes, Ltd.*, possess estates in Scandinavia, and they illustrate by photographs the process employed in preparing the stone. The Silix brand stone has been employed for the new public offices in Westminster. The Silix stone of the firm has been in use for many years.

Messrs. J. A. King & Co. can claim an analogy with nature for their "Mack" patent fireproof and soundproof slabs and blocks. By using strong hollow reeds they are able to form air cells, which not only diminish the weight of the partitions, which is often an advantage to prevent the passage of sound. In Buckingham Palace cockle-shells were employed to prevent the passing of sound, because in those days concrete was not used for partitions. The strength of the slabs has been tested up to 6½ cwt. per superficial foot, and a slab has been tested in a fire, which was increased to 2,000 degrees Fahr. without the fire passing through it. No metal of any kind being used in the manufacture or in the erection of "Mack" slabs, the partitions cannot lose their strength. Neither is there anything to discolour the plastering.

A liberal education in the number of uses to which marble is now put is afforded by the extensive exhibit of the *Art Pavements and Decorations, Ltd.*, which occupies six bays in the gallery. Each stall illustrates some particular department of their business. A novel feature is the Medmenham tiles, which were produced under the direction of Mr. Conrad Dressler, the sculptor. A new paving

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material is seen in Petroglass, which is harder than granite, unaffected by acids or oils, and has been proved to resist a current of 10,000 volts. The extent of the selection now available to users is seen in the display of 160 small slabs of different marbles. A conspicuous feature of a noteworthy exhibit is a slab of Greek cippolino, standing over 10 feet in height, and of beautiful colouring. It may be noted that these marbles are taken from the stock-rooms of the firm, and are not specimens specially obtained for display. A very effective combination of wood and marble is shown in a chimney-piece. Marble pavements are seen in various designs, as well as mosaic work. The parquet and joinery is on a level with the other exhibits of the firm, and this is high praise indeed.

An exhibit of an eminently utilitarian character is that of the *Preston Granite Concrete Company, Ltd.*, Preston. They show their granite concrete slabs, which form a most enduring pavement. The slabs are capable of standing a pressure of 600 tons on each. The thickness varies. In Lancashire, for instance, the wear and tear is such that a thickness of 2½ inches is usually specified. Chiefly owing to the substitution of boots in the place of clogs in the south of England the thickness required is only 2 inches. The firm are in the fortunate and unique position of being able to ship direct on board the boats in the Preston docks. This advantage has a most material effect on the price they can quote. The firm are about to send 30,000 yards of their paving for Capetown, which is, we believe, the first contract of its kind to be secured by an English firm.

Two traceried windows on each side of the stall occupied by the *Empire Stone Company* will be sufficient to arrest the attention of passers-by. Another architectural feature is a couple of Tuscan columns similar to those to be used in the Society Buildings, Birmingham. The stone is shown in various colours and resembles Portland stone, red or yellow Mansfield. Two different examples of steps are shown, as well as samples of flagging.

Among the many original features exhibited by *Messrs. Stavers & Stavers* is their machine-grained door, which would deceive anyone not initiated into the secret. There are about forty other deal doors shown, and every one is according to an original design, well repaying the avowed endeavour of this firm to leave behind old-fashioned ideas

and to strike out on new lines. The workmanship is of a very high quality and excellent finish. One door is fitted with composition panels, which may be picked out in colours, thus giving a striking effect. Several different porch fronts are shown with great effect. Builders' joinery in all its requirements is provided by *Messrs. Stavers & Stavers*, 158 Leadenhall Street, E.C.

Eubœolith Patent Flooring is a plastic material which may be laid *in situ* on concrete, old wood floors, flagstones, &c. It is fireproof, and being a solid, jointless mass affords no possibility of the accumulation of dirt or bacteria. It is therefore especially adaptable for hospitals of all kinds. The company have found that in this description of work a hollow skirting all in one with the floor is advantageous. But hospitals are only one of the many varieties of buildings where *Eubœolith* is employed. Others are schools, halls, barracks, factories, workshops, &c. Mr. J. Percy Day, 3 Victoria Street, Westminster, will supply any information.

Art and permanence might be taken as a motto by the manufacturers of *Durolite*. They are artists and painters in stained glass and in other forms, and they wish that the beautiful tiles which they produce should be of a character which will endure. The tiles are of exceeding toughness, for they can be struck by a hammer without fracture. They are also lined with a material which is an impediment to the spread of fire. Whether the tiles are plain or ornamented they are alike enduring, and a wall lined with them is not liable to the unsightly appearance which is sometimes caused by ordinary wear and tear, and sometimes by the disregard of people. Several varieties are to be seen lining the stand of the manufacturers, who also show examples of stained glass and of an application of photography in the form of landscapes and portraits which is remarkable. All the contents will bear rigorous examination.

We hesitate about referring to *The Architect* stand, but it deserves notice as an example of expeditious construction. It is mainly constructed of Kent slab plates and wooden framing. The material is possessed of many invaluable qualities, but it should also be added that in emergencies it lends itself to the occasion, and when painted a pleasing structure is obtained at a moderate cost.

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The "**HERMETICA**" RADIATOR (Patented). For Rooms, Halls, Offices, Schools, Shops, &c. Requires no furnace and no replenishing with water. Each Radiator is self-contained. No trouble, no smell. Next to no cost for working. Railway companies use it for Waiting Rooms. The L.C.C. use it for Board Schools.

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THE WINGET CONCRETE BUILDING-BLOCK MACHINE.

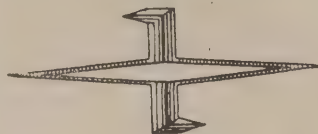
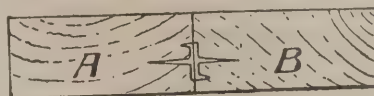
THE varied possibilities of concrete as a building material are becoming more and more widely recognised. At the present juncture such a contrivance as the Winget concrete building-block machine is of an eminently useful character. It possesses many noteworthy features. The concrete blocks can be made for an 8-inch or an 18-inch wall with equal ease, and of any shape. They may be rock-faced, cut, sawed, chiselled, brush-hammered, panelled, plain or highly ornamental faced by merely attaching the proper wing-faced plates made in accordance with the desired architectural design. The mechanism which can accomplish so much is of wonderful simplicity. It forms the mould, relieves the block, and removes the cores automatically by merely revolving the gear attachments. Two seconds are sufficient to form the mould, and in three seconds the block is ready to be relieved. Nevertheless, they have all clean, hard and sharp corners, making solid, closed and lasting joints. The variety of forms obtainable is remarkable. The blocks may be made solid with oval or hexagonal openings, with recesses for the admission of the ends of joists, with flues from top to bottom; circular, having different degrees of radius, 45 deg. angle blocks for use in bay windows, or a special plate permits of the turning out of caps and sills up to 48 inches long. Messrs. H. J. Stoddart & Co., 144 Bath Street, Glasgow, are the general sales agents for this machine in Great Britain and Ireland.

TRADE NOTES.

THE new sanatorium, Blackpool, is being warmed and ventilated by means of Shorland's patent Manchester grates, exhaust roof ventilators and special inlet ventilators, the same being supplied by Messrs. E. H. Shorland & Brother, of Manchester.

THE two blocks we give herewith illustrate the main feature of Cooley's patent system of double dowelling wood-block flooring. The effort has been to improve on the

existing methods of combining wood blocks. This is done, as will be observed, by their patent pin. The two main shanks of the pin are forced into the blocks. In addition to the grip thus obtained the joint is strengthened



by the two projections which are turned at their ends in different ways, and again entering the block form a double dowel. The pins may be inserted in any part of the blocks. The flooring is rendered so immovable that no adhesive composition is required. In case of dampness a thin coat of composition may be laid. Every floor laid down in accordance with this system is accompanied by a guarantee for six years. The blocks may be had in two qualities, the woods in general use being yellow deal, pitch pine or oak, and the timber is thoroughly seasoned before use.

MANCHESTER WATERWORKS.

NEARLY six miles of new iron piping have been laid on renewals account during the past year, 14½ miles of iron piping have been laid in extensions in various townships, and connections have been made to 5,975 additional houses and other premises by means of over 5¼ miles of service piping at an expense of 1,667*l.* 1*s.* 11*d.* The 36-inch main from the Prestwich reservoirs for the distribution of water from Thirlmere has been completed, and the new arrangements in connection with the supply of water to the township of Salford came into force with the quarter ended March last.

THE MOMENTUM ENGINE (Patented). The Discovery of Mechanically-made Power.

NOW IN OPERATION AT THE ALEXANDRA PALACE, LONDON, N.

THE discovery; that, a free racing Flywheel possesses two natures, under one—it will receive rotary motion for the application of twenty pounds—notwithstanding it weighs a ton, and the second nature of the Flywheel is, that when it is connected to a working load it will throw out the rotary value of the centres of the weights in motion, by the square of the velocity, the centre of Gyration.

This discovery means several great Flywheels, each separately driven by any motive power, each Flywheel taking its regular turn to revolve a working shaft, to which it is connected, and from which it is disconnected for a greater length of time. Radium, and also these Engines, prove that the Theory of Energy is false. This Engine can be seen running the electric light at the Alexandra Palace. It is explained free.

The Engine has taken a first-class Diploma of Merit at the Alexandra Palace for Electric Lighting.

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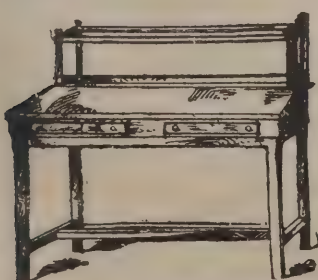
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For Index of Advertisers, see page x.

The report adds:—The reservoirs, watercourses and other works at Longdendale have been maintained in an efficient condition. The offices and workshops at Bottoms, which had been in use many years, have been rebuilt, the old material being made available as far as possible. The scheme which has been devised for utilising the flow of compensation water for generating electricity for lighting, supplying power at the workshops and working the private railway up the valley has also been completed, and is working satisfactorily. The Thirlmere works have also been maintained in a satisfactory condition. Considerable improvements have been made by the Cumberland County Council, with the co-operation of the committee, in the roads and bridges at Thirlmere, which will prove of great advantage to the waterworks estate. The drainage of Shoulthwaite Moss, which has been contemplated for some time, is also being proceeded with. The works for the raising of the lake were so far completed in March last as to allow of water being impounded to the new level of 15 feet above that to which the lake was first raised. The second line of pipes throughout its entire length of about 45½ miles has continued to work very satisfactorily. Some little work in connection with the trimming-up of the surface of the land, roads and other small matters remains to be done. The amounts paid to the contractors during the year have been:—Messrs. Fisher & Le Fanu, 28,010*l.*; Messrs. Monk & Newell, 16,850*l.* The final statements of the work done under these contracts are now being prepared. The contracts for valves, bridges and sundry ironwork are practically completed, 8,355*l.* having been paid on account of these during the year. The work of lining the aqueduct at Hutton Roof has had to be suspended during a portion of the year, but the same will be again proceeded with as soon as possible.

The demand for hydraulic power has been steadily maintained during the year. The plant already installed is utilised to within 10 per cent. of its maximum capacity, and the committee have at present under consideration the question of the erection of an additional pumping station. Connections have been made to eighteen additional premises, containing sixty-four machines. The total number of premises into which the supply is now introduced is 496, and the total number of machines connected is 1,839. The

total length of hydraulic mains laid is 20 miles and 461 yards, of which 669 yards have been laid during the year.

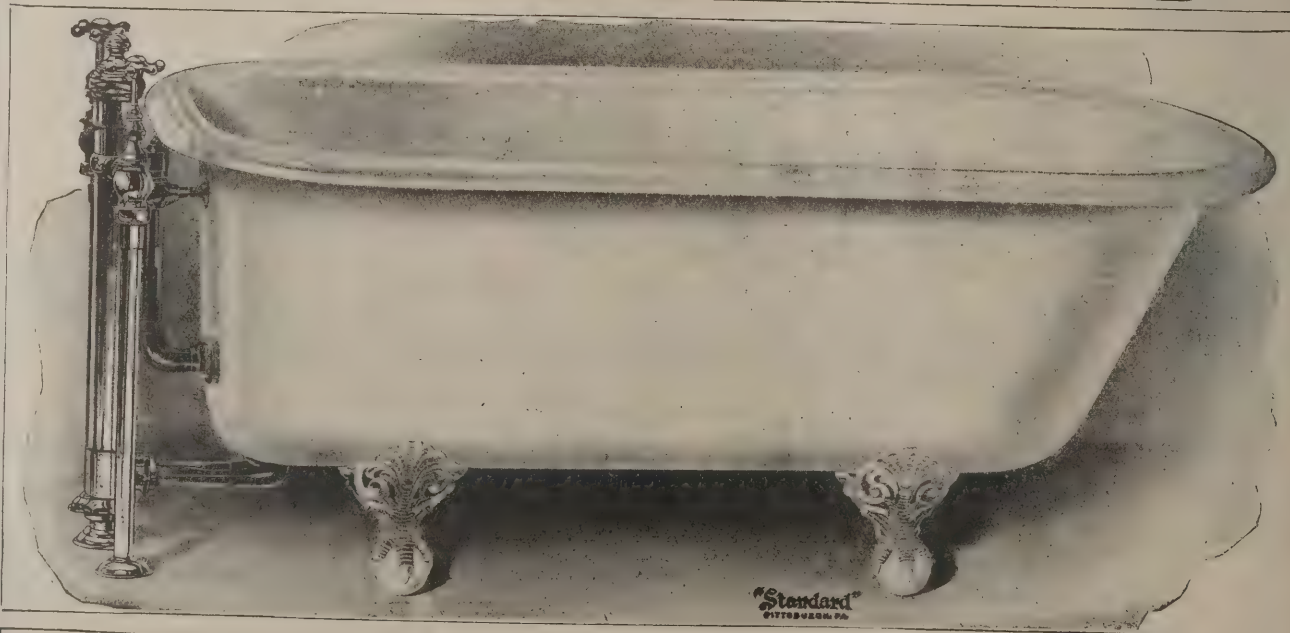
PREVENTION OF LEAD POISONING.

THE medical officer of health to the Chesterfield Rural District Council in his last report says:—Several cases of lead poisoning were reported to me during the year, and I found on examination that they were genuine ones. The fact that the water as supplied in house services will take up lead, though it shows no acidity when tested with lacmoid solution, points to the necessity of further treatment than the passing of it through lime filters, or the addition of Paris white to the water in the reservoirs. No doubt these measures do some good, but the water should be rendered slightly alkaline by the adoption of some such system as is used at Redmires or the addition of sodium carbonate as at the Wakefield Corporation Waterworks. In the supplement to the thirtieth annual report of the medical officer of the Local Government Board, Dr. Houston writes respecting the last:—"Five hundred gallons of a strong solution of soda (about 1 lb. per gallon) are mixed with one million gallons of acid water. The result is very satisfactory, as the water after treatment no longer acts on lead and is slightly more than neutralised. As regards erosion of lead, it may be added that while the 'untreated' water possesses strong erosive ability, the 'treated' water is not only cured in this respect, but is placed, as it were, in a state remote from the possession of erosive ability. No other form of 'treatment' appears to confer this property on water in an equal degree."

MR. GEORGE ADAM HART, of Birmingham, has been recommended by the sewerage committee of the Leeds Corporation for appointment as sewage engineer at a salary of 1,000*l.* The successful candidate, who is one of a large number of applicants, has been chief assistant engineer to the Birmingham Tame and Rea Drainage Board.



"Standard"



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NEWBURY.

For taking-down and rebuilding premises in Cheap Street, Newbury, for the Governors of St. Bartholomew's Hospital and Grammar School. Mr. W. H. BELL, architect, Newbury.

Godwin	£1,910	0	0
Hoskings Bros.	1,475	0	0
Head	1,461	10	0
Elms & Sons	1,453	11	6
Kingerlee & Sons	1,387	0	0
Chivers	1,340	7	0
A. BRAZIER, Pound Street (accepted)	1,298	0	0

PONTEFRACT.

For the erection of three shops, offices and workrooms, for the Pontefract Co-operative Society. Messrs. GARSIDE & PENNINGTON, architects, Pontefract.

Gill & Sons	£1,327	0	0
Moberley	1,305	0	0
Walker & Sons	1,238	9	0
Spurr	1,233	14	3
Walker & Ward	1,128	14	0
Thompson & Sons	1,127	13	0
Jackson & Dimberline	1,125	0	0
Gundill	1,076	11	0
A. A. ASKAM AND OTHERS (accepted)	1,009	1	0

SCOTLAND.

For carrying-out the drainage scheme at Newton Mearns, for the upper district committee of Renfrewshire. W. M. FOULDS, Paisley (accepted) £1,948 16 11

SCOPWICK.

For erecting new Wesleyan chapel and school. Mr. J. R. HALKES, architect and surveyor, 11 Mint Street, Lincoln.

Crookes	£777	16	7
Halkes Bros.	729	0	0
W. & M. Halkes	710	15	0
Saxby	675	0	0
R. L. HOLLAND, West Parade, Lincoln (accepted)	640	10	0

STOKE-ON-TRENT.

For the supply of various articles to the Board of Guardians.

Accepted tenders.

Werner, Pfeleiderer & Perkins, bakehouse ovens	£495	0	0
Howson & Sons, Hanley, baths, &c.	430	0	0
Hartley & Co., Stoke-on-Trent, iron principals	400	0	0

SLEIGHTS.

For the erection of a seven-roomed bungalow for Mr. E. Anderson. Messrs. BARRETT & DRIVER, architects, 23 York Place, Baker Street, W.

Braim & Son	£326	10	0
Chapman	316	0	0
Fletcher	302	0	0
Harland	296	0	0
J. HUTCHINSON, Sleights (accepted reduced tender 220/.)	241	8	6

SMETHWICK.

For the provision of an additional double-line loop to the proposed elevated siding into the gasworks.

E. C. & J. KEAY, LTD. (accepted)	£936	0	0
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TODDINGTON.

For the erection of a pair of six-roomed cottages and a seven-roomed single cottage and bath-room for Mr. H. Andrews. Messrs. BARRETT & DRIVER, architects, 23 York Place, Baker Street, W.

Pair of Cottages.

Howman & Co.	£463	0	0
Hopkins	423	0	0
Oakey	420	0	0
Collins & Godfrey	356	0	0
ESTCOURT & SONS (accepted)	306	0	0
Esplay & Co. (declined)	—		

Single Cottage.

Oakey	426	0	0
Hopkins	395	0	0
Howman & Co.	346	0	0
Collins & Godfrey	324	0	0
Esplay & Co., Ltd.	295	0	0
ESTCOURT & SONS (accepted)	274	0	0

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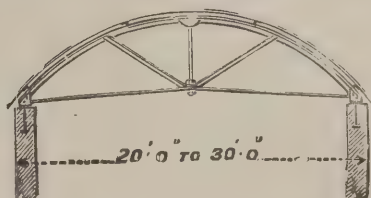
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MANCHESTER
TRAFFORD PARK

TEWKESBURY.

For the erection of an elementary school at Tewkesbury.

Mr. M. H. MEDLAND, county architect, Gloucester.

Estcourt	£3,659	0	0
Williams	3,650	0	0
Drew	3,495	0	0
Wilkes	3,359	0	0
Draper & Wallington	3,220	0	0
Howell	3,190	0	0
Bowers	3,180	0	0
Colborne	3,119	17	0
COLLINS & GODFREY, Tewkesbury (accepted)	2,798	0	0

TUNBRIDGE WELLS.

For the construction of about 138 yards of 12-inch, 2,500 yards of 9-inch and 460 yards of 6-inch stoneware pipe sewers, together with all manholes, lampholes, ejector chambers and two 55-foot diameter percolating filter-beds, and other works incidental thereto in connection with the Paddock Wood sewerage and sewage-disposal works, for the Tonbridge Rural District Council. Mr. FRANK HARRIS, engineer.

Page	£9,825	6	4
Davies & Leaney	9,461	15	0
Osenton	9,438	0	0
Pickard	8,691	2	3
Crates & Son	8,337	10	9
Streeters & Co.	8,269	6	2
Pedrette	8,095	0	5
Jameson & Son	7,987	7	9
Jarvis & Son	7,980	0	0
Nunn	7,941	12	7
Jackson	7,909	19	1
Jarvis	7,840	12	0
Jackson	7,791	9	10
Manders	7,788	7	0
Pedrette & Co.	7,751	15	1
Rogers & Wood	7,708	16	0
Arnold & Sons	7,705	15	0
Wheeler & Co.	7,693	11	8
Rayner	7,633	0	5
Iles, jun.	7,577	11	3
Dixon & Co.	7,477	7	5

TUNBRIDGE WELLS—continued.

Coxhead	£7,449	0	0
Murray & Co.	7,445	8	8
Soan	7,443	0	5
Wallis & Co.	7,294	3	5
ROAD MAINTENANCE Co., Gravesend (accepted)	7,159	3	11
Engineer's estimate	7,512	0	0

For (Contract No. 2) the erection of an engine-house and other works incidental thereto, in connection with the Paddock Wood sewerage and sewage-disposal works, for the Tonbridge Rural District Council. Mr. FRANK HARRIS, engineer, Southborough, Tunbridge Wells.

Pickard	£1,780	0	0
Page	1,247	18	0
Jackson	828	0	0
Jarvis & Son	820	0	0
Nunn	600	0	0
Iles, jun.	470	0	0
Crates & Son	470	0	0
Davis & Leaney	460	0	0
Wallis & Co.	450	0	0
Road Maintenance Co.	429	0	0
Coxhead	402	0	0
Green	375	0	0
Manders	365	0	0
Carley	359	18	6
Jarvis	350	0	0
Cook & Son	348	0	0
M. C. TULLY, Capel (accepted)	284	0	0
Engineer's estimate	350	0	0

UPTON-ON-SEVERN.

For carrying-out sewerage work in Bellars Lane.

F. W. HAYES (accepted)	£168	0	0
Davis	163	0	0

WOLSTANTON.

For the erection of temporary buildings at the workhouse.

J. GALLIMORE (accepted)	£1,050	0	0
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For the construction of a block of workshops.

J. GALLIMORE (accepted)	£827	0	0
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NEWTOWN LODGE, HUNGERFORD, BERKS.

WALTHAMSTOW.

For the erection of schools for mentally and physically defective children, to accommodate sixty each, Clifton Avenue. Mr. H. PROSSER, architect. Quantities by Mr. G. T. G. WRIGHT.

Hyde	£7,469	0	0
Turtle & Appleton	6,930	0	0
Martin, Wells & Co.	6,750	0	0
Kirk & Randall	6,745	0	0
Groves & Sons	6,698	0	0
Horswill	6,639	0	0
Sans & Burley	6,535	0	0
Faulks	6,200	0	0
Coxhead	6,100	0	0
Maddison	6,054	0	0
F. & E. Davey	5,987	0	0
Rowley Bros.	5,950	0	0
Crisp	5,886	0	0
R. & E. Evans	5,782	0	0
Knight & Son	5,776	0	0
J. & J. Dean	5,639	0	0
Pollard & Brand	5,544	0	0
Manders	4,949	4	10

Referred to new education committee.

WREXHAM.

For carrying-out the Cefn and Acrefair sewerage works.

J. T. JONES, Cefn (accepted)	£9,135	0	0
Engineer's estimate	9,750	0	0

WHEATLEY.

For carrying-out street works.

F. & E. Fox, Balig (accepted)	£122	16	0
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WHITSTABLE.

For enlargement of police station. Mr. F. W. RUCK, county architect, Maidstone.

Denne & Son	£2,590	0	0
Sturry Building Co.	2,500	0	0
Wallis & Sons	2,468	0	0
Smith	2,398	0	0
Avard	2,383	0	0
Pearce & Sons	2,350	0	0
Porter	2,349	0	0
Browning	2,348	0	0
Martin	2,300	0	0
Amos & Foad	2,280	0	0
Fuller & Son	2,200	0	0
GANN & Co., Whitstable (accepted)	2,189	0	0

WOOLWICH.

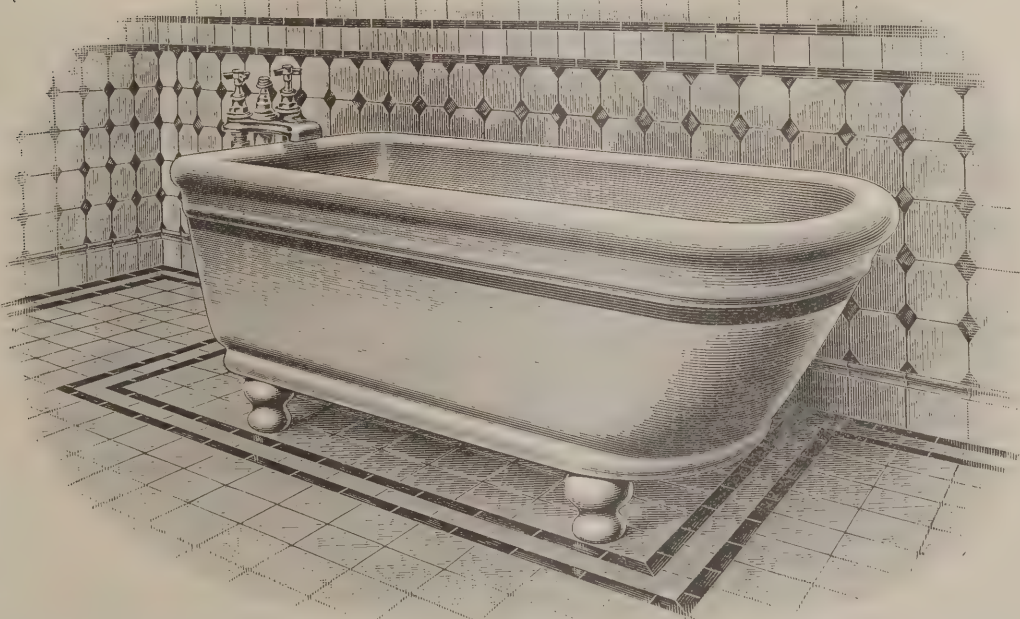
For lighting the Woolwich union infirmary and nurses' home, &c., by electricity. Mr. J. O. COOK, architect, Woolwich.

Barlow & Young	£1,983	0	0
Marshall	1,500	0	0
Boaz	1,250	0	0
Berry	1,194	0	0
Bean Co.	1,154	14	0
Lightfoot	1,027	15	0
National Electric Construction Co.	998	0	0
Woolwich Borough Council	892	16	0
Lea, Son & Co.	845	0	0
A. H. Wood	817	0	0
Clements, Booker & Co.	747	15	0

For a small building to be used as a shelter for casuals at the union house. Mr. J. O. COOK, architect, Woolwich.

Thomas & Edge	£257	0	0
Ware	245	0	0
Sanford & Co.	240	0	0
Mills	225	0	0
J. SANFORD, 39 Red Lion Lane, Plumstead (accepted)	210	0	0

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ELECTRIC NOTES.

THE Municipal Electrical Association will hold their annual meeting in Edinburgh in the end of June, and propose visiting Glasgow on the 28th of that month, with the view of inspecting the various electricity works belonging to the Corporation.

A NEW section of the South Lancashire Tramways Company's service between Tyldesley and Boothstown has been opened for traffic. It is now possible to travel almost from Manchester to Liverpool by electric car. The exception is a stretch of about two miles between Boothstown and Winton.

THE Government of Ontario has under consideration a plan for the operation of the Government owned railways in the province by electricity. The required power could be easily generated by the numerous waterfalls in the provinces, and it is believed the result would prove cheaper than can be obtained by the use of steam.

THE Stepney Borough Council's electricity committee reports that a gross profit of a fraction over $6\frac{3}{4}$ per cent. on the capital employed at the end of the year has been realised. After providing for interest, sinking fund and other charges, a net profit of a fraction under $2\frac{3}{4}$ per cent. has been made.

IN a report on the railways of the United States by the Hon. Robert Collier, of the British Embassy at Washington, it is said with regard to electric traction that while electricity is almost exclusively used as the motive power of the extremely numerous tramways in every part of the country, on railways it is used to a very limited extent only; the overhead railways of New York and Chicago are the most conspicuous instances. For working trains through tunnels where the traffic is intense and for suburban work in general it is probable that electricity will be more and more used as the motive power, but the prospect of anything like a revolution in the direction of its being employed to work long distance railway traffic seems remote.

ACCORDING to the report of the British Consul at Venice there are several projects mooted for the institution of electric trams in the Venetian provinces. One, which would be undertaken by a Berlin firm, is to construct branch lines

starting from Venice, Padua and Treviso in different directions, chiefly through districts not traversed by the railway. At Verona there is a project to build an electrical railway to pass through Lazise to Riva di Trento, apparently to join the main line of the railway. The Belgian company which has the concession for running the horse tramways in Verona will transform them into electrical lines. The force will be derived from the river Milani, which will provide sufficient power not only to propel the carriages in the town but also to transform the steam tram line Verona-Cologna into an electrical one. Other projects are under discussion at Vicenza, Udine and Belluno, and as waterfalls are plentiful in the Venetian region, there will probably be a great development of electrical lines in future, unless modern invention provides economically running motor cars, as no tracks would be required for them.

BUILDING AND BUILDERS.

THE Chelsea workhouse has been extended at an actual cost of 32,131*l.*, or nearly 700*l.* less than the contract price.

THE streets and buildings committee of the Preston Town Council have approved of recommendations which will lead to the extension of the fire station in Tithebarn Street at a total cost of 1,950*l.* Four houses in Everton Gardens are to be purchased for 740*l.*

Kemp's Mercantile Gazette records that the number of failures in the building and timber trade during the week ending on the 21st inst. was lower than that of the corresponding weeks of the two previous years. The exact statistics are twenty-one failures in the present year, thirty-one in 1904 and twenty-three in 1903.

THE municipal authorities of Antwerp invite tenders for the supply of material for and the construction of a public exhibition hall to be erected in the Place de Meir, Antwerp. The adjudication will take place on May 23, and a deposit of 800*l.* will be required to qualify any tender. A copy of the specifications may be seen at the offices of the Commercial Intelligence Branch of the Board of Trade, 73 Basinghall Street.

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TO THE

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Advertisements for Tenders, Building Land, Situations Vacant or Wanted, &c., can be left at those Offices, and copies of "The Architect," "Builders' Reporter," and other publications of Messrs. GILBERT WOOD & CO. can be obtained as early as at the City Office, Imperial Buildings, Ludgate Circus, E.C.

EDITORIAL NOTICES.

In view of the many difficulties which are certain to arise in connection with the law, practice rules and procedure under the Workmen's Compensation Act, we have added to our staff A VERY EMINENT BARRISTER, who has made the subject a special study, and will be glad to answer in the columns of this paper any questions relating to the complicated matters arising from the provisions of this difficult Act. Our LEGAL ADVISER will further answer any legal question that may be of interest to our readers. All letters must be addressed "LEGAL ADVISER," Office of "The Architect," Imperial Buildings, Ludgate Circus, London, E.C.

The Editor will be glad to receive from Architects in London and the Provinces results of Competitions and Tenders and other particulars of Works in progress in which they may be interested.

The authors of signed articles and papers read in public must necessarily be held responsible for their contents.

No communication can be inserted unless authenticated by the name and address of the writer—not in every case for publication, but as a guarantee of good faith.

Correspondents are requested to make their communications as brief as possible. The space we can devote to Correspondence will not usually permit our inserting lengthy communications.

TENDERS, ETC.

** * As great disappointment is frequently expressed at the non-appearance of Contracts Open, Tenders, &c., it is particularly requested that information of this description be forwarded to the Office, Imperial Buildings, Ludgate Circus, London, E.C., not later than 2 P.M. on Thursdays.*

COMPETITIONS OPEN.

HARROGATE.—May 24.—For proposed Primitive Methodist orphanage at Harrogate. Conditions may be obtained from Rev. J. T. Barkby, Riche Mont, Harrogate.

HIGH WYCOMBE.—May 31.—Secondary school, accommodation for 175 pupils. No premium offered. Mr. T. J. Rushbrooke, borough surveyor, 77 Easton Street, High Wycombe.

ROCHESTER.—May 15.—For the erection of a municipal technical institute at Rochester. Three premiums of 50, 20 and 10 guineas will be awarded. Copies of the instructions and a plan of the site can be had from Mr. W. Banks, surveyor, Guildhall, Rochester.

CONTRACTS OPEN.

ALDEBURGH.—May 24.—For the construction of a new engine-house near Aldeburgh Hall farm, Suffolk. Messrs. James Mansergh & Sons, engineers, 5 Victoria Street, Westminster.

BARROW-IN-FURNESS.—May 15.—For the construction of a steel road bridge over the Walney Channel, uniting Barrow Island and Walney Island; the bridge will consist of eight fixed girder spans and one opening span, on cylinder foundations. Sir Benjamin Baker, 2 Queen Square Place, Queen Anne's Mansions, Westminster.

BELFAST.—May 15.—For the erection of a small auxiliary goods office, 44 feet by 20 feet, in brickwork, with slated roof, for the Great Northern Railway Company, at terminus, Grosvenor Street. Mr. W. H. Mills, engineer-in-chief, Amiens Street Terminus, Dublin.

BILSTON.—May 20.—For the erection of boys, girls and infants' departments for 1,200 children, with cookery, manual training centres and special science classrooms, at Stonefield, Bilston. Messrs. Bailey & McConnall, architects, Bridge Street, Walsall.

BISHOP SUTTON.—May 6.—For the reconstruction of offices and latrines and the execution of alterations and renovations at the Council schools, Bishop Sutton, Somerset. Mr. Wm. F. Bird, architect, Midsomer Norton, Somerset.

BRADFORD.—For the erection of five shops in Morley Street, Bradford. Mr. H. W. Rogerson, architect and surveyor, Halifax Commercial Bank Chambers, Tyrral Street, Bradford.



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BRAMLEY.—May 8.—For all trades (except painting) in erection of three houses in Hough Lane, Bramley, Leeds.

BRIDGWATER.—May 8.—For the erection of the proposed new building for the Bridgwater Co-operative Society, Ltd. Mr. John Wyatt Hill, architect and surveyor, King Street Chambers, Bridgwater.

BRISTOL.—May 11.—For the construction of motor-generator rooms at the Temple Back electricity works. Mr. H. Faraday Proctor, city electrical engineer, Temple Back, Bristol.

BRISTOL.—May 15.—For the construction and maintenance for twelve months after completion of the superstructure of two transit sheds at Canon's Marsh, Bristol. Mr. W. W. Squire, engineer, Cumberland Road, Bristol.

BUTTERSHAW.—May 10.—For the erection of cart-shed and stabling for five horses at Buttershawe, Yorks. Messrs. John Drake & Son, architects, Queensbury.

CARDIFF.—May 9.—For the erection of thirty-six houses at Cardiff, for the Great Western Railway Company. Engineer, Newport Station.

CARDIFF.—May 11.—For panelling and seating the council chamber in the new town hall. Mr. J. L. Wheatley, town clerk, Town Hall, Cardiff.

CHARTHAM.—May 19.—For repairs, plastering, &c., to wards D and E (male) at the Kent County lunatic asylum, Chartam Downs, near Canterbury. Mr. W. J. Jennings, architect, 4 St. Margaret's Street, Canterbury.

CHELMSFORD.—May 22.—For the erection of block of buildings at the hospital, Baddow Road, near Chelmsford, Essex. Messrs. Rye & Bacon, architects, 16 John Street, Bedford Row, London, W.C.

CHUMLEIGH.—May 11.—For the erection of a residence and store in East Street, Chumleigh, Devon. Mr. Thomas Sanders, surveyor, Chawleigh Week, Chumleigh.

DORCHESTER.—May 11.—For the erection of three cottages in Charles Street, Dorchester. Mr. F. T. Maltby, Dorchester.

DOVER.—May 14.—For the erection of a ladies' lavatory at the Granville Gardens, Dover. Mr. Henry E. Stillgoe, borough engineer, Maison Dieu House, Dover.

DUBLIN.—May 15.—For the erection of an electric generating station. Mr. John P. Griffiths, engineer to the Dublin Port and Docks Board, East Wall, Dublin.

DUNDALK.—May 13.—For building shop and dwelling-house in Market Square, Dundalk. Mr. John F. McGahon, architect, Roden Place, Dundalk.

ESSEX.—For the erection of two semi-detached villas at Lexden. Mr. E. Cooper, architect, 34 Queen Street, Colchester.

FALKIRK.—May 9.—For the mason, brick, joiner, slater, plumber and plasterer's work of additions to Falkirk infirmary. Messrs. A. & W. Black, architects, Falkirk.

FALMOUTH.—May 6.—For additions and alterations to the existing premises and the erection of a hospital at the Royal Cornwall Sailors' Home and Hospital, Falmouth. Drawings and specification may be examined at the Home.

GREAT CLIFTON.—May 10.—For the erection of three cottages at Great Clifton. Mr. Irving, 76 Gray Street, Worthington.

GREAT CROSBY.—May 8.—For alterations to the Alexandra Hall, Great Crosby, Lancs, for the Great Crosby Urban District Council. Messrs. Anderson & Crawford, architects, 36 Dale Street, Liverpool.

HAMPTON.—May 20.—For rebuilding a brick bridge at Hampton, near Evesham. Mr. J. H. Garrett, surveyor of county bridges, Shire Hall, Worcester.

HIGH SPEN.—May 8.—For the erection of a house at High Spen, Durham. Mr. Thos. H. Murray, architect and surveyor, Front Street, Consett.

ILFORD.—May 9.—For the erection of a temporary shelter in connection with the Ilford isolation hospital at Grove Road, Chadwell Heath. Mr. Herbert Shaw, engineer and surveyor to the Council, Town Hall, Ilford.

ILFORD.—May 8.—For the erection of a cottage at the outfall works, Water Lane, Ilford. Mr. H. Shaw, engineer and surveyor, Town Hall, Ilford.

IRELAND.—May 15.—For alterations and additions to premises at Convoys, co. Donegal. Mr. M. A. Robinson, Richmond Street, Londonderry.

IRELAND.—May 15.—For the erection of two semi-detached villas at Villa Road, Donaghadee. Mr. Thomas

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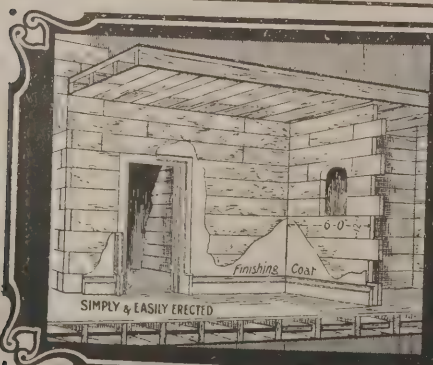
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IRELAND.—May 16.—For the mason, carpenter, slater, plumber, painter and glazier, and ironwork of new malt barns and kiln at Killowen distillery, Coleraine. Mr. Charles C. Doig, architect, Elgin, Scotland.

IRELAND.—May 17.—For the erection of a hall at St. Johnston, co. Donegal. Mr. M. A. Robinson, 3 Richmond Street, Londonderry.

KNAPHILL.—May 15.—For alterations and additions to the Council schools at Knaphill, Surrey. Messrs. Jarvis & Richards, architects, 36 Victoria Street, Westminster, S.W.

KNOWLE.—May 9.—For converting store into mortuary at the county asylum, Knowle, near Fareham. Mr. W. J. Taylor, county surveyor, The Castle, Winchester.

LANDRAKE.—May 8.—For repairs to the Landrake Church tower. Mr. W. Menhinick, Landrake Village, Cornwall.

LANIVET.—May 15.—For the erection of a Council school and premises at Lanivet, Bodmin, Cornwall. Mr. B. C. Andrew, architect to the committee, Biddick's Court, St. Austell.

LONDON.—May 9.—For the construction of a new carriage shed and other works at Old Oak Common, Acton, for the Great Western Railway Co. Engineer, Paddington Station, London.

LONDON.—May 11.—For an iron emergency staircase at New Beckton school, East Ham. Mr. R. L. Curtis, 11 and 12 Finsbury Square, E.C.

LONDON.—May 12.—For the construction of an underground convenience in Beckenham Road. Mr. Herbert W. Longdin, surveyor to the Penge Urban District Council, Town Hall, Anerley, S.E.

LONDON.—May 15.—For the erection of a disinfecting station for the Kensington Royal Borough Council, excluding machinery and apparatus. Mr. William Weaver, borough engineer. Mr. William Chambers Leete, town clerk.

LONDONDERRY.—May 12.—For the erection and completion of proposed waterman's residence at the Killea waterworks. The Engineer, 1A Strand, Londonderry.

MILVERTON.—May 6.—For the erection of a detached residence at Milverton, Somerset. Mr. F. W. Roberts, architect, 2 Hammet Street, Taunton.

MORLEY.—May 10.—For the excavator, mason and bricklayer, carpenter and joiner, blue slater, plumber and glazier, ironfounder, plasterer and painter's work, and also for the heating, ventilation and electric lighting required to be executed in the erection of a free library in Commercial Street. Mr. W. E. Putman, borough engineer and surveyor, Town Hall, Morley.

NEWCASTLE-UPON-TYNE.—May 22.—For erection of new baths and washhouses in New Bridge Street and Gibson Street. City Property Surveyor's Department, Town Hall, Newcastle-upon-Tyne.

NORWICH.—For alterations, additions and in part taking-down and rebuilding premises, 47 St. Giles's Street, Norwich. Mr. Albert C. Havers, architect, 1 Bank Plain, Norwich.

PAXFORD.—May 18.—For rebuilding a small brick bridge at Paxford, Worcs. Mr. J. H. Garrett, surveyor of county bridges, Shire Hall, Worcester.

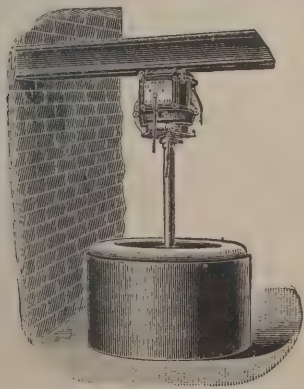
PENGAM.—May 6.—For the erection of four houses at Gilfach, Pengam, near Cardiff. Mr. W. Harris, architect, Gilfach, via Cardiff.

PORTSMOUTH.—May 9.—For the following works at the generating station, Gunwharf Road:—Section A—brick and concrete foundations for the steel chimney-shaft, or its alternative, referred to under section B, alterations and extensions to the main flues and the economiser settings, erection of new pump-room and other works in connection with same; Section B—the erection of a self-supporting steel chimney-shaft, or alternatively, a self-supporting chimney-shaft constructed of special perforated blocks or similar type of construction. Town Clerk, Town Hall, Portsmouth.

POWICK.—May 6.—For the erection of infant schools at Powick, near Worcester. Mr. A. Hill Parker, architect, 5 Foregate Street, Worcester.

RAMSGATE.—May 13.—For the construction of a flight of concrete steps, &c., at the Marina, Ramsgate. Mr. T. G. Taylor, borough surveyor, Albion House, Ramsgate.

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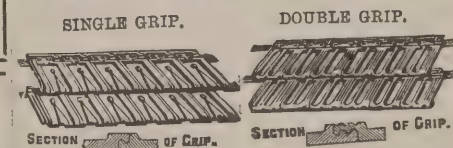
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ST. MICHAEL PENKIVEL.—May 6.—For the erection of a pair of cottages at St. Michael Penkivel, Cornwall. Mr. George Gow, Tregothnan Office, Truro.

SALFORD.—May 8.—For the erection of a boundary wall at the rear of the central car depôt, Frederick Road, Pendleton. The General Manager, Tramway Offices, 32 Blackfriars Street, Salford.

SALTERFORD.—May 8.—For the erection of an engine-man's house at the waterworks at Salterford, near Calverton, Notts. Mr. William Swann, surveyor, Watnall Road, Hucknall Torkard.

SCOTLAND.—May 8.—For the mason, carpenter, slater and plasterer's work for a new steading of offices and additions to dwelling-house at Mill of Comers, Corsindae, Aberdeen. Messrs. Walker & Duncan, 3 Golden Square, Aberdeen.

SCUNTHORPE.—May 11.—For the erection and construction of new buildings and other works of levelling, paving, the supply and erection of new cattle pens and fittings for the new market buildings and premises. Mr. A. M. Cobban, engineer, Home Street, Scunthorpe, Lincs.

SHEFFIELD.—May 9.—For the erection of a new chapel for the trustees of the Methodist New Connexion, Sharrow Lane. Mr. J. Creswick Brameld, architect and surveyor, 10 George Street, Sheffield.

SPALDING.—For the erection of a pair or three pairs of semi-detached houses on the Willow Tree Farm, near Spalding. Messrs. J. Carter, Jonas & Sons, land agents, Cambridge.

STAINES.—May 6.—For the erection of a timber foot-bridge near Staines bridge. Mr. E. J. Barrett, engineer and surveyor, Town Hall, Staines.

TRESILLIAN.—May 15.—For alterations and additions to the Tresillian Council school, Cornwall. Mr. Alfred J. Cornelius, architect, Truro.

UPPER BOAT.—May 10.—For alterations to house at Upper Boat, near Treforest (late Colliers' Arms). Mr. H. Snell, architect, Windsor Estate Office, Penarth.

WALDRIDGE FELL.—May 8.—For the erection of new workmen's club at Waldridge Fell. Messrs. J. G. & R. G. Cowe, architects, Chester-le-Street.

WALES.—May 8.—For the erection of a Baptist school-chapel, Cathays. Mr. W. Beddoe Rees, architect, 3 Dumbfries Place, Cardiff.

WALES.—May 8.—For works in connection with the ventilation of Pontyogof girls and infants' schools. Mr. Henry Waters, architect, Beaufort.

WALES.—May 8.—For the erection of a new chapel for Carey Baptist church, at Bridgend Road, Aberkenfig. Messrs. J. & F. J. Hurley, architects, 10 Bridgend Road, Aberkenfig.

WALES.—May 8.—For the erection of a chapel at Cwmgrach, Glyn-Neath. Mr. J. Cook Rees, architect, Neath.

WALES.—May 9.—For the construction of new station buildings at Aberdare, South Wales, for the Great Western Railway Company. The Engineer, Neath Station.

WALES.—May 9.—For the erection of the higher standard schools, Aberdare. Mr. T. Roderick, architect, Clifton Street, Aberdare.

WALES.—May 10.—For the following work, for the Glamorgan County Council:—(1) Erection of additional rooms at the Port Talbot Central school, (2) tar-paving, &c., at the Port Talbot Central and Eastern schools. The County Offices, Westgate Street, Cardiff.

WALES.—May 11.—For the erection of a chapel and lecture hall at Gilfach, Pengam. Mr. Wm. Harris, architect and surveyor, Gilfach, Pengam.

WALES.—May 13.—For the erection of a boys' school, and the execution of works connected therewith at Caegarw, Mountain Ash. Mr. W. G. Thomas, architect, Public Offices, Mountain Ash.

WALES.—May 13.—For building a church at Brithdir. Mr. E. A. Johnson, architect, Merthyr.

WALES.—May 14.—For alterations and conversion of 77 Tylacelyn Road, Penygraig. Messrs. Lewis & Morgan, architects, Dunraven Street, Tonypandy.

WALES.—May 15.—For alterations and additions to the girls and infants' departments of the Coedpenmaen school. Mr. P. R. A. Willoughby, Education Office, Gelliwastad Grove, Pontypridd.

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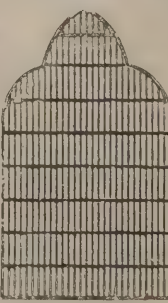
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WALES.—May 15.—For enlargements to the chapel and erection of new schoolrooms, for the Dyffryn Welsh Congregational church, Caerau. Mr. R. S. Griffiths, architect and surveyor, Tonypandy.

WARRINGTON.—May 11.—For the erection of a pavilion in Victoria Park, Knutsford Road. The Borough Surveyor, Town Hall.

WESTON-SUPER-MARE.—May 13.—For the erection of a new girls' school, Locking Road, Weston-super-Mare. Messrs. Hans F. Price & William Jane and Messrs. S. J. Wilde & Fry, architects, Weston-super-Mare.

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For the work of laying 90 yards of 9-inch pipe sewer, with manholes, &c., at West Lane, Baildon, Yorks. Mr. T. Waddington, engineer and surveyor.

Richardson & Foster	£69	8	0
Isherwood & Leach	57	9	0
Ross & Crabtree	56	10	0
Watmough & Preston	50	17	6
Robinson	45	10	0
Thornton & Sons	44	13	0
Hall	44	8	0
TAYLOR & ELLIS, Westgate, Baildon (accepted)	44	2	6

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For additions and alterations to Shenington Voluntary school. Messrs. TOLLIT & LEE, architects.

Miles	£425	8	0
Busby	403	0	0
Poulton	398	0	0
Clifton	395	0	0
Watson	380	0	0
KINGERLEE, Oxford (accepted)	313	0	0

BENTHAM.

For water-supply works at Bentham, near Settle, Yorks. Mr. T. A. Foxcroft, engineer and surveyor, Town Hall, Settle.

Section 1.

Excavating trench for, laying and jointing of about 2,323 lineal yards of 4-inch cast-iron spigot and socket pipes, and building valve chambers, &c.

I. GRISDALE, Low Bentham, near Lancaster (accepted) . . . £112 12 3

Section 2.

Excavating trench for, laying and jointing of about 2,879 lineal yards of 4-inch, 1,315 lineal yards of 6-inch, and 328 lineal yards of 8-inch cast-iron spigot and socket pipes, building brickwork break-pressure tank and valve chambers, &c.

TATTERSALL & EARNshaw (accepted) . . . £296 10 3

Section 3.

Excavating trench for, laying and jointing of about 5,680 lineal yards of 3-inch cast-iron spigot and socket pipes, fixing valves, and building brickwork valve chambers.

TATTERSALL & EARNshaw (accepted) . . . £294 11 5

Section 4.

Building a covered concrete service reservoir to contain 63,800 gallons, straining chambers, valve well, collecting well, conduit, catch-water drains, excavating trench for, laying and jointing of about 390 lineal yards of 4-inch cast-iron spigot and socket pipes, fixing valves, and building rubble stone boundary wall, &c.

CUMBERLAND BROS. (accepted) . . . £592 19 2

BIGGLESWADE.

For the erection of Sunday schools. Mr. THOMAS COCKRILL, architect, Market Square, Biggleswade.

Wade	£1,675	0	0
Howard	1,650	0	0
Wrycroft & Sons	1,505	0	0
C. WRIGHT, Langford, Biggleswade (accepted)	1,444	0	0

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Messrs. S. Henderson & Sons, Ltd., Biscuit Works, Edinburgh, write:—"A fire broke out in our factory during the dinner hour on January 18, 1905, when the May-Oatway installation (put in since our previous fire) saved a very serious loss. We now have a pleasing sense of security in having an automatic system which not only gives immediate warning to our own staff, but calls the Fire Brigade as well." Loss under £50.

MAY-OATWAY FIRE ALARM.—Rt. Hon. Richard Seddon, P.O., Premier, writes:—"This system has been largely adopted in New Zealand, and has given the greatest satisfaction." (The Government are the largest users; protecting Schools, Asylums, &c.)

Mr. H. Jenkinson, Printer, Leeds, writes:—"Fire" March 16 and December 12. Both instantly signalled to Fire Station by the May-Oatway Fire Alarm, and resulting in comparatively little loss." Claims paid, £10 and £80 respectively. What have you done to limit your loss?

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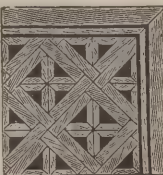
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on application to GILBERT WOOD & CO. Ltd., Imperia
Buildings, Ludgate Circus, London.

BURGESS HILL.

For the construction and making-good St. Mary's Road and works in connection therewith.

King	£460	0	0
W. BRYANT, Tanfield Road, Burgess Hill			
(accepted)	435	0	0

DUBLIN.

For the supply and erection of two electric motors for the Corporation of Dublin.

Oerlikon (<i>withdrawn</i>)	£288	10	0
Maschinenfabrik Oerlikon	276	10	0
British Thomson-Houston Co.	270	5	0
Lancashire Dynamo Co.	240	0	0
Aston Bros., Ltd.	236	18	0
Brush Electrical Engineering Co.	236	5	0
Industrial Engineering Co.	233	6	0
General Electric Co., Ltd.	222	10	0
Wm. Coats & Son, Ltd.	210	0	0
Electric Construction Co., Ltd.	198	0	0
Johnson & Phillips	197	10	0
British Westinghouse Electrical and Manufacturing Co., Ltd.	196	0	0
Bruce Peebles & Co.	185	0	0
Vickers, Sons & Maxim	178	0	0
Aston Bros., Ltd.	172	8	0

DITCHLING.

For sewerage and sewage disposal works.

J. W. Dean, Ltd., 436 Birkbeck Bank Chambers, Chancery Lane, W.C.	£3,911	7	0
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DONCASTER.

For erecting two new shops and premises, for Mr. A. Stubbs. Mr. J. ATHRON, architect, 10 Priory Place, Doncaster.

Gill & Son	£2,997	0	0
Sprakes & Sons	2,850	0	0
Beastall	2,670	0	0
Mullins & Richardson	2,643	15	5
BEASTALL & SONS, Doncaster (<i>accepted</i>)	2,562	15	11
Ashton & Sons (<i>withdrawn</i>)	2,467	11	3

GRAVESEND.

For the erection of a Wesleyan church and schools at Gravesend. Messrs. W. J. MORLEY & SON, architects, Craven House, Kingsway, London, W.C.

Gann & Co.	£5,857	0	0
Pearce	5,850	5	0
F. Miskin, Ltd.	5,849	6	9
Ingleton	5,678	16	0
Wilford	5,639	0	0
Lawrence & Son	5,562	19	0
Seagar	5,341	19	0
Tong	5,325	16	2

GREAT YARMOUTH.

For the erection of a porter's lodge and house, reception wards, &c., at the Great Yarmouth Union workhouse. Mr. W. WALTER LAKE, architect, Regent Street, Great Yarmouth.

Accepted tenders.

Moore & Sons, buildings	£1,970	0	0
W. & T. Avery, weighbridge	112	10	0
Harbord, hot-water apparatus	96	10	0
Wade, electric lighting and bells	32	0	0

HAMILTON.

For the erection of a hospital for the treatment of cases of phthisis for the Lanark District Lunacy Board. Mr. ALEX. CULLEN, architect, Brandon Chambers, Hamilton.

Accepted tenders.

London & Inglis, mason	£2,494	12	9
D. & W. Nimmo, joiner	1,471	16	4
Spiers & Sons, plumber	481	0	0
J. Cormack & Sons, heating and ventilating	317	18	11
Brown, plasterer	262	10	0
Galbraith & Winton, tilelayer	194	8	0
J. Cuthbertson & Son, slater	191	12	10
A. Kemp, painter	112	12	10

IRELAND.

For building a dwelling-house at Gillabbey, for Mr. S. H. Milner. Messrs. W. H. HILL & SON, architects, 28 South Mall, Cork.

W. J. O'MAHONY, Bandon Road, Cork (<i>accepted</i>)	£652	0	0
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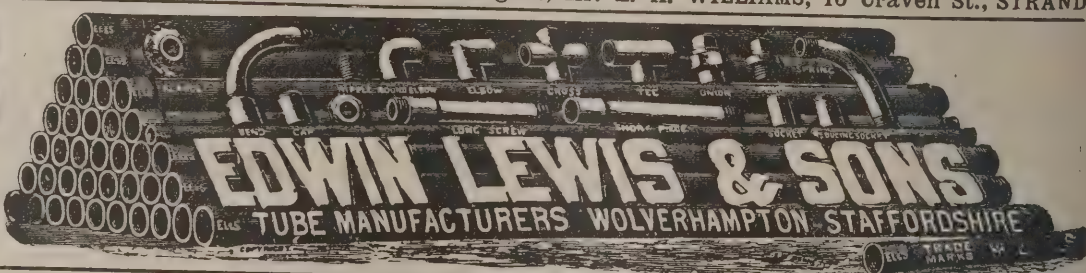
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HANLEY.

For extensions to the Municipal Secondary school, Hanley.
Mr. EDWARD E. SCRIVENER, architect, Howard Place,
Hanley.
Ward £3,774 0 0
Tompkinson & Bettelley 3,530 0 0
Bagnall 3,387 0 0
G. THOMAS, Hanley* 3,319 0 0
Corney & Sons 3,315 0 0
Bennion 3,130 15 0
* Accepted subject to sanction of Board of Education.

LANCASTER.

For erection of a retaining and fence wall in Halton Road,
near Skerton Mill. Mr. J. C. MOUNT, borough surveyor.
BELL & TROUGHTON, Skerton, Lancaster (ac-
cepted). £301 0 0

For the erection of a mixed school on the Greaves, Lan-
caster. Mr. J. C. MOUNT, borough surveyor.

Accepted tenders.

J. Hatch & Sons, excavator, mason and
bricklayer £7,237 0 0
E. Thompson, carpenter and joiner 1,771 18 2
T. & J. Till, slater and plasterer 661 6 7
J. Taylor, plumber and glazier 494 9 7
J. Johnson, drainer and asphalter 292 6 3
Crook & Linthwaite, painter 179 2 10

LONDON.

For repairs to tar paving at the South-Western hospital,
Stockwell, for the Metropolitan Asylums Board.

Chittenden & Simmons £404 0 0
Cunningham, Forbes & Co. 220 7 0
Sheppard & Co. 211 0 0
Goddard & Co. 139 0 0
Wainwright & Co. 138 10 0
GROUNDS & NEWTON, South Tottenham
(accepted) 124 0 0
Dowley, Ltd. 112 12 6

For whitewashing, cleaning and painting work at the in-
firm, East Dulwich Grove, S.E.
E. MILLS, Siebert Works, Westcombe Hill, Blackheath, S.E.
(accepted).

LONDON—continued.

For town hall restoration works, for the Shoreditch Borough
Council.

Fergusson & Co. £22,853 0 0
Nash 21,570 0 0
F. & A. Willmott 21,359 0 0
Spencer, Santo & Co. 21,137 0 0
Appleby & Sons 21,090 0 0
Symes 21,029 0 0
Chessum & Sons 20,639 0 0
Redding & Son 20,575 0 0
Lamplough 20,555 0 0
Rowley Bros. 20,516 0 0
L. H. & R. Roberts 20,428 0 0
Minter 20,275 0 0
Kirk & Randall 20,176 0 0
Waring & Gillow 20,143 0 0
Mattock & Parsons 20,066 0 0
Kent 20,063 0 0
Martin, Wells & Co. 20,003 0 0
Wilkinson Bros. 19,798 0 0
Lawrence & Sons 19,606 0 0
Leslie & Co. 19,586 0 0
Lawrence & Co. 19,549 0 0
Holloway 19,253 0 0
Hill 19,130 0 0
Johnson & Co. 18,860 0 0
Nightingale 18,741 0 0
KILLBY & GAYFORD, Worship Street
(accepted) 18,690 0 0

RADCLIFFE (LANCS).

For new weaving shed, warehouse, boiler-house, engine-
house, &c., at Radcliffe. Mr. WILLIAM HENRY ATKIN-
SON, architect, Shaw Street, Colne.
J. BYROM, Woolfold, Bury (accepted).

ROCHDALE.

For the erection and completion of conveniences for ladies
and gentlemen, and the reroofing of a portion of the
mansion at Falinge Park, for the Corporation.
W. A. PETERS & SONS, Crossfield, Rochdale (accepted).

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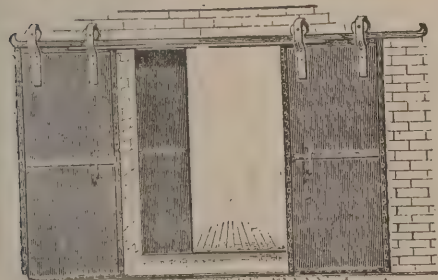
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SANITARY PIPES.

GLAZED BRICKS.

For Index of Advertisers, see page x.

SANDAL.

For erection of Wesleyan church and schools, Sandal, Wakefield. Messrs. GARSIDE & PENNINGTON, architects, Pontefract and Castleford.

Accepted tenders.

Higgins & Pashley, brick and stonework	£1,106	3	0
J. W. Harrop, woodwork	694	15	0
H. Gillot, plumber	206	15	0
Scholey Bros., slater	115	10	0
Lockwood Bros., plasterer	50	14	0
W. Carver, painter	31	18	0

ST. BEES (CUMBERLAND).

For new chapel, laboratories, lecture-hall and library at St. Bees school, Mr. JOHN F. CURWEN, architect, Kendal.

Laboratories, &c. Chapel.

Clark & Robinson	£6,500	0	0	£3,700	0	0
Moorhouse	6,223	14	0	2,845	17	6
Bradley	6,207	0	0	3,372	0	0
Tinnion	6,083	2	0	2,700	4	0
Grisenthwaite	6,010	18	10	3,051	13	6
Smith	5,821	6	7	2,990	10	0
Anderson	5,724	0	0	3,006	0	0
Laing	5,606	2	10	2,835	12	11
Pennington, Kendal (<i>provisionally accepted</i>)	5,533	10	0	2,826	11	0
Gradwell	5,475	0	0	2,975	0	0
Young	5,409	19	6	2,855	7	4
Hatch	5,395	0	0	2,875	0	0
Lister	5,162	0	0	2,633	0	0
Ferguson	4,889	14	7	2,548	3	0
Bragg	4,599	13	3	2,770	7	7
Wilson	4,402	18	1	2,577	5	1

STANLEY.

For the making of Back Towneley Street, Stanley, Durham.

Mr. JOS. ROUTLEDGE, surveyor.

Thompson	£266	16	0
Birtley	127	3	9
McLaren & Son	123	16	6
JOHNSON & STRONG, Stanley (<i>accepted</i>)	119	5	6

TODDINGTON.

For the erection of a pair of six-roomed cottages and a seven-roomed single cottage and bath-room, Toddington (Glos). Messrs. BARRETT & DRIVER, architects, 23 York Place, Baker Street, W.

Pair of cottages.

Howman & Co.	£463	0	0
Hopkins	423	0	0
Oakey	420	0	0
Collins & Godfrey	356	0	0
ESTCOURT & SONS (<i>accepted</i>)	306	0	0

Single cottage.

Oakey	426	0	0
Hopkins	395	0	0
Howman & Co.	346	0	0
Collins & Godfrey	324	0	0
Esplay & Co., Ltd.	295	0	0
ESTCOURT & SONS (<i>accepted</i>)	274	0	0

WALES.

For the construction of a reservoir and filter-beds, approach road, storm-water culvert, sand-washing tank and sand yard and other works, for the Llantrissant and Llantwit Fardre Rural District Council. Mr. GOMER S. MORGAN, engineer, School Street, Pontyclun.

Evans	£16,019	0	0
Cruwys & Hobrough	15,741	11	11
Smith-Jones & Son	15,156	3	3
Powell	15,140	0	0
Callender & Co.	14,963	10	8
Meredith Bros.	14,367	16	3
Public Works Co.	14,007	10	11
Brebner & Co.	13,969	11	11
Taylor	13,524	9	11
Jones	12,986	6	10
Rutter	12,790	0	0
Rossiter	12,604	16	9
BARNES, CHAPLIN & Co., St. Peter's Street, Cardiff (<i>accepted</i>)	12,109	12	4
Firth & Co.	10,704	18	2

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10 HOURS, and GRADUALLY
HARDENS.**

**RED LABEL FOR OUT-
SIDE, DRIES IN ABOUT
15 HOURS ACCORDING TO
WEATHER.**

WHITBY.

For the erection of a pair of semi-detached villa residences.
Mr. EDWARD H. SMALES, architect, Whitby.

Accepted tenders.

Gladstone, brickwork, mason, excavating, &c.	£1,100	0	0
White, carpenter and joiner	518	16	0
Brown & Son, plumbing, glazing, &c.	198	10	0
Smithson & Taylor, plastering	125	0	0
Dodgson, York, slater	83	15	0
Henderson, painting	26	5	0

Full tenders..

Kidd	2,572	14	0
Coverdale & Longhorn	2,533	10	4
Chapman	2,398	18	0
Palfraiman	2,278	15	6
Braim & Sons	2,262	10	0
Fletcher	2,124	0	0
Lennard & Sons	2,115	0	0

Received too late for classification.

BRISTOL.

For erecting St. Silas Sunday school and mission hall.
Messrs. LINGEN BARKER & SON, architects.

W. Cowlin & Son	£1,520	0	0
E. Clark & Sons	1,452	0	0
E. Walters & Son	1,442	0	0
A. J. Beaven	1,399	0	0
C. A. Hayes.	1,375	0	0
R. WILKINS & SONS, Bristol (accepted)	1,369	0	0

IRELAND.

For the erection of warehouse and shop, Tralee. Mr. R. FOGERTY, architect, Limerick.

Ryan & Sons	£4,775	0	0
J. Hayes	4,699	0	0
O'Reilly	4,574	0	0
D. Hayes	4,495	0	0
Murphy	4,085	0	0

TERRANO FLOORING.

A new flooring has been introduced into this country which is known as Terrano flooring (system Beck), and for the manufacture of which works have been opened at Stratford. It has a great success in Germany, and its merits have been certified by a large number of architects and builders. Its strength and fire-resisting qualities have been testified by official experiments in Berlin and Munich. Terrano is a remarkably light material, for a square foot of the thickness of $\frac{3}{8}$ inch weighs only 2 lbs. It can therefore be used where heavier materials would be unsuitable. Being warm to the feet, fireproof and entirely jointless, without seams, cracks or pores, it is from a sanitary as well as from a technical standpoint an excellent floor-covering. Floors are laid in a plastic state, very much after the manner of cement. They harden quickly, and can be used within a short time. When finished they form a continuous, fine-grained, smooth surface without any joints, and will never become slippery.

The manufacturers claim that Terrano will never chip, crack or tear loose from its base, nor disintegrate unless caused by structural defects of the base. The flooring is especially adapted for hospitals, asylums, barracks, schools, factories, public halls, &c.

It is impervious to heat and cold, clean, comparatively noiseless and elastic. Old or new wood floors, when covered with this material, are rendered fireproof, and give a soft and pleasant effect in walking. It has sufficient elasticity to save it from abrasion in ordinary wear. Should through any accident repairs become necessary, they can be made at a nominal cost, making the floor equal to new. The method of laying and finishing this kind of flooring hermetically seals the entire surface, making it impossible for germs to gain an entrance. It is made in various shades, such as red, yellow, slate, green, and can be laid either in self colours or with borders of another colour, producing a very pleasing effect.

THE Stafford Rural District Council have approved the plans and estimates of Messrs. R. E. W. Berrington & Son, civil engineers, Wolverhampton and Westminster, for the drainage of Castle Church and Tillington, at 9,000l.

A LIST OF ART PLATES

Published in "The Architect"

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MANCHESTER
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THE BUILDING TRADES EXHIBITION.

THE Agricultural Hall has proved its utility as a place of exhibition, but if some authority proposed that the paintings in the Royal Academy were to be removed to it there would be a rebellion of artists. It denotes both courage and confidence in their work for Messrs. Diespeker to display their pictorial mosaics under so fierce a light. They have so arranged their stands that the most scientific or mechanical passer-by can scarcely help stopping to look at so much brilliancy. The largest and most striking feature is a group of three Gothic panels; the centre represents the Ascension of Christ and the lateral Adoring Angels. The whole, of course, is executed in the patent British glass mosaic of the firm, and demonstrates the admirable effects obtainable from its use. There was no little daring in selecting so sublime a subject, for it is one of peculiar difficulty and calls for the utmost skill for a satisfactory solution. The result proves their self-confidence was not misplaced. The work is to serve for a reredos of a London church, and we shall be interested to see it *in situ*, for it cannot fail to illuminate as well as adorn the building. Many other specimens of British glass mosaic are shown, the subjects being both religious and secular. Skill of a kind different to that demanded in treating the Ascension appears in an allegorical frieze in five panels representing the progress of the world. On the stand it shines by reflected electric light, and the figures show out brilliantly. Messrs. Diespeker apply their process to strictly utilitarian subjects with equal success, such as steps, decorative sign letters, directional information for side walks, Roman and Venetian marble mosaics of all sorts in varying styles and designs, &c. Their patent marble mosaic steps deserve special notice. Messrs. Diespeker are showing specimens of steps that have been fixed by them at the new Lyceum Theatre, the Chelsea Palace Theatre, the National Hall in Glasgow, and at many other theatres, music halls, schools and hospitals, notably at the London Hospital, in which latter place the steps have been treated in such a manner that there is no right angle of any sort. From the point of view of sanitation and cleanliness this method has much to recommend it. The steps shown are very effective in appearance and give a

good foothold. The majority of Messrs. Diespeker's exhibits are reproductions of past commissions and deserve to obtain others in the future. A notice on the stand states that a new process of wall mosaic will shortly be submitted to architects, which Messrs. Diespeker expect will revolutionise the treatment of wall spaces. We are looking forward with curiosity to seeing this new method, and remembering the achievements of Messrs. Diespeker in the production of mosaics during the last twenty-five years, we have no doubt that the big words with which their new production is being heralded will be well justified.

"The Magic Window Balance"—shown by *Recorders, Ltd.*, London, E.C.—merits a welcome from imperialists. It has come from Australia with the strongest recommendations from a brief selection of users, which include the Government Architect's Department, New South Wales, and many public institutions. The list is especially valuable as giving assurance that the balance does not fail to fulfil the expectations which are aroused by an examination of the exhibit. The entire window works on a balance fitted in the centre which is so contrived that a large window can be opened or shut with one finger; indeed, the larger the window the easier is the working. The absence of all weights, pulleys, cords, &c., results in the pleasant fact that the windows and frames are actually cheaper than the ordinary style. The windows open in the middle as well as at the top and bottom. Cleansing operations are rendered extremely easy, for the top sash can be lowered and reversed and the bottom sash made to hang free. The working is noiseless, the windows cannot rattle and are water-tight.


Messrs. H. T. Rayner & Co. have adopted an excellent method of showing their tiles, for they have erected a cottage with walls made of them. Unlike many buildings, the back is deserving of as much attention as the front, for there are several courses of their smut-faced tiles to which by a special process is imparted an exact appearance of having withstood the effect of time. The Rettendon sand-faced as well as the smut-faced tiles are sold with holes as well as nibs. The manufacturers, with whom is associated Mr. J. J. Etridge, jun., of the Bethnal Green slate works,

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recommend the use of the nibs in preference to nailing, as being less injurious to the tiles and allowing of free expansion and contraction. The breaking strain of the tiles is very great as, although made of a soft clay, they are pressed and dried by special machines. The roof of the cottage is formed of "Precelly green" slates, supplied by Messrs. Davis Bros., in four different shades.

The *Harman Electric Hoist* works noiselessly, but on the temporary staging of the Building Trades Exhibition, to run on which is a test, it makes noise sufficient to attract attention, and when a visitor sees a barrow-load of firebricks or heavy material moving up and down he is almost certain to want a closer inspection. The hoists merit examination, for they meet the requirements of a small lifting-gear, and will be invaluable to builders. The two standard sizes made lift 8 cwt. and 1 ton, but intermediate sizes can be obtained. The first lifts its weight at the rate of 80 feet per minute and the second 100 feet; but the rate can be decreased if desired. The drum will take 350 feet of wire rope. It can be easily transformed from a lift for moving building materials to use for passengers or warehouse goods. The mechanism is self-contained and weighs 7 cwt. Messrs. R. Harman & Co. supplied one of their lifts to the Columbian Fireproof Company in their contract for the Ritz Hotel. In eight working weeks it lifted 11,000 super yards of concrete at an average rate of 60 tons per day.

The *Aston Magna Brick and Tile Co.* rely principally on their special red pressed facing bricks to represent them. A plinth wall about 3 feet high has been laid, and the roof is made of the "Magna" miniature roofing tiles, in imitation of Dutch examples. The other varieties include sewer and engineering wire-cut bricks, hand-made, pressed and

unpressed roofing tiles, and ornamental and architectural terra-cotta. A specialty of the company is their porous fireclay patent division tile, which is light, soundproof and lightproof.

The five bays, Nos. 25 to 30 in the gallery, occupied by the *Art Pavements and Decorations, Ltd.*, have drawn a steady stream of visitors. Last week we gave a hasty glance over the entire exhibit, and referred amongst other things to the display of marbles. A longer acquaintance with the display has increased our admiration for its variety and beauty. A few of the names of the different exhibits will prove the first point, and an inspection will more than justify the latter description. In one bay there are slabs many feet in height of Connemara green, Venato statuary, Vert Campan, Rouge Jaspé, Piastraccia, Greek cippolino, Verde Antico, Breche Tinolonet, Skyros, Listavenna, Jaspé Teba and Vert-des-Alpes. One slab is a specimen of the Listavenna which was selected by Mr. W. Campbell Jones, architect, for one of the branches of the London and County Bank, for which the contract amounted to 10,000/. Another contract is for 15,000 yards super at the new War Office, and seven miles of border, requiring 25,000,000 cubes, using 350 tons of marble.

The "Ruberoid Roofing and Damp-course" left the experimental stage over twelve years ago, and now appears in the light of a well-tried and ever-faithful friend. It is therefore almost superfluous to point out its merits, uses or method of manufacture. A model of an American cottage shows on a small scale the appearance and manner of laying this high-grade felt roofing. The material is manufactured in four plies, but this does not mean four qualities, for each ply is the best that can be adapted to the particular purpose for which it is intended; $\frac{1}{2}$ -ply is for buildings not subject to severe wear, such as hen-houses, while 3-ply cannot be surpassed for use in large roofs, and will sustain the severest climatic conditions. Ruberoid flooring resembles the roofing in being of the best. Contractors and builders should also not fail to inspect the diaphragm pump, which is adapted for working in excavations, foundations, &c., for it will discharge water and semi-liquids containing mud, sand, gravel, &c. One man can pump out three or four thousand gallons in an hour. Messrs. Robert W. Blackwell & Co. Ltd., show many other

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things which claim the attention of those interested in building, including the P and B paints and insulating papers, gun-metal cocks, valves and all other tools.

At Stand No. 13 the *Patent Adjustable Bath Company* have an exhibit of their patent bath, which should be of value to those who are interested in the erection of cottages.

The "*Clipper*" *Belt Hook Company* have an exhibit at Stand No. 15 of their patented belt tools and hooks for fastening driving belts. To all users of machinery this patent should be of interest owing to its simplicity and low cost. Other specialties shown by the firm include their "Anchor" wall ties. They also show the "Capstan" clothes-line holder, which prevents defacement of walls; all driving of nails, hooks, &c., which loosen the mortar, bricks or coping, is done away with.

At Stand 16 will be found the exhibit of fire-resisting partitions shown by the *Excelsior and Phoenix Fire-resisting Partition and Ceiling Company, Ltd.* The partition, which is largely made from pumice stone, is claimed to be perfectly rigid, thus avoiding any chance of cracking. The title of the firm is much too long for any trading concern, and might with advantage be shortened.

The "Standard" system of paving for roadways and pavements was introduced many years ago by *Messrs. John Hirst & Sons*. Its main feature is the introduction of a thin metal strip between the courses and in the joints. There are many advantages claimed for it, such as greater durability, perfectly even surface, ultimate economy and ease of executing repairs. They also exhibit a big assortment of sanitary goods, such as their patent slop shutes or hoppers, channels and grates.

The largest object on the stall of the *Ingham's Firebrick Company* is their 24-inch diameter combination inspection and distributing manhole, which receives sewage in one position and distributes it in one, two or three directions. Grooved slots are placed in front of each outlet for cutting off the supply to any one filter bed. On the top of this manhole a 24-inch diameter pipe fits so as to allow access from the top, and these pipes can be cut to any length suitable to the ground where the trap is to be laid. It is then possible to fit an iron lid to the top of the trap, forming a complete cover to the whole. There are many other objects in the stand which will be of interest to those con-

cerned in sanitary work. The company include among their manufactures gullies, chimney-pots, garden vases.

At Stand 31 will be found the exhibit of the *British Felt Company* and the *Coolmore's Durable Roofing and Asphalt Company*. The sheet asphalt for roofing and damp-course has been largely used throughout the country. *Messrs. Standring & Co.* have an exhibit at this stand of their "Thistle" brand of sash cords, sash lines, &c.

At Stands Nos. 32 and 33 an excellent exhibit is made of *The Stonwood System of Fireproof Floor*. The exhibit is well worth the attention of any visitor to the exhibition. The system is a simple and expeditious one; the material is made in various colours and laid *in situ* whilst in a plastic state either on concrete, boards, or any other foundation. In a few hours it is a hard compact mass, and is then scraped and oiled; the result is an excellent surface which can be polished like a parquet floor. Space will not permit of an extended notice of this system at the present time.

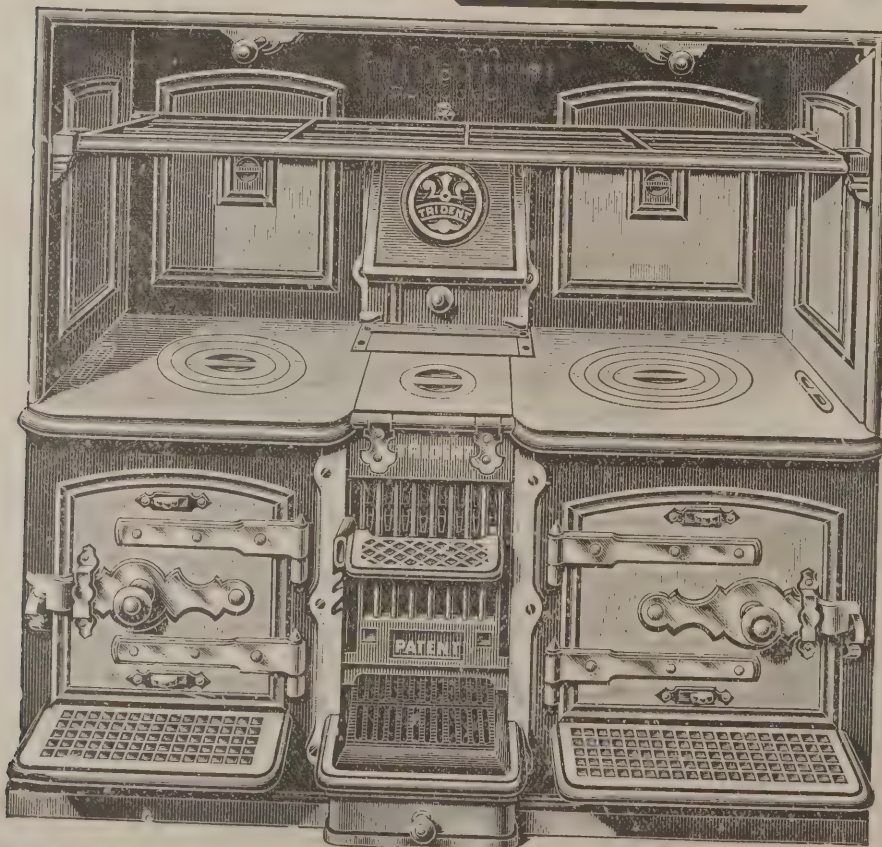
The *South British Trading Company* show at Stand 34 the Bardsley improved oil door check and spring, which we have referred to frequently before. The spring is distinctly a good one and has many advantages. His Majesty's Office of Works and His Majesty's Post Office architects have frequently specified them, and they have given every satisfaction.

Stand 37 is occupied by the *Newellite Glass Tile Co.*, who are exhibiting tiles which are coming into favour owing to their value from a sanitary point of view. This firm is evidently satisfied that in claiming that they will not crack or peel they are fully justified, as they offer to leave an amount of 10 per cent. on each job undertaken by them for the term of two years against repairs, should such be required.

Another example of fireproof partitions is to be found at Stand No. 40. The *Acton Concrete Partition Co.* are showing their partitions, for which their principal claim seems to be cheapness of price and expeditious erection.

Messrs. Jas. Price & Son have an exhibit at Stand 41 of their *Chez-lui* hard drying enamels. We have described this enamel before, particularly the special bath enamel, which has for years past given the most satisfactory results. The *Chez-Lui* enamel stains, which are supplied in seven different shades, are worth attention; they have a good

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ish and the gloss resembles French polish. Examples are shown of baths, lavatory basins, pedestal closets, &c., which are distinguished by the name of "The Charlton" and for the excellence of the enamelling.

Mr. B. T. Batsford, the enterprising architectural publisher and bookseller, is represented at Stand 43, and has a most interesting exhibit of architectural and technical books. The name of Batsford is too familiar to our readers to need any passing comment in a notice of a trade exhibition.

Mr. Thomas Potterton at Stand 44 has a good show of domestic ranges and kitcheners.

For many years past *Vulcanite* has occupied a space in the Building Trades Exhibitions; their exhibit will be found at Stand 45. We have frequently referred to the usefulness of this material. On this occasion they are showing a model house with the patent *Vulcanite* roofing on a flat wooden roof.

Messrs. Howard Bros. at Stand 46 are exhibiting their patent "Dey" time register, showing their combined time and wages sheet for time-keeping, a necessary adjunct in every works; the system seems to be a simple one.

As usual, Messrs. D. Anderson & Son occupy the same position at the Building Trades Exhibition. The number of their Stand is 59, where they have a representative show of their well-known *Stonifex* roofing felt, tarred felts, damp-course, &c.

A new firm is to be found at Stand 61. The *Asbestic Brick and Tile Company* have an interesting exhibit of their asbestos bricks in various colourings. The French grey is particularly pleasing. Briefly the system is a simple one; the brick produced is of good colour, hard as Portland stone and with a particularly good face. They are made of a mixture of asbestos, lime and sands, and can be produced for use within twenty-four hours, or in even less time if required. The company are prepared to erect plant and machinery in any district. We shall be referring to this new system in a subsequent issue.

We have so frequently mentioned the *Adamant Company*, whose exhibit will be found at Stand 64, that it is difficult to again refer to them. The *Adamant* system is well known to our readers. The material shown by them at this year's exhibit is moulded and modelled in the special moulding material described by them as No. 2A, and the ceiling is in

special fibrous *Adamant*. The repeated statements made by us of the value of *Adamant* have been more than verified by the popularity of this material and the increasing sales from year to year.

Stand 68 is occupied by the *Plaster, Brick and Stone Company*, who have an excellent exhibit of their "Pytho" plaster. The material has a fine, well-finished surface, and is being largely adopted in the Staffordshire district and the Midlands generally. This is one of the new firms in this year's exhibition, and their exhibit has been favourably referred to by many architects visiting the hall.

At Stand 71 Messrs. G. Aston & Son are exhibiting principally the fireproof material known as "The Fram" system. The material is light and easily erected. A model light iron building is shown, illustrating details of construction and showing a lining of "Fram" insulating and fire-resisting boards.

Messrs. Potter & Co. at Stand 72 show an armoured concrete floor 5 inches thick and 10 feet between supports. Also, besides several other specimens of floors and partitions, an armoured concrete lintel which has withstood the test of a load of 10 tons.

Messrs. Hofler, Ltd., are exhibiting at Stand No. 74 specimens of wall-papers, ironwork and oak panelling, made either in Germany, Austria or France. The oak panelling and fittings are of good workmanship and effective.

In a special central position, known as No. 3, will be found one of the best exhibits at this year's exhibition. The *Crittall Manufacturing Company* have an excellent display of art metalwork, consisting of an ornamental glazed screen showing various designs of stained glass, &c. A large pair of iron doors are exhibited which have been made for the Duke Street electric-light station. The ironwork shown at this stand is a distinct proof that English art metalworkers can still hold their own in this artistic branch of industry. Messrs. Crittall are showing also a new casement distinguished as "The Fenestra." It consists of a frame without any mitreing. One bar is threaded through the other. It is simple and effective.

At the stand of Messrs. Samuel Elliott & Sons at any exhibition will always be found excellent workmanship combined with artistic taste. At their Stand, No. 95, this

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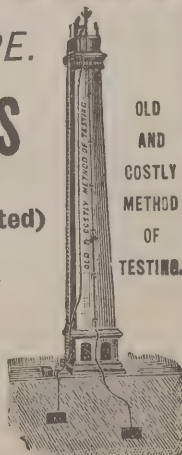
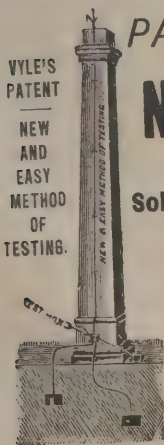
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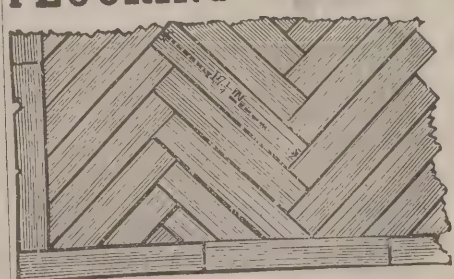
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year will be seen examples of their work which will well repay a visit. Probably the best possible proof which can be given of the excellent examples of joinery, woodwork, &c., exhibited is the fact that during last week one contract alone for many thousands of pounds was entrusted to them by one of our largest London firms. Some particularly fine specimens of doors, mouldings, &c., will be seen. The beautiful doors designed by the architect, and which Messrs. Elliott & Sons are fixing at the Roman Catholic Cathedral at Westminster, would have been shown but for the fact that Messrs. Elliott were not permitted to exhibit them. Another good example of their work was, however, on exhibition last week of a door for one of our new theatres.

We described recently Messrs. Carter & Co.'s Stand, No. 96, giving an illustration of this firm's exhibit. Their designs of tiles are too well known amongst architects for us to more than add that some excellent examples of their work are to be seen.

Messrs. Thomas Pascall & Sons are showing at Stand 113 some examples of their Wrotham bricks which are of an excellent colour; they are in three shades of red—dark, medium and light. At the same stand they have an exhibit of their sand-faced roofing tiles.

In the wall space under the gallery will be found Messrs. Yates, Haywood & Co., Ltd., with an exhibit of wood mantels, mantel registers, hospital stoves, baths, closets, lavatories, &c. The patent "Guinness" self-setting ranges exhibited here have many claims for support. The well-known "Quadrant" lift-fire kitchener is of simple construction and easy to work.

Messrs. Crossley Bros. are to be found, as usual, at Stand 121, under the gallery. Their exhibit of gas-engines is of interest to all who are conversant with the value of this indispensable invention. In the early days of gas-engines Messrs. Crossley earned a well-merited name for their "Otto" gas-engine, which has been fully retained by the firm to the present day.

Mr. John Tann has a display of Tann's safes at Stand 123. The "Anchor" reliance safe has been described in these pages for many years past. The firm has been established for considerably over 100 years, and probably the best proof of good workmanship is the fact that the business is a pro-

gressive one. Mr. Tann has rightly earned a name for good workmanship and for using good materials, and the fact of this firm having a continuous history of over a century is the best proof that the above statements are correct.

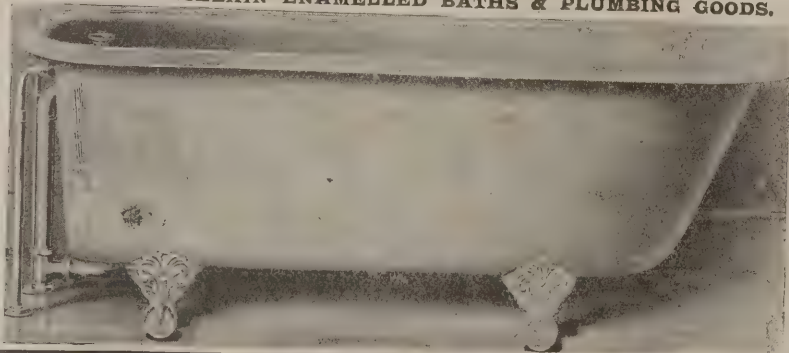
The windows shown by the *Perfector Window Co.* are claimed to be suitable for any building, whether a mansion or cottage, hotel or factory, hospital or warehouse. The window is a sash window as well as a reversible window. The sash stile is made in two parts, hinged together so as to allow it to revolve sufficiently to bring the outer surface of the glass within reach of a cleaner inside the room. The closing of the sash draws the two parts together, making the window perfectly waterproof and free from all rattle. No beading has to be removed or screws taken out to render the window reversible. Free ventilation for the room is insured. The sashes can be fitted to any existing windows and any fastener or opener can be used. If a cheaper method is desired the centre and beading can be fitted without sliding sashes, to turn on centres only.

Velure has so firmly established itself that few architects, decorators, or any others connected with building can have failed to have had it brought under their notice. Its qualities are partly demonstrated by the strips of tin to be obtained at the stall of Messrs. C. Chancellor & Co., and which, no matter how much they are bent or beaten, show no sign of cracking or peeling. Nor will it peel, blister or fade. Its weathering qualities are, indeed, as remarkable as its economy in use. *Velure* floor paint has advantages which will recommend it to the householder. It can be applied to wood, stone, floorcloth, &c., and will be fit to be trodden on within a few hours. The variety of stock colours is steadily increasing and now numbers ten, one of the last being white, for which there is certain to be a general demand.

The *Phoenix Patent Roofing* presents a novel idea of great interest. The main features are a true joint between the covering material, whatever it may be, and a metal joint protector. In slate roofs the number of slates is reduced by 50 per cent. owing to no overlapping whatever. This removes the necessity of four rafters out of every five and only one-half the battens. The smooth surface of the slate is placed outside with a distinct gain in appearance. The saving of cost is, in consequence, reduced by more than

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per cent. over the usual timber roof. Slate roofs are only one of the materials to which this system of jointing can be applied. Where glass or galvanised iron are used it is equally efficacious and economical.

The specialties of the *Phoenix Engineering Co., Ltd.*, are of a sort to attain picturesqueness, but they are not the less important. "Floodgate" and "Highland" pumps are made by side with tar and pitch boilers, hand and horse road-crappers, water-carrying vehicles, &c. There is a business-like impression made by this stand.

Venetian blinds do not admit of much scope for invention, and therefore the greater is the credit due to *Wapler & Co.*, Fulham Road, S.W., for having secured a new article. The principal novelty is seen in their own patent check action, by means of which the blind stops automatically at the height where the pulling action ceases. This is an obvious advance on the old system of laboriously fastening the cords round a knob. The labour of raising a large blind has been reduced by more than one-half, as the laths are made extra thin, and this has the additional advantage of elegance. The ability to employ thin laths is the result of a secret method of preparing wood so as to render them impossible to twist or warp. *Wapler & Co.* facilitate the work of housemaids by the ease with which the blind can be removed from the iron brackets and cleaned lath by lath, for nothing impedes the washing of the windows.

Versatility is displayed by *B. Ward & Co., Ltd.*, who show themselves as equally ready to lay granite concrete paving, reinforced concrete floors and partitions, mosaic paving and staircases or wood-block flooring. Their patent non-slipping leaded treads for stairs may be seen as finished, and the lead grid is also shown separate. The lead dots are hardly noticeable on the surface; the principal advantages gained by their use are a non-slipping surface and increased durability. The wood-block flooring gives the effect made by Austrian oak, pitch pine and maple. The appearance of the exhibit is greatly dignified by a short colonnade in artificial stone.

The *Safety Lift and Elevator Co.* (M. T. Medway) show one of their self-sustaining dinner lifts which is suitable for hotels, restaurants, or private residences; they are guaranteed to be noiseless and trustworthy. The gear consists of a large hauling wheel, V-wheel, to prevent

the manilla or hemp rope chafing, and brake wheel with lever. The whole contrivance is easily fixed. The self-contained gear for an electric passenger lift can also be seen in operation. The collapsible iron gate works in connection with it, in order that the lift cannot be started until the gate is closed, and the gate will not open until a spring is released by the arrival of the lift. The lift is operated by means of a hand-switch inside the car. There are special emergency devices.

A list of contracts in the hands of *Messrs. R. Waygood & Co., Ltd.*, would give an idea of their world-wide reputation. Every year they turn out more than 1,000 lifts and cranes. In London, Johannesburg, Belfast or Newcastle their work is equally esteemed. The fact that fifteen lifts are to be despatched for installation in the Carlton Hotel, Johannesburg, is a welcome proof that the manufacturers of this country are able to hold their own in an international market like South Africa. They are showing a direct coupled electric lift gear, an automatic electric dinner lift, and a hand-power lift, with various accessories. The passenger-lift gear includes a patent controller, and the lift is operated by automatic push buttons in the cage, so that the lift automatically starts and stops on the desired floor. The dinner-lift has a special shutter, by which, should the shutter be open while the lift is in motion, the lift will stop, in order to prevent it descending on anyone should they put their head or hand in the well-hole. The hand-power lift will carry about 84 lbs., and is controlled by a foot-brake.

An important feature of the exhibit by the *British Fireproof Construction Company* is their patent ventilating partition with various joints and enclosures. The partitions are 3 inches thick and are made 18 inches to 6 inches in length. The joints are filled with breeze concrete, 1 inch in width, into which wood fixings may be nailed. When fixed the partitions weigh 14 lbs. per foot super. The air ducts in the partitions run from top to bottom of the buildings, and may be connected with inlet and outlet flues at any desired point. The system is to be found in Stobhill Hospital, near Glasgow, Guy's Hospital, Wakefield County Offices, &c. A concrete-steel beam is seen loaded with bricks, showing vertical joints; although the weight is 5 cwt. per foot super, only a slight deflection has resulted. The bay occupied by this company shows arched and sloping con-

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crete roofs. Their hollow-tube system of fireproof floors, showing tubes from $5\frac{1}{2}$ to $10\frac{1}{2}$ inches deep, is seen in section.

The unusual sight of a revolving stand of architectural drawings in constant motion helps to attract attention to the display of Messrs. Norton & Gregory. The device fulfils its purpose, as soon as the visitor walks up to the



stand. At least one novelty is seen there, in the latest "Perfect" adjustable drawing-table with a T-square attachment. This attachment consists of two double-pulley

brackets, two single-pulley brackets, bolts and screws and fine wire-cord, and may be bought separately with or without a special T-square. Norton & Gregory's "New Black Line Process" is familiar to most professional visitors. Its permanency is shown by one of the photo-copies on the revolving stand, which, although executed four years ago and ever since exposed to a strong light, is still as clear as if it were done a week ago. The "New Idea" spring hinge is another feature which has long since made its way into the market and which increases in favour as it is more widely used.

Many specialties in building construction which might be termed vital are shown in the stand of Messrs. F. McNeill & Co. All are materials for use, and comprise damp-courses, sound-deadening, fireproofing, roff-lining and plastering. Felts in many varieties are shown, such as sarking and inodorous felts, bituminous and dry hair-felt. Their fibrous asphalt damp-course is seen in use through the medium of a small tank holding some courses of a wall, with the water an inch below the damp-course. Messrs. McNeill are not content with the reputation they have gained by this course, for they now offer another which is made of pure bitumen, and guaranteed free from all coal-tar or coal-tar pitch. It is made in lengths of 24 feet, and the stock widths range from $4\frac{1}{2}$ inches to 36 inches. Slag wool enters into many of the articles, as it is, of course, soundproof and fireproof.

The patent "Heaped Fire" grate is seen in action at the exhibit of Messrs. Bratt, Colbran & Co. Lord Windsor, in opening the exhibition, laid stress on the necessity for more general endeavours in the abatement of the smoke nuisance. There are no front bars, the coal being heaped against the back brick, and the fire is in full view. A steady incandescent fire results from the draught suction, with perfect combustion. It can be fed in front like a boiler furnace, pushing back the red-hot fuel and thereby partially consuming the smoke. Messrs. Bratt, Colbran & Co. are issuing this week from their warehouse, Mortimer Street, London, W., a new catalogue illustrating various artistic types of the "Heaped" fire.

Messrs. Casebourne & Co., Ltd., West Hartlepool, show a model of their new "Pioneer" cement works at Hayerton, Hull-on-Tees, co. Durham, on a scale of 1-16 inch to the

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not. The works were designed by Mr. H. W. Anderson, C.E., London. In addition, copies are shown of tensile and compression tests made by independent experts.

Lincolnshire red-tile goods are shown at the gallery and of Mr. J. W. Briggs, Barton-on-Humber, Lincoln. They include bricks, plain and ornamental ridges, tiles, chimney-pots, flower-pots, finials and drain pipes.

Although the "Safety" Water Elevator Company (or Conet's Patent Well Gear), London and Dunstable, are a comparatively new company, they can already point to numerous successes and show many unsolicited testimonials. For wells of a depth greater than 30 feet or 40 feet it is claimed to be considerably cheaper than other kinds. The elevator to be seen at their stand allows of an examination of all the claims advanced on its behalf. The elevator is a solid cast-iron plate, which is placed over the aperture of the well, thereby protecting it against the introduction of animal or vegetable matter. The stool dome is perforated, but has netting inside to prevent the entry of any matter; the mouth of the spout is likewise carefully protected. Inside the dome there is some simple mechanism. The two buckets are one of the patented novelties; they have a circular aperture in the centre of the bottom, closing or opening by a disc or valve. Any depth of well is worked with equal ease, and a child can draw 500 gallons in 30 minutes. The company are so confident in their invention that they are willing to send an elevator for trial in the United Kingdom free of charge, and which may be returned if not approved.

The Patent Indurated Stone Company show their material in its natural colour and matching Whitbed Portland stone, brown Portland stone, terra-cotta, red and yellow Mansfield. The forms are decorative and include balustrading, sundials, moulded pier-caps, vases, &c. An elaborately ornamental panel in Harley stone shows how readily the stone may be carved. The floor of the stand is paved with the hydraulic pressed paving slabs supplied by John Ellis & Sons, Ltd., Leicester.

The Rowlands Castle Brick and Tile Works, Ltd., Hants, contribute a selection of plain and ornamental deep-red facing and ornamental bricks and tiles, which are remarkable for their colour. As with their old-fashioned sand-faced roof tiles, exceptional weathering qualities are

claimed. The raw materials used in the manufactures of the company are to be seen, and the colours of the clays are many, for they include black, grey, brown, yellow and deep red. A test of the brick was made by Messrs. Kirkaldy, and it sustained a weight of over 300 tons per square foot before crushing. Their hand-made tiles have gained favour among architects by the way they quickly vegetate. The blue bricks have the recommendation of being blue right through.

If the Building Trades Exhibition were being held in Scotland instead of in London there would be little need to give explanations of Brown & Co.'s "Simplex" window fittings, for they are known throughout North Britain. In Glasgow and elsewhere the building regulations ordain that all windows must be made to open inwardly. These fittings leave the balance weights as before, allowing the window to rise and fall, to open inwardly, arresting the weight automatically when it opens, and re-engaging it when closed. A cheaper form of the window releases and re-engages the weight, but not automatically. The fittings have the somewhat unexpected recommendation of being a very efficient protection against burglars. The lower sash could not be lifted from the outside. Brown's raw hide "Simplex" sash-line is used as being very flexible and enduring, tough and cheap.

The destructor clinker paving slabs shown by the Patent Artificial Stone Co. suggest the eminently useful purposes to which refuse can be put. They are the sole vendors, patentees and manufacturers of anti-sulphite for use in these slabs.

In times of international competition in the open English market it is reassuring to hear of the success of Hartley & Sugden's, Ltd., cast-iron and wrought-iron boilers and radiators. Less than a year ago the company added a new department to their foundry and introduced a new cast-iron sectional boiler—the "White Rose"—for warming by low-pressure hot water. Series A met with such general success that it was supplemented by Series B, which was of a smaller size. Messrs. Hartley & Sugden have found that the demands were still unsatisfied, and have now in hand Series C. When this is ready for placing on the market it will be possible to obtain boilers with heating power ranging from 300 feet to 6,000 feet. The "White Rose" radia-

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tors for hot water or steam are another recent addition to the useful specialties of this firm. The improved independent "Savile" boiler is especially designed for heating water for domestic supply in hotels, clubs and country houses and private residences. The boiler is so arranged that in case of the water containing sediment the deposit falls below the level of the grate bar, where mudholes are provided, so that it may be easily cleaned out.

The impregnated foundation felt of Messrs. *Mitchells, Ashworth, Stansfield & Co., Ltd.*, is made entirely from wool, milled so firmly that it is very slightly affected by ordinary pressures, and a special grade is produced for extra heavy work. Nevertheless its elasticity enables it to very largely overcome vibration and neutralise any jarring, as may be seen by the tests of Messrs. D. Kirkaldy & Son. The surface of the felt is treated by a chemical process in order to prevent wearing, the penetration of water, &c., and the body of the felt is pregated with a special oil, rendering it impervious to moisture. The sheets vary in any thickness from $\frac{1}{4}$ inch to $1\frac{1}{4}$ inch, are in three grades of hardness, and the largest size is 60 inches by 30 inches, but it is cut to any specification, and if a large bed is required, the sheets are cut to fit exactly. It is used as a bedding for rails, bridgework, columns, girders, machinery, gas-engines, steam-hammers and presses. The company are also exhibiting samples of non-inflammable roofing and flooring felt, which is an excellent non-conductor of fire and sound, imparting coolness in summer and warmth in winter.

If it is possible to attain a perfect solution of the problem of housing, it is most likely to come from the combined efforts of the philanthropist, the designer and the manufacturer striving for a common goal. It is, therefore, a most hopeful sign to find these qualities united in a single individual like Councillor James Cornes, who has for many years past made the subject of the housing of the working classes a special study. Not content with theory, he himself erected a colony of workmen's dwellings in Leek at an outlay of nearly 20,000*l.*, and these have attracted widespread attention from local authorities and others. The houses are let at 5*s.* 6*d.*, 5*s.* 9*d.* and 6*s.* 6*d.* per week. Mr. Cornes devoted special care to the facilities for the cleanliness of his prospective tenants, and devised a combination forming the basis of an invention which would be something

altogether new. The Cornes & Haighton apparatus was the fruit of no little mental labour and experiment.

The apparatus combines heating, cooking and washing, with the use of a hot or cold bath and a shower. The range is fixed in the kitchen, the grate being in the centre, with an oven on one side and a boiler on the other. The boiler has a capacity of 12 gallons of water, 10 gallons of which can be run off. Risks of explosion are avoided, and it is automatically supplied by a feed-cistern. The fitting is so arranged as to abut on to the dividing wall of two rooms, such as a kitchen and scullery, and is accessible from both rooms. Clothes can be boiled in the copper. The scullery portion of the apparatus acts as a radiator to this room, and the temperature need never vary from that of the living-room. There is thus effected a great economy in space, labour and material.

about and material.

We have referred in detail to the apparatus as it is one of the most remarkable features of the workmen's dwellings. In the two years after its development over 1,000 complete fittings have been installed in municipal or private housing schemes all over the country. The usefulness of the invention will be still further increased by the recent amalgamation of the *Ellkay Patent Bath Syndicate, Ltd.*, the *Ellkay (Colonial, Foreign and Export) Syndicate, Ltd.*, and *Cornes & Highton, Leek, Staffs.*, with a capital of 80,000*l.* This amalgamation will be known as "*Ellkay & Cornes, Ltd.*," and will supply (1) combined range, copper and bath; (2) range, wash-boiler, sink and folding bath; (3) wash-boiler, folding bath and bath boiler, for either coal or gas; (4) range, high-pressure boiler, circulating hot-water tank and folding bath, each being fitted in combination in the very best finish in a compact, efficient and sanitary manner, while being most economical both in the original cost and in the working. The combination of the "*Ellkay*" folding bath and *Cornes & Highton's* range and copper is certain to have a real influence on the housing question, for it has removed the cost difficulty in installing a bath in a workman's dwelling without a serious increase in cost and a loss of space. The "*Ellkay*" bath has been looked upon more as an accessory in hotels, private houses and flats than in workmen's dwellings. The novelty and attractiveness has in no way decreased. The stand of the company, in the vestibule

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shows it in two or three qualities, together with various baths. The baths are in use from China to Peru. The small combination kitchener will go in an opening 2 feet 4 inches, and has an oven 15 inches by 14 inches, open and closed fire, and boiler, which forms part of the patent combination previously alluded to, which comprises a range, boiler, circulating tank, folding bath, copper and sink. By the arrangement water sufficient for a hot bath will be heated in thirty minutes with $3\frac{1}{2}$ lbs. of coal, while cooking is taking place simultaneously. It can be supplied and fixed in a cottage let at a weekly rental of 4s. 6d. without any increase of cost. Another stand shows the same apparatus on a larger scale. Experience has proved that the dwellings which possess these combi-

The "Marbut" machine-carved mouldings must be inspected in some hundreds of lengths at the stand of Cobbetts, of Bethnal Green. They are all of different and delicate colours. Other joinery, such as newels and balusters, are displayed.

A striking lead fanlight casting is on the large stall of Messrs. Smith & Wellstood, Ltd. Less ornamental objects are the ranges, boilers, ventilating stoves, &c. There are also many fireplaces with mantelpieces.

Concrete building bricks, made by the machinery and processes for utilising blast-furnace slag of Messrs. Sutcliffe, Speakman & Co., Ltd., are shown by them. They claim to make the most "limey" bricks without the admixture of lime or cement as a bonding material. Their double-shafted differential mixer is one of the machines they have brought to the hall.

South Devon stoneware clays are well known, and almost guarantee the quality of the goods supplied by Messrs. Candy & Co., Ltd., who have their works at Heathfield, Newton Abbot. They show white and coloured enamelled and dipped-brown salt-glazed bricks and other bricks. Buff terra-cotta garden vases and chimney-tops are very ornamental. Two Devon glazed brick fireplaces in grey and brown are shown.

The walls of the Fireproof Partition and Spandrel Wall Co. are built exclusively of iron, bricks and cement. The spandrel walls do not require continuous foundations, for they do not bear on the joists. This is shown in the length of walling erected, which is supported at each end and in the centre.

The patent glazing system of Messrs. Sam Deards is illustrated by a model. The firm have carried out many contracts of the Portsmouth and Devonport Dockyard, including one for glazing the new steam factory at Portsmouth, where it was for 102,000 feet super. Its water-tight claims are justified by the constant stream of water playing on the roof of the exhibit.

There is always a pleasure in seeing anything that may be described as "the very latest." Therefore those who inspect the appliances presented by Messrs. Joseph Richmond & Co., Ltd., should make a point of not overlooking their design for wrought-iron gates and section of enclosure. It is entirely automatic. The gates open in the centre, and



nation baths are in far greater demand among the working classes than those without. In addition, the possessors manifest a pride in their privilege by the scrupulous way they are kept clean. Thus it will be seen that the amalgamation of three such concerns as the Ellkay Patent Bath Syndicates and Messrs. Cornes & Houghton will most likely have a profound influence on the subject of housing the working masses. Mr. James Cornes and Mr. E. W. Lancaster will jointly manage the business. Mr. Cornes has written a review of the housing question in England under the title of "Modern Housing in Town and Country," which will shortly be published by Mr. B. T. Batsford.

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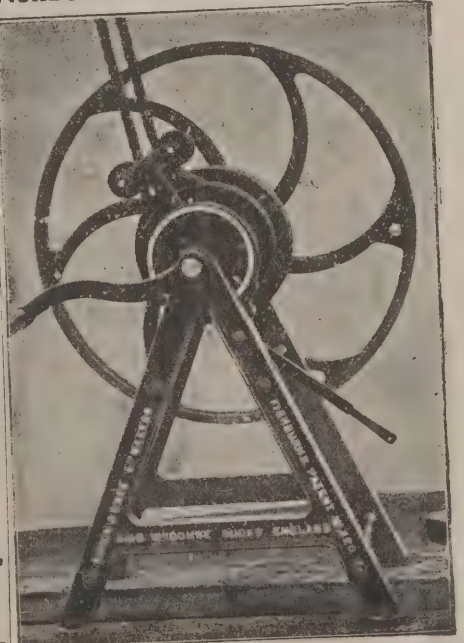
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For Index of Advertisers, see page x.

are specially adapted for landings where the width is too small to permit with convenience of a hinged door. The gates exhibited are of a beautiful design. A 3-inch scale model of the Richmond-Carey patent automatic electric lift is in working order, and demonstrates how the services of an attendant are entirely dispensed with, through the self-locking apparatus for doors and starting apparatus. Three hand-lifts are to be seen.

The decorative capabilities of *Emdeca* are indicated by their handsome stand, combining on the exterior copper and zinc in a Classical treatment. The interior has a most bright and clean appearance, due to their embossed and enamelled zinc decorations. *Emdeca* will stand fumigation without oxidation, and is totally non-absorbent. It is cleaned with ordinary soap and water and is particularly suited for bath-rooms, lavatories, kitchens, pantries and passages. *Emdeca* paste, made up of one part white lead and two parts whiting, is used for fixing.

The *Standard Sanitary Manufacturing Company* have an excellent display of some of their specialties, which are to be seen on Messrs. W. J. Burroughes & Sons' stand, including enamelled iron baths, lavatories, &c. One of the baths is the same model as those fitted at the Midland hotel, Manchester. A special feature is made of the lavatories in one piece—the bowl, slab and back thus rendered thoroughly sanitary. The enamel is even throughout, adhering perfectly to the iron. The finish to all these goods leaves nothing to be desired. The enamel covers evenly all the edges of the castings and does not leave exposed the black edges often seen on enamelled iron goods.

A manhole covering, strengthened with expanded metal for electric-light boxes, is one of the novelties of the *Atlas Stone Company, Ltd.*, Cambridge. Its strength and lightness are noteworthy. The Atlas "Foothold" paving slabs are made under a hydraulic pressure of 400 tons from Leicestershire granite and the "Saxon" brand of Portland cement. It was, therefore, suitable that they should include on their stand the ingredients in various stages of the manufacture of this brand, such as the raw material before and after analysis, the calcined clinker as made in rotary and stationary kilns, and the final ground product. Two granite-concrete steps shown are the same as 1,000 steps supplied

to the London County Council for their artizans' dwellings. A Faija testing machine is provided to test briquettes made from the cement used for Atlas "Foothold" slabs. The mosaics of the company are Roman, glass mosaics, ceramic mosaics and terrazzo. There is also a concrete department.

At night the stall of *A. E. Podmore & Co.* is a thing of great brilliancy, due to the large number of their patent high-power and ordinary incandescent lamps. They are specialists in public lighting, and are manufacturers of all kinds of gas apparatus.

Geo. Jennings, Ltd., are bold enough to pass over most of their sanitary specialties, and have confined themselves to their more recent manufactures. For instance, the patent auto-mechanical operator is the first to be made by them, and is used in connection with sprinklers or feeders. The patent automatic sprinklers for sewage and water filtration, fed by a mechanically operated syphon, shown, is intended for a small village installation, and is very simple, efficient and reliable. A patent electro-mechanical apparatus indicates and registers varying levels of liquids, whether in outlying reservoirs, sewage-tanks or outfall sewers at any distance from point of observation. This has been in use for many years past, and is adopted by H.M. War Department. The entire body of the "London" warm fresh-air ventilating grate is made in a single piece of terra-cotta. The mouth and throat of flue is combined with the grate. All exposed surfaces are protected by fireclay linings, and there is a projecting back. The grate can be converted into ordinary or slow combustion by use of a regulator.

C. B. N. Snewin & Sons, Ltd., must be proud of their display of mahogany, wainscot, walnut, teak, whitewood, deal and timber. Many countries were laid under contribution to supply them. They provide all descriptions of thoroughly seasoned hard and soft woods used in building, joinery, cabinet-making, shipbuilding, &c. There is a fine piece of sequoia running from floor to ceiling and with a width of 51 inches.

There is a refreshing breeziness about the stall of *James Stott & Co.*, due to the active working of several ventilating fans. The powers of the various ventilating appliances cannot hardly be tested in this way. The exhibits are brilliantly illuminated by the numerous burners of the company.

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The manufactures of the *Limmer Asphalt Paving Company, Ltd.*, have recently been increased by Bishop's patent non-slipping stair treads. They are constructed of a steel frame enclosing three sides, with an apron piece rivetted to the front. An interlacing steel wirework is threaded through, and then melted mineral rock asphalt is run in to a thickness of three-quarters of an inch. When applied to worn stone steps the uneven surfaces are filled in with Portland cement, and the tread is pressed into position while the cement is plastic. The Lithofalt mastic paving (another rather recent departure) is a cheaper form of mineral rock mastic asphalt. A sectional model of a stable has a flat roof of two coats of mineral rock mastic roofing which has long been associated with this company. Its special use is for laying in playgrounds, mills, schools and similar places. We may in conclusion note that the new address of the Limmer Asphalt Paving Company is 8 Fowke's Buildings, Great Tower Street, E.C.

The roofing tiles of the *Nostell Brick and Tile Works*, near Wakefield, may be selected for particular notice on their stand. They are very hard burnt tiles of dark colour which weather well and do not vegetate. They would make an excellent contrast in a house constructed of cherry-red bricks or with a stucco gable. The tiles have been placed as a covering over the stand of the British Compoboard Company, Ltd. Their blue and brindle bricks are also deserving of attention.

Messrs. Powers & Deane, Ransome's, Ltd., are able to illustrate much of their work on a small scale. As constructional engineers they keep in stock roof principals, stanchions, girders, &c., in their various forms. Sections of two compound girders built up of the largest and smallest section rolled steel joists ever rolled are shown. The floor is of tiles and joists with concrete filling and patent impervious paving over.

The relief decorations for ceilings, walls and other ornamental purposes make the stand of *Messrs. Geo. Jackson & Son* a special feature of the minor hall. The gilded carton-pierre wall lights bear a close resemblance to metal. The ceiling bands are made in fibrous plaster, but the flowers are frequently in carton-pierre, as it gives a better undercut. Chimneypieces, festoons of flowers, panels, &c., all show the spirit of the old work and lack none of its delicate beauty. Their new plaster stone is on the principles already extensively employed on the Continent, and especially in Paris. A column, capital, cornice, wall panel, &c., prove its effectiveness. Stanchions, iron columns, &c., can be rendered things of beauty when encased in the stone. A photograph is shown of the famous plaster roof of Kilmainham Hospital, near Dublin, which was renewed by George Jackson & Son a few years ago under the superintendence of Sir Thomas Drew, R.H.A.

Paints, colours, varnishes in many varieties are exhibited by *Messrs. Walter Carson & Sons*. A case is filled with trays containing raw materials. "Muraline" is sold in a dry powder which is made into a washable paint by the addition of an equal weight of cold water.

No. 100 verandah is a new design in architectural iron-work by *Messrs. Cakebread, Robey & Co.* It is supplied ready for fixing with the requisite bolts and nuts. Their leaded lights and stained glass for domestic and ecclesiastical purposes, as represented by photographs, prove the skill of the company in quite another line. The architects who have shown confidence in their work include such well-known names as Mr. J. L. Pearson and Sir A. W. Blomfield. As builders' merchants, manufacturers and wholesale ironmongers they have a very varied display, which includes ranges, stoves, baths, wrought-iron grates, lavatories, wall-papers, &c.

There is a charm about art metal work which appeals to most people. The *Bostwick Company's* display is illustrative of the freedom which is exercised by designers, whether in brackets, electric fittings, chandeliers, grilles, balustrading, or the other necessary things which are now made beautiful. The company manufacture collapsible gates and shutters, staircase and lift enclosures, lifts and other work.

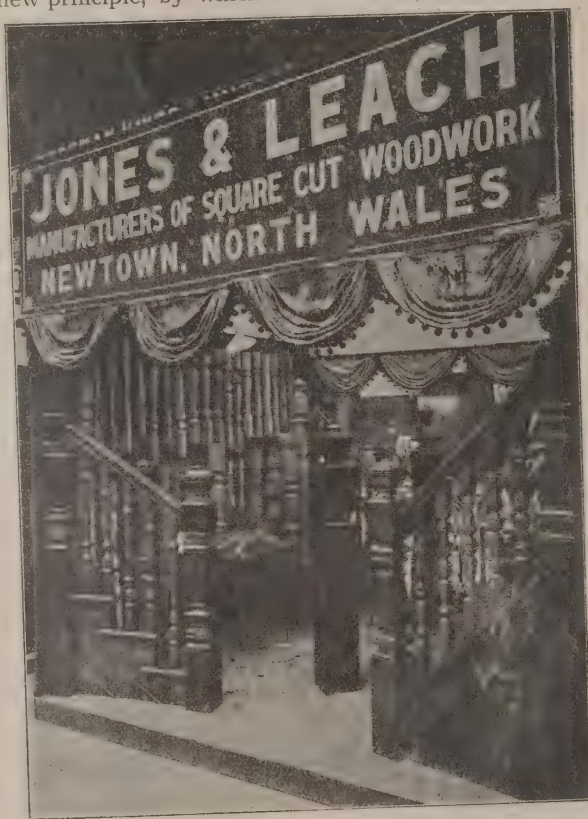
James Oakes & Co. have on view a few 3-inch Stanford jointed pipes, of which 50,000 were recently supplied to the West Ham Corporation. A representative collection has been made of their salt-glazed ware, briquette fireplaces, tiles, bricks, fireclay goods and other manufactures.

The claims of *Messrs. Vincent Brooks, Day & Son, Ltd.*, for their "True-Scale" photo-litho are sufficiently indicated by the name. The single exception in which perfect accuracy cannot be guaranteed is when tracing cloth is used, as the material is so extremely susceptible to

atmospheric moisture. Although the price of the first copy is comparatively high, the succeeding copies compensate for this. Black and brown printing inks are used. Drawings on Whatman's paper, &c., and canvas can be reproduced. Special black line and sepia copies can be made from subjects on drawing paper or thin cards. They also employ other sun-copying methods. Expedition is made one of the boasts of the company, and orders received in the morning are usually completed the same day.

Compoboard is shown by the *British Compoboard Co., Ltd.*, in the raw material, as well as distempered and finished off as a dado. There are pieces of it 4 feet wide and 18 feet long. The specimens given away suggest its applicability for ceilings, partitions, cubicles and general decorative purposes. A suggestive use is dividing the material into panels by means of narrow fillets or mouldings which cover the joints. It has the appearance of a plastered interior. Where speed construction is essential the material is most desirable, as it can be easily fixed, and papered, painted or distempered immediately after.

Square-turning is seen at its highest point of excellence in the stand of *Messrs. Jones & Leach*, Newtown, North Wales. Their square-cut newels and balusters are made on a new principle, by which the faces are finished exactly



square and the moulds cut clean, with perfect intersection of mitres. The newels are made furthermore to harmonise in character with the balusters. Architects who so desire it can have the woodwork executed to their own special designs.

Messrs. G. & A. Brown, Ltd., 167 Hammersmith Road, W., are well qualified to work their ceilings in the Adam style, for they have been established for more than a century. Their Stand No. 21, in the gallery bays, has two mantelpieces and a ceiling executed with the greatest delicacy and in a manner which brings no disrespect to the great name of Adam. In addition, the exhibit includes cornices, friezes, mouldings, doorways and everything else required for architectural interior decorations. The limitations of a temporary exhibit are great, and we would advise architects to apply for a catalogue, which, by means of photographic illustrations, suggests the skill and capacity of this old-established firm, whose work is marked by the refinement which is necessary in treating Italian detail.

The "Reliance" lead and bitumen damp-course is manufactured by *Messrs. Watson & Co.*, of lead embedded on each side in a layer of bitumen and with outer surfaces of asphalted felt. Bitumen was recognised over 5,000 years ago as a preservative material by the Egyptians, who used bitumen bandages as a covering for their mummies. Consequently it may safely be predicted that the lead and bitumen damp-course will outlast any building in which it

is used. The practical test of placing the damp-course between bricks, the lower of which are soaked in water, is ample demonstration of the suitability of the material for employment on damp foundations. It is sold in 15-yard lengths and up to 3 feet in width. Watson's "Standard" asphalte is intended principally for cavity, vertical and insertion work. A ton will cover 50 square yards half an inch thick, at a cost of under 2½d. a square foot for material.

Martin's Patents Company, Ltd., in addition to displaying their "Unique" reversible window-sash, show the "Quadrant" door springs, which may be fitted to double or single action doors. It consists of a circular brass tube, with a slot containing a powerful spring. On the top of the door is a push. When the door is opened the push presses against the spring, and when the door is released it automatically swings to again. It allows the door to open to its full width, and makes the cutting away of floors unnecessary. The springs can be fixed in two hours.

A very effective white oak drawing-room mantelpiece, and another for a drawing-room, are shown at Stand 70A by the *Parkstone Steam Joinery Co.*, Upper Parkstone, Dorset. In addition to domestic work they manufacture joinery for churches, banks, shops, public libraries, offices, &c. Their specialty is, however, mantelpieces and overmantels of every description. They will send workmen anywhere to repair, alter or match existing work or to fix their own.

Messrs. H. E. Gaze, Ltd., have made a representative selection of their "Oxylin" fibrous plaster decorations. The numerous cornices, some of which are very elaborate, are especially noteworthy, as well as the handsome overdoors. They are supplied ready for fixing, or the fixing will be undertaken by the company. A quarter of a complete ceiling is shown, which gives an excellent idea of the richness which can be imparted to a room. The ceilings are screwed direct to joists, thereby obviating the necessity for lath and plasterwork.

The attractive powers and interest of the *Durolite* exhibit (to which we have already made acknowledgment) are heightened by the presence of windows by *The Amhurst Building, Joinery and Patent Frame Syndicate, Ltd.* The company have placed on the market further means of escaping from the inconvenience and serious danger of the ordinary sash window. Four or two weights may be used

as preferred. The hinged beading allows the sashes to be taken down with the utmost ease. An adaptation of the same idea allows of a casement window to swing inwards when it is necessary to clean it. The lower sash can be left open for ventilation at the meeting rails.

The *London and Brighton Brick, Tile and Terra-cotta Company, Ltd.*, Crowhurst, Lingfield, show in Bay 14 a partition brick which is so moulded that it is keyed with a series of dowels and joggles that bind it with other bricks so firmly as the whole to constitute practically one slab. The bricks are thus introduced into outside walls, taking all weight off the floors. The bricks are keyed for plastering or made smooth for pointing or colour-washing. It is quite suitable for outside work, being entirely weatherproof; also for filling-in between half-timber work, being of a light weight—20 yards super weigh only 16 cwts. The same construction is applied to fireproof lintels, which are threaded into steel joists after fixing. All ordinary requirements in this branch of building construction are met by the company.

The *Armorduct Manufacturing Co., Ltd.*, are justly proud of the list which they can point to of installations where the "Armorduct" improved steel conduit has been employed. A few of the principal are the Coliseum, Haymarket and Waldorf Theatres, London County Council tramcar sheds, and Manchester Ship Canal new transit sheds. They show "Armorduct" conduits and fittings, wires and cables, wiremen's sundries and electric-light fittings, making a special feature of their patent "Knock-out" junction boxes. Thin metal films are cast into the box which can be easily knocked out, and the conduit is secured in the hole by a lock-nut inside and out (or one side only); to insure a mechanical fit rectangular faces are provided.

Slag-wool has for some time been manufactured by *Messrs. Fred Jones & Co.*, and adapted by them to many purposes of construction. It is made up into various sheets and block forms for application to different surfaces. They also show samples of fireproof partitions and fibrous and fire-resisting slabs.

Three mantelpieces shown by *Strange & Sons*, the Holly Bank Joinery Works, Tunbridge Wells, prove how effective a simple design can be made. They have executed work for many of the leading architects.

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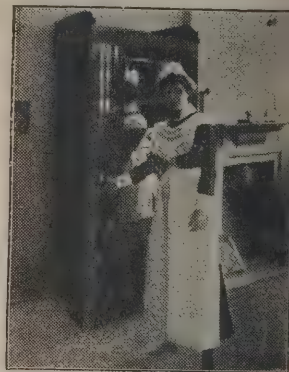
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TO THE

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Messrs. W. HAY FIELDING & CO. becoming the representatives for all business purposes.

Advertisements for Tenders, Building Land, Situations Vacant or Wanted, &c., can be left at those Offices, and copies of "The Architect," "Builders' Reporter," and other publications of Messrs. GILBERT WOOD & CO. can be obtained as early as at the City Office, Imperial Buildings, Ludgate Circus, E.C.

EDITORIAL NOTICES.

In view of the many difficulties which are certain to arise in connection with the law, practice rules and procedure under the Workmen's Compensation Act, we have added to our staff A VERY EMINENT BARRISTER, who has made the subject a special study, and will be glad to answer in the columns of this paper any questions relating to the complicated matters arising from the provisions of this difficult Act. Our LEGAL ADVISER will further answer any legal question that may be of interest to our readers. All letters must be addressed "LEGAL ADVISER," Office of "The Architect," Imperial Buildings, Ludgate Circus, London, E.C.

The Editor will be glad to receive from Architects in London and the Provinces results of Competitions and Tenders and other particulars of Works in progress in which they may be interested.

TENDERS, ETC.

*** As great disappointment is frequently expressed at the non-appearance of Contracts Open, Tenders, &c., it is particularly requested that information of this description be forwarded to the Office, Imperial Buildings, Ludgate Circus, London, E.C., not later than 2 P.M. on Thursdays.*

COMPETITIONS OPEN.

BOLSOVER.—May 31.—Plans for three schools. Particulars from Mr. G. H. Widows, County Education Offices, Derby.

HARROGATE.—May 24.—For proposed Primitive Methodist orphanage at Harrogate. Conditions may be obtained from Rev. J. T. Barkby, Riche Mont, Harrogate.

HIGH WYCOMBE.—May 31.—Secondary school, accommodation for 175 pupils. No premium offered. Mr. T. J. Rushbrooke, borough surveyor, 77 Easton Street, High Wycombe.

PERTH.—Aug. 1.—Plans for (1) reconstruction of the existing city hall at a cost not exceeding 6,000*l.*, and (2) erection of a new hall at a cost not exceeding 15,000*l.* Premiums will be awarded authors of plans placed first, second and third in order of merit as follows:—(1) For reconstruction, 30, 20 and 10 guineas respectively; (2) for a new hall, 50, 30 and 20 guineas respectively. Instructions, general conditions and plan of site from Mr. John Begg, town clerk.

ROCHESTER.—May 15.—For the erection of a municipal technical institute at Rochester. Three premiums of 50, 20 and 10 guineas will be awarded. Copies of the instructions and a plan of the site can be had from Mr. W. Banks, surveyor, Guildhall, Rochester.

CONTRACTS OPEN.

ABERAVON.—For the restoration of the parapet walls and other work to the tower of St. Mary's Church, Aberavon. Mr. J. A. James, architect, Port Talbot.

ALDEBURGH.—May 24.—For the construction of a new engine-house at the well near Aldeburgh Hall Farm, Suffolk, together with about 870 lineal yards of cast-iron pipes, 6-inch diameter, from the engine-house to the existing water-tower, including valve chambers, machinery foundations and other works. Messrs. James Mansergh & Sons, 5 Victoria Street, Westminster.

ALNWICK.—May 13.—For proposed new infirmary at Alnwick. Messrs. Boyd & Groves, architects, Emmerson Chambers, Newcastle-on-Tyne.

ASTON MANOR.—May 26.—For the construction of a urinal over the Hockley brook. Borough Surveyor, Council House, Aston Manor.

BARROW-IN-FURNESS.—May 15.—For the construction of a steel road bridge over the Walney Channel, uniting Barrow Island and Walney Island; the bridge will consist of eight fixed girder spans and one opening span, on cylinder foundations. Sir Benjamin Baker, 2 Queen Square Place, Queen Anne's Mansions, Westminster.

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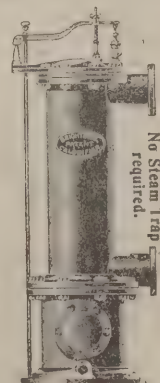
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BELFAST.—May 15.—For the erection of a small auxiliary goods office, 44 feet by 20 feet, in brickwork, with slated roof, for the Great Northern Railway Company, at terminus, Grosvenor Street. Mr. W. H. Mills, engineer-in-chief, Aniens Street Terminus, Dublin.

BILSTON.—May 20.—For the erection of boys, girls and infants' departments for 1,200 children, with cookery, manual training centres and special science classrooms, at Stonefield, Bilston. Messrs. Bailey & McConnell, architects, Bridge Street, Walsall.

BRADFORD.—May 18.—For the erection of a synagogue, Spring Gardens, Manningham Lane, Bradford. Mr. B. S. Jacobs, architect, Lincoln's Inn Buildings, Bowldalley Lane, Hull.

BRIDLINGTON.—May 16.—For the erection and completion of two houses and premises. Mr. J. Earnshaw, architect, Bridlington.

BRISTOL.—May 15.—For the construction and maintenance for twelve months after completion of the superstructure of two transit sheds at Canon's Marsh, Bristol. Mr. W. W. Squire, engineer, Cumberland Road, Bristol.

CARLETON.—June 1.—For erection and completion of children's cottage homes at Carleton, near Pontefract. Messrs. Garside & Pennington, architects, Pontefract and Castelford.

CHARTHAM.—May 19.—For repairs, plastering, &c., to wards D and E (male) at the Kent County lunatic asylum, Chartham Downs, near Canterbury. Mr. W. J. Jennings, architect, 4 St. Margaret's Street, Canterbury.

CHELMSFORD.—May 22.—For the erection of block of buildings at the hospital, Baddow Road, near Chelmsford, Essex. Messrs. Rye & Bacon, architects, 16 John Street, Bedford Row, London, W.C.

COCKERMOUTH.—May 17.—For the erection of a house to contain disinfectant at Flimby Lodge. Messrs. W. G. Scott & Co., architects and surveyors, Victoria Buildings, Workington.

CONSETT.—May 16.—For the erection of two houses at Aynsley Terrace, Consett, Durham. Mr. Thos. H. Murray, architect and surveyor, Front Street, Consett.

DOVER.—May 13.—For the erection of a ladies' lavatory at the Granville Gardens, Dover. Mr. Henry E. Stillgoe, borough engineer, Maison Dieu House, Dover.

DUBLIN.—May 15.—For the erection of an electric generating station. Mr. John P. Griffiths, engineer to the Dublin Port and Docks Board, East Wall, Dublin.

DUNDALK.—May 13.—For building shop and dwelling-house in Market Square, Dundalk. Mr. John F. McGahon, architect, Roden Place, Dundalk.

ELGIN.—May 15.—For the mason, plumber, slater, plasterer and painter's work of villa to be erected in Seafield Street. Mr. R. B. Pratt, architect, Town and County Bank Buildings, Elgin.

FELLING.—May 27.—For additions to Windy Nook Council school, Durham. Mr. H. Miller, architect, Council Buildings, Felling.

GRAMPOUND.—May 20.—For alteration and addition to Grampound National school, Cornwall. Mr. F. C. Jury, architect, 1 Alma Villas, Tregonissey Road, St. Austell.

HAMPTON.—May 20.—For rebuilding a brick bridge at Hampton, near Evesham. Mr. J. H. Garrett, surveyor of county bridges, Shire Hall, Worcester.

IRELAND.—May 15.—For alterations and additions to premises at Convoys, co. Donegal. Mr. M. A. Robinson, Richmond Street, Londonderry.

IRELAND.—May 15.—For the erection of two semi-detached villas at Villa Road, Donaghadee. Mr. Thomas Houston, architect and civil engineer, Kingscourt, Wellington Place, Belfast.

IRELAND.—May 16.—For the mason, carpenter, slater, plumber, painter and glazier, and ironwork of new malt barns and kiln at Killowen distillery, Coleraine. Mr. Charles C. Doig, architect, Elgin, Scotland.

IRELAND.—May 17.—For the erection of a hall at St. Johnston, co. Donegal. Mr. M. A. Robinson, 3 Richmond Street, Londonderry.

IRELAND.—June 3.—For the erection of a residence for King's scholars at Glasnevin, for the Commissioners of National Education. Mr. J. F. Fuller, architect, 179 Great Brunswick Street, Dublin.

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KINGSTON-UPON-THAMES.—May 15.—For carrying-out certain works at the county weights and measures inspector's office at the Assize Courts. Borough Surveyor, Municipal Offices, Kingston-upon-Thames.

KNAPHILL.—May 15.—For alterations and additions to the Council schools at Knaphill, Surrey. Messrs. Jarvis & Richards, architects, 36 Victoria Street, Westminster, S.W.

LANIVET.—May 15.—For the erection of a Council school and premises at Lanivet, Bodmin, Cornwall. Mr. B. C. Andrew, architect to the committee, Biddick's Court, St. Austell.

LONDON.—May 15.—For the erection of a disinfecting station for the Kensington Royal Borough Council, excluding machinery and apparatus. Mr. William Weaver, borough engineer. Mr. William Chambers Leete, town clerk.

LONDON.—May 24.—For the erection of a branch library, Lea Bridge Road, E. Mr. William Jacques, architect, 2 Fen Court, Fenchurch Street, E.C.

LONDON.—May 24.—For the conversion of the annexe to the mansion at Golder's Hill, Hampstead, into conveniences for men and women. The Architect's Department, the London County Council, 16 Pall Mall East, S.W.

MARPLE BRIDGE.—May 24.—For the erection of a new lock-up at Marple Bridge, near Stockport, Derbyshire. Mr. J. Somes Story, county surveyor, County Offices, St. Mary's Gate, Derby.

MIDDLESBROUGH.—May 13.—For the erection of seventeen cottages. Messrs. Moore & Archibald, architects and surveyors, 47 Albert Road, Middlesbrough.

NELSON.—May 25.—For the supply and erection of stalls for the fish, &c., market. Mr. B. Ball, borough engineer and surveyor, Town Hall, Nelson, Lancs.

NEWBURY.—May 15.—For the erection of the Carnegie library and reading-room, for the free library committee. The Borough Surveyor, Town Hall.

NEWCASTLE-UPON-TYNE.—May 22.—For erection of new baths and washhouses in New Bridge Street and Gibson Street. City Property Surveyor's Department, Town Hall, Newcastle-upon-Tyne.

OAKWORTH.—For the erection of new house, Sykes Head, Oakworth, near Keighley. Messrs. John Judson & Hudson, architects, Oakworth, near Keighley.

PAXFORD.—May 18.—For rebuilding a small brick bridge at Paxford, Worcs. Mr. J. H. Garrett, surveyor of county bridges, Shire Hall, Worcester.

PRENDERGAST.—May 17.—For fencing-in and erecting new entrance and gates, and otherwise preparing the proposed new burial-ground at Prendergast. Mr. Hugh Thomas, surveyor and architect, Haverfordwest.

RAMSGATE.—May 13.—For the construction of a flight of concrete steps, &c., at the Marina, Ramsgate. Mr. T. G. Taylor, borough surveyor, Albion House, Ramsgate.

SALISBURY.—May 17.—For the extension of the public swimming-baths at the back of the electric-lighting works, Salisbury. City Surveyor's Office, Endless Street, Salisbury.

SCARBOROUGH.—May 17.—For erection of public conveniences and offices, west pier. Mr. Harry W. Smith, borough engineer, Town Hall, Scarborough.

SCOTLAND.—May 13.—For the erection of an electric power-house at the gasworks, Blackstoun Road, Paisley. Mr. Geo. R. Hislop, engineer and manager, Paisley Gas-works.

SCOTLAND.—May 17.—For the mason, carpenter, slater and plumberwork of farm steading at Cragganmore, Ballindalloch. Mr. Charles C. Doig, architect, Elgin.

SHEFFIELD.—May 27.—For erection of a three-storey hospital block at the union hospital, Fir Vale, Sheffield. Mr. H. I. Potter, architect, 24 Norfolk Row, Sheffield.

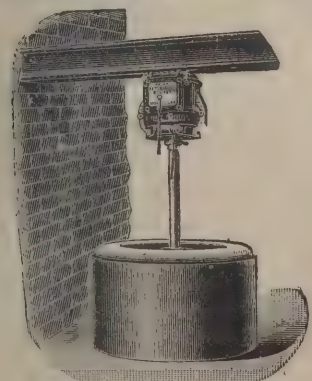
SLINFOLD.—May 13.—For the erection of a residence at Slinfold, Sussex. Mr. William Buck, architect, North Street, Horsham.

SOUTHPORT.—For the erection of a Primitive Methodist church in Derby Road, Southport. Mr. Fred. W. Dixon, architect, Trevelyan Buildings, Manchester.

SWANSEA.—May 22.—For the erection of a villa residence in London Road, Gorseinon. Mr. Charles T. Ruthen, architect, Bank Chambers, Heathfield Street, Swansea.

THORNABY-ON-TEES.—May 23.—For internal work to the chancel of the parish church of Thornaby-on-Tees, Yorks.

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A LIST of ART PLATES

PUBLISHED IN "THE ARCHITECT" Will be forwarded on application to GILBERT WOOD & CO. LTD. Imperial Buildings, Ludgate Circus, E.C.

Mr. C. Hodgson Fowler, F.S.A., architect, The College, Durham.

TRESILLIAN.—May 15.—For alterations and additions to the Tresillian Council school, Cornwall. Mr. Alfred J. Cornelius, architect, Truro.

WALES.—For the erection of a manager's house for the Hirwain collieries. Messrs. J. Llewellyn Smith & Davies, architects, Aberdare.

WALES.—May 13.—For the erection of a boys' school, and the execution of works connected therewith at Caegarw, Mountain Ash. Mr. W. G. Thomas, architect, Public Offices, Mountain Ash.

WALES.—May 13.—For building a church at Brithdir. Mr. E. A. Johnson, architect, Merthyr.

WALES.—May 13.—For alterations and conversion of 77 Tylacelyn Road, Penygraig. Messrs. Lewis & Morgan, architects, Dunraven Street, Tonypandy.

WALES.—May 15.—For alterations and additions to the girls and infants' departments of the Coedpenmaen school. Mr. P. R. A. Willoughby, Education Office, Gelliwastad Grove, Pontypridd.

WALES.—May 15.—For enlargements to the chapel and erection of new schoolrooms, for the Dyffryn Welsh Congregational church, Caerau. Mr. R. S. Griffiths, architect and surveyor, Tonypandy.

WALES.—May 15.—For the erection of three houses on Craigbedw, New Tredegar. Mr. D. W. Price, Cloth Hall, New Tredegar.

WALES.—May 16.—For the erection of a villa at Pentre. Mr. J. Rees, architect, Pentre.

WALES.—May 17.—For erection of a police station at Rhymney, Mon. Mr. William Tanner, county surveyor, Newport.

WALES.—May 17.—For the erection of a Baptist chapel in Hanbury Road, Bargoed. Messrs. James & Morgan, architects, Charles Street Chambers, Cardiff.

WALES.—May 17.—For the erection of New Hope English Baptist chapel, Gelli, Rhondda Valley. Mr. W. D. Morgan, architect, Victoria Chambers, Pentre.

WALES.—May 18.—For the erection of a new school-room, vestry, classrooms and caretaker's house at

Treherbert, Rhondda Valley. Mr. W. D. Morgan, M.S.A., architect, Victoria Chambers, Pentre.

WALES.—May 20.—For the erection of a new chapel and schoolroom in Mount Pleasant Road, Ebbw Vale, Mon. Mr. Henry Waters, architect, Beaufort.

WALES.—May 25.—For the conversion of the Bodringallt school premises into one department for boys. Mr. Jacob Rees, architect, Hillside Cottage, Pentre.

WARLINGHAM.—May 23.—For the following works to be done at the hospital, Warlingham, Surrey:—(Contract No. 1) erection of cricket pavilion, cart-sheds, shelters, iron fencing, sundry fittings, &c.; (2) erection of about a quarter of a mile of oak pale fencing. Mr. Geo. F. Carter, borough engineer, Town Hall, Croydon.

WESTON-SUPER-MARE.—May 13.—For the erection of a new girls' school, Locking Road, Weston-super-Mare, Somerset. Messrs. Hans F. Price & William Jane and Messrs. S. J. Wilde & Fry, architects, Weston-super-Mare.

WIGAN.—May 20.—For the erection of thirteen cottages in Spring Gardens. The Borough Engineer, King Street West.

WIVENHOE.—June 5.—For alterations and repairs to the Board school, Wivenhoe, Essex. Mr. F. Whitmore, county architect, Duke Street, Chelmsford.

An inquiry was held at the Southport town hall by Mr. A. A. G. Malet, M.Inst.C.E., and Mr. H. Timbrell Bulstrode, M.A., M.D., into an application by the Town Council for power to borrow 35,000l. for the purposes of sewage disposal. It was now proposed to construct works capable of dealing with 18,000,000 gallons of sewage per day—nine times the volume of the present dry weather flow; there would be six pumps (two of them stand-bys), a series of detritus and sedimentation tanks and fifteen filter beds, and the effluent could then be turned into the channel at all states of the tide, except on the highest tides of the year. Evidence was given by Mr. R. P. Hirst, the borough engineer, and Mr. G. Chatterton, engineer, and others.

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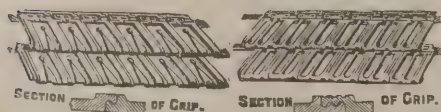
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For the erection of a public library for the Borough Council.
Mr. W. G. PATON, architect.
EDWARDS BROS., Trefechan, Aberystwyth
(accepted) £2,806 0 0

ASHTON-UNDER-LYNE.

For disinfecting house, mortuary and making macadam roads on the site of isolation hospital at Hartshead. Mr. J. LOWE, sanitary surveyor, Town Hall Chambers, Ashton-under-Lyne.

Whitehead	£420	0	0
Robinson	295	0	0
Marshall & Sons, Ltd.	295	0	0
Kirkby	258	10	0
Briggs & Sons	258	0	0
J. & J. WOODHEAD, Katherine Street (accepted)	248	0	0

ASTON MANOR.

For the reconstruction of existing tramways and the construction of other works in connection therewith, for the Corporation. Mr. ROBERT GREEN, engineer, 37 Waterloo Street, Birmingham.

Contract No. 6.

Blackwell & Co., Ltd.	£61,785	12	0
Holloway	61,572	5	0
White, jun.	59,112	7	7
Krauss & Son	56,552	5	0
Graham & Sons	54,162	0	0
Griffiths & Co., Ltd.	54,073	9	6
Underwood & Bro.	53,387	7	6
White & Co.	52,357	15	9
Law	52,912	7	6
Dick, Kerr & Co., Ltd.	51,849	1	10
G. TRENTAM (accepted)	51,236	3	9

Above are net amounts after deducting the value of old materials.

ADDISCOMBE.

For billiard-room, St. James's Lodge, Addiscombe, Croydon.
Mr. H. LING, architect, 31 Charing Cross, S.W.

Hayward & Son	£1,365	0	0
Maides & Harper	1,325	0	0
Hollingsworth	1,263	0	0
Hanscomb & Smith	1,258	0	0
Page & Son	1,199	0	0
MARRIAGE (accepted)	1,145	0	0

BANBURY.

For first portion of contract for new business premises on Cornhill, Banbury. Mr. A. EDWARD ALLEN, architect, 31A Bridge Street, Banbury.

Kimberley	£1,153	0	0
Bloxham	1,127	0	0
Orchard & Son	1,111	0	0
Grant & Sons	1,057	0	0
J. F. BOOTH, Banbury (accepted)	1,040	0	0

BARNET.

For making-up and sewerage Drayton and Brownlow Roads, Boreham Wood, Elstree, for the Barnet Rural District Council. Mr. T. ENGLAND, engineer and surveyor.

Miskin & Son	£2,392	0	0
Grounds & Newton	2,337	0	0
Kavanagh & Co.	2,225	0	0
Neave & Son	2,138	0	0
Halsey & Son	2,110	0	0
Bell	2,085	0	0
Killingback & Co.	2,054	0	0
Jackson	2,050	0	0
Adams	1,897	0	0
Sandon	1,895	0	0
Burgoyne	1,856	0	0
Williams	1,709	0	0
Mann	1,672	0	0
BRACEY & CLARKE, Watford and Boreham Wood (accepted)	1,527	0	0

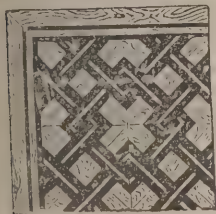
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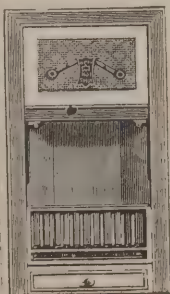
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Hamilton Road.

Frampton & Waller	£662	11	2
Grounds & Newton.	614	2	6
Blake	588	13	10
Paddington	575	11	2
Osman	571	0	0
DOUGLAS & RICHARDS (accepted)	556	18	6

Tar paving.

Douglas & Richards	190	10	6
Bradshaw & Son	183	17	6
Grounds & Newton.	169	0	0
F. OSMAN (accepted)	145	0	0
Paddington	130	5	3

Guest Road.

Frampton & Waller	390	7	10
Paddington	325	10	0
Blake	312	12	4
Osman	302	0	0
DOUGLAS & RICHARDS (accepted)	259	8	6

Tar paving.

Douglas & Richards	178	8	1
Bradshaw & Son	169	5	10
Grounds & Newton	158	10	0
Paddington	134	6	3
F. OSMAN (accepted)	132	10	0

Portal Road.

Frampton & Waller	153	11	8
Paddington	120	12	0
Grounds & Newton	117	14	9
Blake	114	11	1
Osman	114	10	0
DOUGLAS & RICHARDS (accepted)	113	18	9

Tar paving.

Douglas & Richards	41	13	3
Bradshaw & Son	30	18	10
Grounds & Newton	28	0	3
F. OSMAN (accepted)	25	10	0
Paddington	23	12	11

BRISTOL.

For erecting St. Silas Sunday school and mission-hall. Messrs. LINGEN BARKER & SON, architects.

Cowlin & Son	£1,520	0	0
Clark & Sons	1,452	0	0
Walters & Son	1,442	0	0
Beaven.	1,399	0	0
Hayes	1,375	0	0
WILKINS & SONS (accepted)	1,369	0	0

CARNOUSTIE.

For the construction of pavilion tea-rooms, &c., for the recreation committee of the Town Council.

Accepted tenders.

Edward & Ramsay, Carnoustie, joiner	£229	10	0
A. Robertson & Sons, Carnoustie, mason	128	10	0
James Farquharson, Carnoustie, plumber	96	0	0
J. & A. Law, Glasgow, ironfounder	53	0	0
Alexander Hogg & Sons, Carnoustie, slater	51	0	0
Alexander M'Ritchie, Carnoustie, plasterer	44	6	2
Kirk & Coutts, Dundee, ironmonger	30	6	0

Total £632 12 2

CHIPPING SODBURY.

For the erection of board-room, &c., at Chipping Sodbury, for the Guardians. Mr. A. ROACH, architect, Charfield.

Hatherley	£2,775	0	0
Hawkins & Sons	2,718	16	0
Denty & Co.	2,659	0	0
Forse & Sons	2,590	0	0
Clark & Sons	2,545	0	0
Ford & Sons	2,440	0	0
Orchard & Peer	2,410	0	0
Lovell & Sons	2,400	0	0
Walters & Sons	2,393	0	0
Simmonds	2,359	13	6
Long & Sons	2,283	0	0
ADAMS & JEFFERIES, Oldland, near Bristol (accepted)	2,230	0	0

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COMPTON.

For additions to All Saints Church, Compton, Hants. Messrs. JOHN B. COLSON (of the firm of Colson, Farrow & Nisbett) and G. H. KITCHIN, joint architects, 45 Jewry Street, Winchester.

Grace & Son	£3,630	0	0
Beale	3,379	0	0
Stevens & Co.	3,360	0	0
Fielder & Son	3,335	0	0
Weeks	3,329	0	0
Green	3,215	0	0
Franklin & Co.	3,196	0	0
Musselwhite & Sapp	3,178	0	0
Wise & Co.	3,170	0	0
Goddard & Son	3,094	0	0
Jenkins & Son	3,075	0	0
Golding & Ansell	2,938	0	0

CWMYGLO.

For erection of a stone bridge at Cwmyglo, Llanarthney. D. D. MAINWARING, Llanelly (accepted) . . . £625 10 0

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J. CARRICK (accepted) . . . £328 5 0

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T. Davies, Ltd.	£530	0	0
Powers & Deane, Ransome's	317	0	0
Westwood & Wright	314	0	0
Baker & Co., Ltd.	300	0	0
Drew-Bear, Perks & Co., Ltd.	283	0	0
Fraser & Co., Ltd.	272	0	0
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Cross & Cross	213	0	0
Sands & Son	202	4	0
PEIRSON & Co., 17 and 18 St. Dunstan's Hill, E.C. (accepted)	199	0	0

DILLINGTON.

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GATESHEAD.

For the erection of stables at Tyne Road East, for the Corporation. Mr. N. PERCY PATTINSON, borough surveyor.

Veitch & Sons	£5,192	2	10
Davidson	4,819	9	4
Fenwick & Co.	4,800	5	0
Johnson	4,714	0	0
Hall	4,627	6	11
Hall	4,550	2	2
Nicholson	4,516	2	0
Stout	4,513	12	5
Kennedy	4,460	0	0
Turner & Co.	4,400	18	10
George	4,371	0	0
Hunter	4,325	13	0
Worby, jun.	4,306	1	3
Milne	4,300	9	6
Browell	4,284	0	0
Bewley	4,250	0	0
Storey	4,244	0	0
Davison	4,239	3	10
Forster	4,110	0	0
E. & A. STOREY, Benwell Lane, Newcastle (accepted)	3,924	0	0

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H. Jenkinson, Leeds	Loss £60.
Do. do.	Loss £25.
J. Ireland & Sons, Dundee	No claim.
Name withheld by request, Glasgow	No claim.
(Signalled and fire put out; sprinkler did not act)	

Shaw, Walker & Co., Glasgow	Loss £225.
Aberdeen University Press	No claim.
Orlark & Co. (Ltd.), Anchor Mills	Under £50.
S. Henderson & Sons, Ltd., Edinburgh	Under £50.

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Emms	£127 6 6
Dent	125 18 0
Monument	123 0 0
Mack	113 0 0
G. Took (accepted)	104 13 6

ILFORD.

For the erection of a new police station at Ilford. Mr. J. DIXON BUTLER, surveyor, New Scotland Yard, S.W.	
Quantities by Messrs. THURGOOD, SON & CHIDGEY, Charing Cross Chambers, Duke Street, Adelphi.	
Hammond & Miles	£10,440 0 0
Lathey Bros.	9,628 0 0
Harris & Wardrop	9,559 0 0
Lascalles & Co.	9,470 0 0
Grover & Son	9,470 0 0
Partridge Bros.	9,470 0 0
Hammond & Son	9,416 0 0
Dowsing & Davis	9,355 0 0
Willmott	9,170 0 0
Fairhead & Son	9,125 0 0
Chessum & Son	9,048 0 0
Minter	8,609 0 0

IRELAND.

For rebuilding premises, 11, 12 and 13 The Mall, Tralee. Mr. ROBERT FOGERTY, C.E., architect, Henry Street, Limerick.	
Ryan & Son	£4,775 0 0
J. Hayes	4,699 0 0
O'Reilly	4,574 0 0
D. Hayes	4,495 0 0
P. MURPHY, Tralee (accepted)	4,085 0 0
For the construction of a sand filter and for other auxiliary works at the waterworks, Portrush.	
Alexander	£545 4 7
Christie	511 0 0
Cochrane	509 0 0
Graham	478 10 0
R. COLHOUN, Londonderry (accepted)	452 10 0

KING'S HEATH.

For the erection of a public library at King's Heath. Mr. W. CROSS, surveyor, 23 Valentine Road, King's Heath.	
E. CROWDER, Farm Street, Birmingham (accepted)	£2,795 0 0

KNOTTINGLEY.

For additional sewers, for the Knottingley Urban District Council. Messrs. GARSIDE & PENNINGTON, engineers, Pontefract.	
Askam	£431 2 0
Stanhope	421 7 0
Graham & Sons	402 9 5
Brunton	367 16 9
Waddington	358 15 2
Graham	358 0 0
Spurr	357 5 0
Greaves & Wheeler	334 10 0
F. & W. Arundel	329 1 0
Bentley	322 8 3
Kaye	296 18 2
Broadhead	293 0 0
Thompson & Sons	281 11 0
Rothera	265 1 4
Rodgers	263 1 3
G. CLEMENTS, Featherstone (accepted)	254 8 2

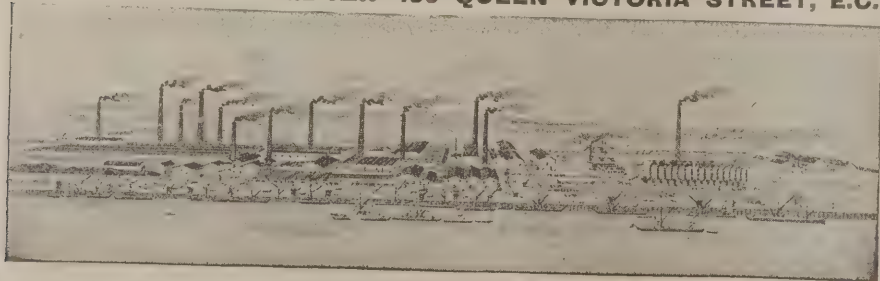
LONDON.

For relaying laundry floors at the Grove hospital, Tooting, for the Metropolitan Asylums Board.	
Kinnaird	£695 0 0
Reason	649 0 0
Smith & Sons	598 0 0
Hann	545 0 0
Triggs	530 0 0
Sycamore Works, Ltd.	504 0 0
Atlas Stone Co., Ltd.	440 0 0
Pearce	415 0 0
Gardner & Hazell	409 0 0
Kind	375 0 0
Cruse	347 0 0
E. WALL, 2 Alice Terrace, Garratt Lane, Tooting, S.W. (accepted)	335 0 0

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LONDON—continued.

For alterations to Alexandra schools.		
Rudd & Son.	£1,430	0 0
Pearse.	1,400	10 8
Barrett.	1,361	8 0
Patrick.	1,310	0 0
Flowerdew.	1,287	0 0
Ferguson & Co.	1,285	0 0
Nightingale.	1,285	0 0
Lamplough.	1,259	0 0
Holliday.	1,250	0 0
Myatt & Upsom.	1,239	0 7
General Builders, Ltd.	1,227	0 0
Aldridge & Son.	1,210	0 0
Kent.	1,195	0 0
Groves & Son.	1,194	7 9
Mattock & Parsons.	1,189	0 0
Symes.	1,177	0 0
Lawrence & Son.	1,164	0 0
Johnson & Co.	1,163	0 0
Madison.	1,157	0 0
Knight & Son.	1,133	0 0
Fairhead & Son.	1,123	0 0
POLLARD & BRAND (accepted)	1,093	0 0

For internal painting and sundry other works at Hendon Asylum.		
H. & E. Lea.	£415	0 0
Gibson & Co.	374	0 0
Warburton & Son.	364	7 6
Hudgell.	357	12 0
Dearing & Son.	349	0 0
Taylor.	348	13 0
Love & Co.	336	1 6
Lilley & Sons.	330	17 0
Swann.	322	1 0
Doherty.	319	0 0
Marchant & Hurst.	305	8 1
Harris & Co.	270	0 0
Fenn.	258	2 3
Metcalfe & Son.	257	1 6
F. R. Biggs, 27 Charles Street, Haymarket, S.W. (accepted)	256	16 4

LONDON—continued.

For cleaning and painting works at the Grove hospital, Tooting, for the Metropolitan Asylums Board.		
Hann.	£8,652	6 9
Smith & Sons.	6,787	0 0
Adams.	6,421	9 11
Kinnaird.	6,295	0 0
Shelbourne & Co.	6,250	0 0
Triggs.	4,609	0 0
Payne.	3,997	0 0
Higgs & Hill, Ltd.	3,993	0 0
Wontner & Co., Ltd.	3,873	0 0
Reason.	3,579	0 0
Cruse.	3,550	0 0
Inns.	3,321	14 0
Bragg & Sons.	3,219	0 0
Fenn.	2,990	0 0
Kent.	2,954	0 0
Wall.	2,922	0 0
McCarthy.	2,774	0 0
E. PROCTOR & SONS, 326 High Street, Plumstead (accepted)		
	2,700	0 0
For the erection of South Bank Baptist church. Messrs. G. BAINES & R. PALMER BAINES, architects, 5 Clement's Inn Strand, W.C.		

Estimate A.

Brown.	£3,517	8 0
Davison.	3,431	15 2
Cooke.	3,422	0 0
Guthrie & Son.	3,295	0 0
Coates.	3,280	6 5
Allison Bros.	3,200	0 0
BASTIMAN BROS. (accepted)	3,113	3 6
Radge.	3,084	0 0

LOSTWITHIEL.

For erecting a dwelling-house on Polden Farm, Cornwall, for the Corporation. Mr. J. KNIGHT, borough surveyor, Lostwithiel.		
Stephens.	£312	7 4
Rundle.	291	6 0
W. T. & F. Bassett.	284	10 0
QUILLER & BROWN, Lostwithiel (accepted)	275	15 0



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LUTON.

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Free & Sons	£711	16	8
Patent Victoria Stone Company	672	2	3
G. POWDRILL, Hitchin Road, Luton (<i>accepted</i>)	636	14	8

MORECAMBE.

For private street improvements in Euston Grove. Mr. JOHN BOND, borough surveyor.

Parkinson	£134	0	0
Inchcliffe	117	8	9
J. EDMONDSON, Queen Street, Morecambe (<i>accepted</i>)	102	8	7

NEW HOLLAND.

For shop, store, guild-room, stables, &c., New Holland, Lincolnshire, for the Great Grimsby Co-operative Society, Ltd. Quantities by the architect.

Building.

G. & J. Smith	£1,210	0	0
Thompson & Son	1,098	0	0
Morrell & Son	1,011	15	0
Hull General Builders	1,009	8	0
Kaye	970	0	0
Bilton	969	19	4
Tinkler	831	17	6
J. STAMP, Brigg Road, Barton-on-Humber (<i>accepted</i>)	822	10	0

Fittings.

Thompson & Son	130	0	0
G. & J. Smith	115	0	0
Hull General Builders	107	14	8
Morrell & Son	96	10	0
Kaye	95	0	0
Bilton	86	3	0
Tinkler	83	15	0
Stamp	82	10	0

REIGATE.

For elementary schools at Frenches Road, Redhill, to accommodate 510 children. Mr. JOHN MOIR KENNARD architect, 13 Railway Approach, London Bridge, S.E. Quantities by Mr. CHARLES J. FORD, 4 Mitre Court Fleet Street, E.C.

R. & J. Wallace Bros.	£13,596	0	0
Davis & Leaney	13,206	0	0
Hyde	12,488	0	0
Nightingale & Sons	12,407	0	0
Amos	12,280	0	0
Worsell	12,200	0	0
King & Son	11,879	0	0
Martin, Wells & Co.	11,770	0	0
Lawrence	11,477	0	0
J. Greenwood, Ltd.	11,273	0	0
Mitchell Bros.	11,268	0	0
Page & Son	11,259	0	0
Faulks	11,200	0	0
Banyard & Son	11,195	0	0
Gathercole Bros.	11,195	0	0
Smith & Sons	11,176	0	0
Dean & Co.	11,115	0	0
East & Hyde	11,016	0	0
Minter	10,972	0	0
Martin	10,950	0	0
Shepherd	10,893	0	0
Longley & Co.	10,869	0	0
Wallis & Sons	10,686	0	0
Pink	10,674	0	0
Rowland Bros.	10,599	0	0
Bulled & Co.	10,523	0	0
Casse	10,492	0	0
Roome & Co.	10,483	0	0
Cook & Sons	10,380	0	0
J. APPLEBY & SONS, Lambeth, S.E. (<i>accepted</i>)	10,130	0	0
Stimson & Sons.	8,477	12	10

RHYDYNWYN.

For the erection of an iron and steel bridge over the river Alny, for the Holywell Rural District Council.

M. S. ROGERS, Flint (<i>accepted</i>)	£313	14	0
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ROCHDALE.

For supply and erection of a cast-iron water tank, about 55 feet by 22 feet 8 inches by 4 feet 3 inches deep, to be fixed on wrought-iron joists.
P. RUSSELL & SONS, Bath Foundry, Leicester (accepted).
For the supply and delivery of about 403½ lineal yards of unclimbable wrought-iron railing for the Castleton recreation ground.
W. GRATRIX & SONS, Allen Street Ironworks, Bolton Road, Walkden (accepted).

RUABON.

For repairs to Ruabon Ponkey Council school.
PARRY BROS. & DAVIES, 8 Broad Street, Rhos, Ruabon (accepted) . . . £117 15 0

SCARBOROUGH.

For additions and alterations to the Falsgrave school. Mr. CHARLES EDESON, architect, 25 Huntriss Row, Scarborough.
Accepted tenders.
J. Bastiman & Sons, 70 Victoria Road, brick-layer . . . £524 0 0
G. Lancaster, 28 Raleigh Street, joiner . . . 246 0 0
H. Pickup, Brook Street Ironworks, smith and founder . . . 102 14 8
J. Hardgrave, 27 Aberdeen Walk, slater . . . 90 8 0
W. M. Bolder, 40 Franklin Street, plumber . . . 63 7 0
A. Briggs, 53 Aberdeen Walk, painter . . . 17 13 8

SCOTLAND.

For cement works of power-house, lade walls and sluices in connection with the Fochabers district electric lighting. Mr. THOMSON, architect, Fife-Keith.
Accepted tenders.
W. Legge, Fochabers, N.B., lade walls and sluices. . . £756 18 6
J. Bannochie & Sons, Belmont Street, Aberdeen, power-house . . . 699 3 3
R. Mitchell, Huntly, N.B., lade walls and bottoming . . . 517 6 6
Sellar & Co., John Street, Aberdeen, intake works . . . 448 12 9
For the mason, carpenter, slater, plumber, plaster and painter's work of house, for electric installation, &c., at Ardgyle, Alves. Mr. JOHN WITTER, architect, Elgin.
Accepted tenders.
W. Fraser, Elgin, builder.
R. Stronach, Alves, carpenter.
A. Davidson & Sons, Elgin, slater.
J. H. Clark, Elgin, plumber.
J. Brodie, Elgin, plasterer.
J. Kintrea & Son, Elgin, painter.

SHEFFIELD.

For widening Hillsborough bridge, for the City Council
Mr. CHARLES F. WIKE, city engineer.
ASH, SON & BIGGIN, Sheffield (accepted) . £2,880 0 0

SUNBURY-ON-THAMES.

For making-up Rocksmead Road, Sunbury, for the Sunbury-on-Thames Urban District Council. Mr. HAROLD F. COALES, surveyor.
Hoffman . . . £420 14 6
Mott . . . 364 1 0
Adams . . . 327 0 0
Baldwin . . . 322 10 0
Shelbourne & Co. . . 309 14 11
Kavanagh & Co. . . 295 1 2
Free & Sons . . . 293 18 0
Soan . . . 292 18 5
Adamson . . . 263 19 5
G. HEBBURN, Hersham (accepted) . . . 230 11 6

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WEATHER.

SUTTON-IN-ASHFIELD.

For alterations and additions at the parish church, Sutton-in-Ashfield, Notts. Mr. FRANK P. COOK, architect, Mansfield.

Shaw	£701	16	0
Fisher Bros.	699	4	0
Greenwood	677	0	0
Percival	663	14	6
Ashley	649	0	0
C. VALLANCE (accepted)	640	0	0

SOUTHAMPTON.

For the construction of piggeries at Shirley Warren, for the Corporation.

	A	B	C
Jenkins & Son	£557	£419	£368
F. & J. Young	475	395	405

Messrs. Young's tender for Scheme A was accepted.

SWINDON.

For private street improvements, for the Corporation. Mr. H. J. HAMP, borough surveyor.

Stanmore Street.

Free & Sons	£294	5	4
W. B. Winchcombe	257	17	6
Free & Co.	205	3	0
FREE BROS., Marlborough (accepted)	165	16	5

Cross Street.

Free & Sons	153	18	3
W. B. Winchcombe	143	3	10
Free & Co.	134	8	5
FREE BROS. (accepted)	121	1	9

Elmina Road.

W. B. Winchcombe	820	6	4
Free & Co.	777	17	5
Free & Sons	771	2	0
FREE BROS. (accepted)	667	18	8

Gordon Gardens.

W. B. Winchcombe	113	4	2
Free & Sons	102	18	11
Free & Co.	95	16	0
FREE BROS. (accepted)	83	10	7

SWAFFHAM.

For the erection of additional nurses' quarters in the workhouse. Mr. LOUIS F. EAGLETON, architect, King Street, King's Lynn.

Bell & Sons	£325	0	0
Impson	297	15	0
Dye	297	0	0
Collison & Son	297	0	0
Banyard & Sons	295	0	0
Hipwell & Co.	294	12	0
Elworthy & Co.	290	0	0
Tash, Langley & Co.	286	0	0
G. JEFFRIES, Swaffham (accepted)	267	0	0
Barnes & Co.	265	0	0

TAUNTON.

For proposed new infirmary and detached building for servants' quarters at Taunton school. Mr. F. W. ROBERTS, architect, 2 Hammet Street, Taunton.

Infirmary.

Pollard & Co., Ltd.	£995	0	0
Small	949	0	0
Spiller	918	0	0
Potter	899	0	0
Moggridge	887	15	0
T. Manning & Son	860	0	0
Fursland	851	7	4
J. CHAPMAN (accepted)	832	19	2

Servants' quarters.

Coles	827	13	10
Pollard & Co., Ltd.	817	13	5
Small	722	0	0
Spiller	697	0	0
Potter	680	0	0
Fursland	667	15	7
Chapman	643	11	3
Moggridge	643	5	0
T. MANNING & SON (accepted)	640	0	0

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TONBRIDGE.

making-up of Orphan Place, Tonbridge. Mr. W. LAWRENCE BRADLEY, surveyor.
 ruold & Sons £455 0 0
 reeby & Co. 411 0 0
 rotherwood & Son 396 0 0
 HITTENDEN & SIMMONS, West Malling (accepted). 375 0 0

TOWNHILL.

the erection of a branch library at Townhill, Dunfermline.

Accepted tenders.

M. Clark, mason and brickwork . . . £888 10 7
 A. Thomson, Dunfermline, plumberwork . . . 215 12 8
 Steele & Son, Dunfermline, tilerwork . . . 124 0 0
 Robertson, Edinburgh, ironwork . . . 101 0 0
 Field & Allan, Edinburgh, tilework . . . 93 7 6
 J. N. Wilson, Dunfermline, painterwork . . . 73 8 5
 J. Lawson, Edinburgh, glazierwork . . . 60 10 4

WALES.

for the erection of 29 houses at Pontllanfraith and Tredegar Junction, Mon. Mr. W. A. GRIFFITHS, architect, Pontllanfraith, Mon.

Phillips £6,273 10 0
 Passmore & Perkins 5,720 0 0
 Evans & Waters 5,666 0 0
 W. & D. Thomas 5,350 10 0
 H. REES, Blackwood (accepted) 5,276 10 0
 Williams 5,249 0 0
 Hughes 5,113 0 0

for construction of roads and surface-water drains on the Gelly-deg-Ishaf estate. Messrs. I. JONES & T. E. RICHARDS, architects, 18 St. Mary Street, Cardiff and Pentre.

Richards £1,045 13 5
 Vodden & Lee 960 10 0
 Sheen 948 9 7
 Ashley 790 0 0
 Barnes, Chaplin & Co. 789 13 6
 E. & D. Davies 679 14 0
 J. JENKINS, Maesycwimmer (accepted). 600 0 0

WALES—continued.

For providing and laying about 2,300 lineal yards of 3-inch diameter cast-iron water mains, together with other works, for the Llantrissant and Llantwit Fardre Rural District Council. Mr. GOMER S. MORGAN, engineer, Pontyclun.

Sanitary and Economic Association . . . £1,444 0 0
 Mountford, Phillips & Co. 1,306 1 0
 Cooksley 984 2 0
 Smith-Jones & Son 929 12 3
 Varney 867 12 6
 Jones 809 10 0
 Cruwys & Hobrough 809 6 6
 Ringham 795 12 6
 Public Works Co. 773 2 6
 Rossiter 762 2 6
 Taylor 757 12 6
 Meredith Bros. 737 8 0
 Rutter 713 1 6
 Porter 713 0 0
 Powell 712 13 0
 Evans 711 5 0
 R. Jones, jun. 692 10 6
 John 688 16 7
 Collins 669 17 5
 Brebner & Co. 668 7 0
 T. Lewis 657 10 6
 R. Jones, sen. 651 0 0
 Woodward & Co. 646 4 0
 T. KEARSLEY, Leigh, Lancs (accepted) . . . 548 11 9

WANSTEAD.

For making-up Dover Road, Wanstead Park estate. Mr. C. H. BRASSEY, surveyor.

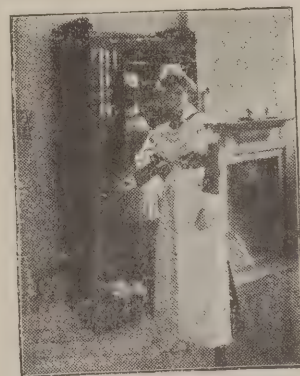
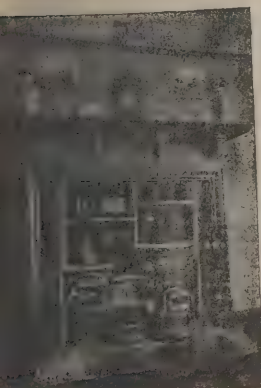
Hewitt & Sons £1,320 0 0
 Grounds & Newton 1,281 7 0
 Adams 1,259 0 0
 Bell 1,235 0 0
 W. & C. French 1,166 9 4
 Anstead 1,164 10 0
 Porter 1,120 0 0
 Barry 1,110 0 0
 J. JACKSON, Forest Gate (accepted) . . . 1,075 0 0

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WHITLEY BAY.

For slaughter houses at Whitley Bay, Northumberland.
Mr. JOHN MOORE, surveyor.

Sheriff	£4,499	0	0
Park	4,105	0	0
Dykes	4,090	0	0
Storey	4,078	0	0
George	3,900	0	0
Tweedy	3,894	0	0
Jackson	3,880	0	0
Glen & Moffatt	3,858	0	0
Patterson	3,828	8	7
Greenwell	3,812	3	0
Brewis	3,670	15	4
Nesbit & Son	3,653	10	0
Millar	3,640	1	0
J. & W. Simpson	3,600	0	0
Fenwick & Co.	3,578	0	0
Clements	3,507	15	10
Ritchie	3,462	13	0
W. GRAY (accepted)	3,417	8	10

WIGAN.

For the erection of a brick wall round the store yard at
Tunstall Lane, Pemberton, for the Corporation.

Kerrigan	£187	0	0
H. H. HOUGHTON, Pemberton, Wigan (accepted)	136	0	0

For the erection of seventeen cottages in Spring Gardens,
for the Corporation.

McWally & Son	£2,730	0	0
Fletcher	2,635	0	0
W. & I. Johnson	2,499	0	0
T. & H. Houghton	2,497	0	0
Ablett	2,469	0	0
Birch & Clayton	2,435	0	0
Howard & Sons	2,424	0	0
Kerrigan	2,363	0	0
Winstanley & Jackson	2,363	0	0
Wilson & Co.	2,337	0	0
Darbyshire & Collett	2,300	0	0
A. & I. DEAN, Crompton Street, Wigan (accepted)	2,210	0	0

WIMBLEDON.

For the supply and delivery of 18-inch and 24-inch cast
pipes, for the Wimbledon Urban District Council.
Mr. C. H. COOPER, engineer and surveyor.

D. Stewart & Co.	£269	1	0
E. Willshear	263	0	0
J. Oakes & Co.	253	1	0
Cochrane & Co.	249	1	0
J. Dickson	235	0	0
Cochrane & Co.	230	0	0
Sheepbridge Coal and Iron Co.	221	0	0
Clay Cross Coal Co.	219	0	0
L. Horsley & Co.	218	1	0
D. F. Thomson & Co.	216	0	0
Staveley Coal and Iron Co.	215	0	0
G. Johnston & Co.	214	0	0
J. Gibb & Co.	211	0	0
Holwell Iron Co.	207	0	0
STANTON IRONWORKS (near Nottingham) (accepted)	203	1	0

WORTHING.

For erection of a brick wall fronting Lyndhurst Road
Ham Road, for the Corporation.

Crane	£556	4	0
Stanbridge	382	16	0
Lelliott	345	16	0
W. J. EAST (accepted)	284	16	0

WROXHAM.

For additions and alterations to Wroxham school.
A. F. SCOTT, architect, Norwich.

Burton	£1,095	10	0
Smith	787	0	0
Evans	761	10	0
Chapman	760	0	0
Youngs & Son	747	0	0
Bullen	739	10	0
Hannant	733	0	0
Beckett	720	0	0
Boddy & Son	695	0	0
Chapman	679	0	0
Blyth	675	15	0
SCARLES BROS., Norwich (accepted)	644	0	0

HEATING

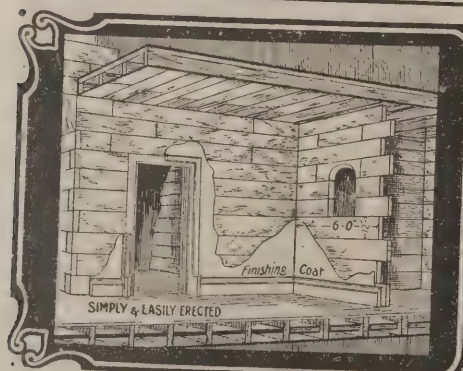
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LEWES.

the erection of new offices for the Education Department of the East Sussex Council.
 RICHARD CROOK & SONS, Crawley (accepted) £3,600 0-0

CORRESPONDENCE.

Re Building Trades Exhibition.

SIR,—We thank you for your notice of our exhibit at Building Trades Exhibition at the Agricultural Hall in our issue of the 5th inst., but at the same time trust you will pardon us pointing out to you that it conveys the impression to your readers that the whole of the work exhibited on our stand was of foreign production. This is not so, as although a great deal of our oak panelling and joinery work is of Austrian origin, we make a large quantity in our own workshops situate No. 8 Berners Mews, and our art metal-work, of which we exhibited a varied selection, was, with one exception, made in our own smithy at No. 13 Berners Mews, where the work can at any time be seen in course of manufacture. We would therefore ask you to be good enough to honour us by a correction of your notice, especially as just at this moment so much discussion is on hand as to the advantages and disadvantages of protection.

Personally we should be only too pleased to make the whole of our oak panelling and joinery in England if the British workmen would only buckle to and produce it at a price which will compete with those of our Austrian friends. They can afford to pack and pay carriage on it for several hundreds of miles, and yet sell work of the best execution in London at a lower rate than it can be produced here.

Another point which we should much like to lay before our numerous readers is that half our business consists in exporting English goods to the Continent. We export largely English tiles, silks, fabrics, sanitary appliances, &c., for which we hold some very important agencies. This is rapidly increasing department of our business, and for the development of this branch we have our own show-rooms

and offices in Vienna, together with agents in Amsterdam, Breslau, Berlin, Budapesth and Turin.

We are sorry to have troubled you at such length, but feel sure, in justice to ourselves, you will not hesitate to lay these facts before the readers of your valuable and widely circulated journal, in order that a somewhat erroneous impression as to the nature of our business should be eradicated.—We are, Sir, yours faithfully,

HÖFLER, LIMITED.

A. G. LEE, Managing Director.

[We have much pleasure in publishing Messrs. Höfler's letter.—Ed.]

NEW CATALOGUE.

WHEN Messrs. Mellowes & Co., Ltd., undertook the contract for glazing 100,000 superficial feet at the Crystal Palace, Sydenham, we drew attention to their work on that historic building. It might be supposed that Paxton's roof was perfect, and it was a wonderful feat in 1853, but all frequenters of the building must acknowledge that the interior has been since the change more satisfactory than formerly. The confidence of the contractors in their work was shown by their undertaking to keep it in order for ten years at their own expense. The company are supposed to have saved 800l. a year by the new work. The latest catalogue shows the application of the system to roofs however large, and whether laid out on straight lines or on curves. It is adapted, as we see from the illustrations, not only for immense railway stations, but for arcades, works, conservatories, and, in fact, all structures where glazed roofs are a necessity. The roofs have been employed not only by English, Scottish and Irish railway companies, but by the two great railway companies who own the western and northern systems in France. In London alone the system is exemplified in over a thousand examples. The endurance of Messrs. Mellowes's roofs is due to the use of a tin-lead metal which is unaffected by atmospheric action and by the water-tight condition which is ensured; snow or rain cannot find its way between the glass and the woodwork. There is no breakage from expansion or contraction. The catalogue will be interesting from the numerous photographs of roofs, some of which have been laid out on artistic lines.

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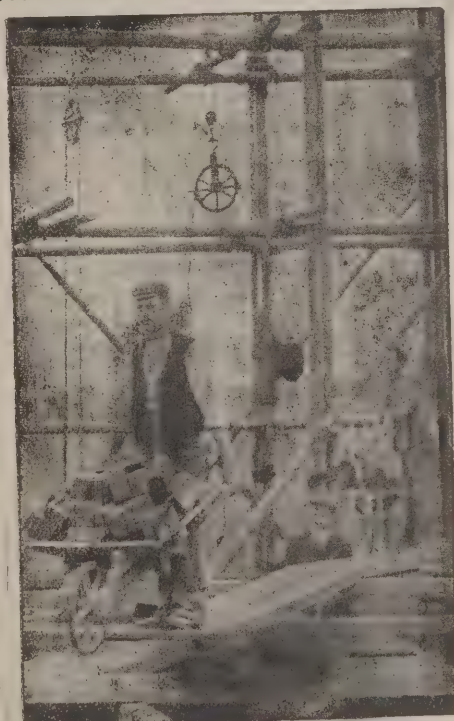
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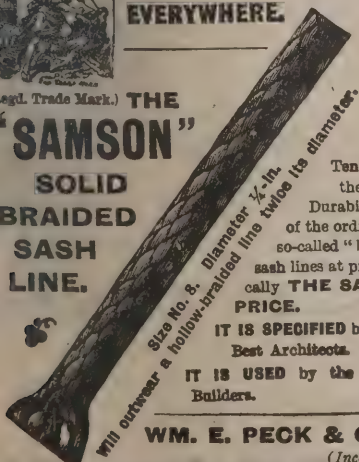
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TRADE NOTES.

A NEW clock has just been erected in the parish church, Stockland, Somerset, by John Smith & Sons, Midland Clock Works, Derby. It shows time on one dial, strikes the hours and chimes the quarters. It was made generally to the designs of the late Lord Grimthorpe.

THE numerous customers of Messrs. Hahn & Co. will be pleased to learn that the firm has secured the Alexander Dock, almost adjoining the tidal-basin station at the Victoria Docks. As the wharf has an area of 140,000 square feet they will be able to adequately display their valuable stock of seasoned foreign hardwoods. The wharf has also the advantage of enabling the firm to rapidly carry out, either by rail or by water, all orders which are entrusted to them.

BUILDING AND BUILDERS.

THE Doncaster Rural District Council have approved the amended scheme prepared by Messrs. Balfour & Son for sewerage and sewage disposal at Bentley with Arksey, and it was resolved that application be made to the Local Government Board for their sanction to a loan of 11,500*l.* for the purpose.

BLOOMSBURY CHAPEL has been renovated and decorated throughout, and new seating of pitch pine put in on a semi-circular plan on ground floor, and new seating also in the galleries. Pulpit and choir seats have been altered. The renovation has been carried out by Messrs. Higgs & Hill, Ltd., from designs by and under the superintendence of Messrs. George Baines & Son, architects, 5 Clement's Inn, Strand, W.C.

MESSRS. ROBERT NEILL & Sons, Manchester, have, it is understood, signed the contract for the erection of municipal buildings at South Shields, at a cost of 47,000*l.* It is desired that a start should be made at once, but there may be difficulties in the way if the dispute in the Tyneside building trade continues. Mr. Ernest E. Fetch, 26 John Street, Adelphi, W.C., is the architect.

THE Scottish Building Trades Federation at their last half-yearly meeting at Inverness discussed a letter from the National Federation of Great Britain suggesting that

builders working outside their own district should be required to become members of any allied association existing in the locality of their work, and to conform to the rules and wages. The question will come up for full consideration at next meeting, which is to be held in business in the autumn.

THE Aston Board of Guardians have approved the plans and estimates of the proposed new buildings. These include a new pavilion, half-pavilion and places of worship for the Roman Catholics and Protestants. The estimates were:—New pavilion, 10,410*l.*; half-pavilion, 3,550*l.*; Roman Catholic chapel, 200*l.*; Protestant chapel, 2,560*l.*; architect and clerk of works, 850*l.* and 200*l.*; quantity surveyor, 200*l.*; furniture, 1,000*l.*; contingencies, 500*l.*—a total of 19,500*l.*

THE finance committee of the Holborn Town Council has considered the question of requiring deposits on applications for tender forms for the annual and other contracts. In the opinion of the committee these deposits are too small to be any guarantee as to the solvency of the firms tendering, and having regard to the recent remarks of Mr. Justice Jelf at the Central Criminal Court, the committee recommends "that in future no deposit be required as the condition for tendering in connection with any contracts with the Council."

MESSRS. VICKERS, SON & MAXIM have just let contracts for extensions of their works at Barrow. A new shipyard is being constructed on which a ship 1,000 feet in length can be built. This will be enclosed in a glass-roofed building, with powerful electric travelling cranes over the whole length. The firm is also constructing a new pier in Buccleuch Dock, Barrow, at which the largest ships can be equipped with machinery. Alongside this pier a 150-ton electric crane will be built. The entrance to the Buccleuch Dock also is to be enlarged, and when this is finished ships 1,000 feet long, 100 feet in width and 32 feet draught can be docked.

AN electrical exhibition will be held at Olympia from September 25 to October 21, 1905, inclusive, under the auspices of the National Electrical Manufacturers' Association (Incorporated). Sir William H. Preece is the president and Mr. Walter Davenport the secretary.

TO BOROUGH ENGINEERS, SURVEYORS, ARCHITECTS,

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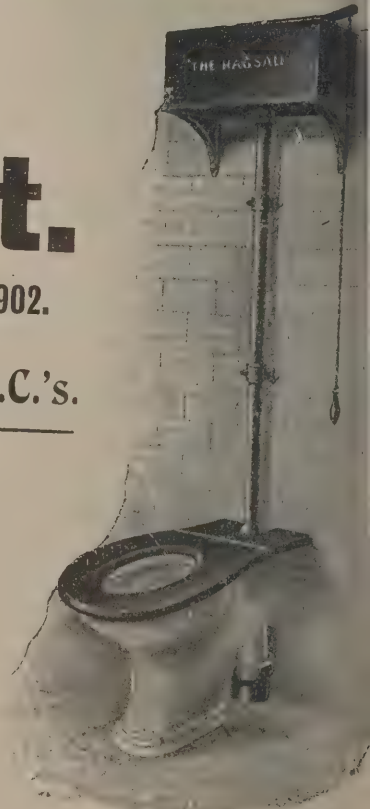
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ELECTRIC NOTES.

Rawtenstall Corporation will obtain a supply of electricity for use in the borough from the Lancashire Electric Power Company for a period of five years, in accordance with the terms of a draft agreement. The scheme now only awaits the approval of the Board of directors.

COLONEL A. J. HEPPER, Local Government Board inspector, held an inquiry at the Burton-upon-Trent town hall concerning the application of the Town Council to borrow £3587 for electric-light extension and the enlargement of the town hall, and to replace 6,000 ft. excess of expenditure already incurred on behalf of the electric lighting.

The British Consul at Rosario, Mr. H. M. Mallet, in his report for 1904, states that there is a good opening in his district for electric plant and appliances. At the present time foreigners alone are supplying almost all requirements in this line. Of seventy electric motors, representing 226 horse-power, that have been installed in the town during the past eighteen months, one only was of British origin. Great Britain contributes the greatest value of exports.

The directors of the Dundee and Broughty Ferry Tramway Company have served notice for the commencement of the contract on Messrs. White, the contractors. As has already been stated, the contract price is over 80,000 ft. There will be 5½ miles of road, equivalent to 9¾ miles of single track. The overhead work is to consist chiefly of trolley arms, the trolley wires being 21 feet from the ground. The power station is to be a brick structure, with a chimney-stalk 110 feet high. The plant will consist of 100-k.w. railway generators, with high-speed engines. The car shed is also to be a brick structure, 175 feet long and 55 feet wide.

The Derby Town Council have agreed to accept the tenders of the St. Helens Cable Company, Ltd., for the supply of feeder cable (860 ft. 17s. 1d.) and distributing bitumen cable (438 ft. 12s. 6d.); those of Messrs. S. R. Turner & Co., Ltd., for the supply of lathe (38 ft. 0s. 6d.), and a pillar drilling machine (34 ft. 2s. 6d.); and those of Messrs. C. A. Parsons & Co., Ltd., for the supply of a steam turbine

(3,950 ft.), and the British Thomson-Houston Company for switchboard extension (287 ft.).

THE Durham Collieries Electric Power Company, Ltd. (chairman, Sir Douglas Fox), have arranged a contract for the supply of power to the important collieries in the county of Durham belonging to the Hetton Coal Company, Ltd., whose chairman is Sir Lindsay Wood, Bart. It is proposed to use the power for hauling, pumping, coal cutting, lighting, &c., at the company's extensive collieries at Eppleton, Lyons and Elemore. The power company are also to supply the extensive collieries of the Lambton Collieries, Ltd., as well as the estate of the Earl of Durham. A large power station has just been started to be erected on 55 acres of land at Philadelphia, near Penshaw, which will supply at least twelve collieries and also the 15 miles of tramways belonging to the Sunderland District Electric Tramways, Ltd., as well as the lighting of the urban districts of Houghton-le-Spring and Hetton-le-Hole, and the extensive district embraced in the area of the Easington Rural Council owned by the Houghton-le-Spring and District Electric Lighting Company. The contracts have been arranged by Messrs. Harper Bros. & Co., consulting engineers, London, and Messrs. D. Balfour & Son, engineers, Newcastle-on-Tyne.

THE refuse disposal works erected by the Town Council of Ayr on a site adjoining the Corporation electricity works in Mill Street have been formally opened. The cost of the site for the destructor works was about 2,500 ft., and the cost of the plant was 10,750 ft. The type of destructor is Meldrum's patent hand-fed simplex regenerative, with six cells, each measuring 25 square feet grate area. The boiler is a Babcock & Wilcox water-tube with 2,852 square feet heating surface, and the capacity of the destructor is 60 tons refuse per day of 24 hours. At present it is being worked in two shifts of eight hours each, and the refuse dealt with is about 31 tons per day. In connection with the destructor is a clinker crushing plant, capable of crushing, elevating and screening about 4 tons per hour, the motive-power being 25 h.p. electric motor. The clinkers are broken into four sizes, and are mostly disposed of for cement concrete and sewage filtering purposes. The steam generated in the boiler is partly used for the force blast, but the bulk of it is



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passed on to the electricity works, and the price to be paid by the electricity department to the cleansing department has at present been fixed at 450*l.* per annum. The whole works were carried out under the direction of Mr. John Young, town surveyor.

VARIETIES.

Mr. F. H. BAKER, architect and surveyor, of 21 Liverpool Street, has taken into partnership Mr. W. H. Wrightson. The practice will be carried on in future as Baker & Wrightson.

The Hawarden Council will make application to the Local Government Board to rescind the loan of 20,800*l.* already sanctioned for the sewerage and sewage-disposal works for Hawarden special drainage district and apply for sanction to borrow 21,000*l.* for thirty years.

The Perth Town Council on Monday agreed to borrow 1,250*l.* for the cost of erecting buildings in Gowrie Street, 12,000*l.* for the erection of the isolation hospital, and 180*l.* for sewers in King Edward Street and the new street off Craigie Road.

The Local Government Board has refused to sanction the application of the Woolwich Borough Council for powers to acquire land compulsorily at Bostal Hill for the purposes of a municipal housing scheme, which was estimated to cost 106,000*l.* It is surmised that the site has been objected to.

JUDGE EMDEN, having made numerous fruitless complaints about the unsuitability of the town hall at Tunbridge Wells as a court of justice, decided not to hear any important cases there. As a result, litigants have been obliged to go to the Tonbridge court. The Town Council propose to erect a new court-house at a cost of 4,000*l.*

The Manchester Ship Canal Company have given official notice that they propose to construct at the tidal opening at the Weaver mouth an embankment of earth or clay 206 yards in length, 2 yards in average height, 18 yards in width at the base and 16½ yards in width at the top, the object of the embankment being to prevent the escape of water from the Manchester Ship Canal into the estuary of the Mersey.

The Paisley Town Council on Tuesday considered a letter intimating a gift of 10,000*l.* for a much needed improvement in the town in the removal of a large block of buildings at Paisley Cross so as to relieve existing congestion. The Council have hitherto been prevented from effecting improvement by want of funds.

The Wellman-Seaver-Morgan Company, of Cleveland, Ohio, are, it is said, preparing plans and estimates for construction of an extensive iron and steel plant in N. South Wales at a cost of about 3,000,000 dols. The South Wales Government have made the company a position for the work.

A scheme for the extension and development of harbour and works of Trieste has been drawn up, according to the estimate an expenditure of 712,000*l.* needed for the completion of works already in hand. Other proposed harbour works, such as the enlargement of existing jetties and the construction of new ones, a sum of 1,383,000*l.* is set down, so that the total estimates for harbour works amount to 2,095,000*l.* Over and above this a sum of 125,000*l.* is to be expended on harbour equipment.

The Hollymoor lunatic asylum was opened on the 6th inst. by the Lord Mayor of Birmingham. The site contains about 120 acres, and the buildings comprise patients' blocks and administrative buildings, including spacious dining and recreation-hall, engine and boiler-house, laundry, bakehouse and workshops, a chapel, homes for attendants, nurses and servants, with dining and recreation rooms. The present accommodation is for 604 patients. The plans were prepared by Messrs. Martin & Martin, Birmingham. The contract was commenced in April 1901 by Messrs. J. Bowen & Sons.

The Middlesex County Council have decided to appoint a committee to confer with the neighbouring county councils with a view to the preparation of a scheme, thought desirable, to widen all the main roads leading out of London into Middlesex to a width sufficient to accommodate the great and increasing vehicular traffic, including the tramways or light railways and motor-cars, with wide footways for pedestrians, before these main roads are further encroached upon by building operations, or, where more expedient and economical, to provide similar new routes.

C. JEAKES & CO. 51, GREAT RUSSELL STREET, BLOOMSBURY, LONDON.

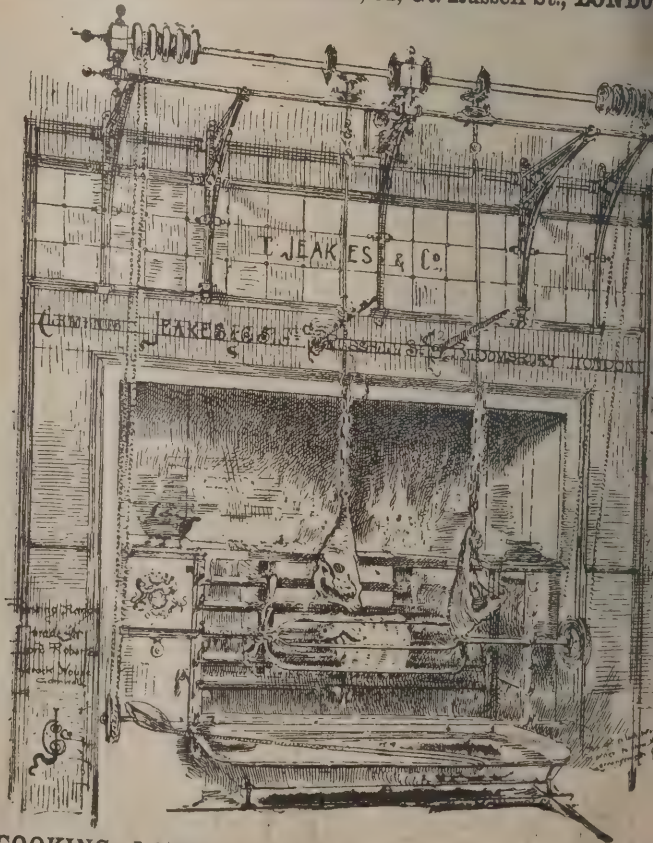
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THE GAIETY RESTAURANT.

The Gaiety Theatre has been open since October 1903, and the palatial building connected with it, which is to be used as a restaurant on a grand scale and for residential chambers, was not completed until Wednesday. On the suggestion of Mr. Norman Shaw, R.A., the architects, Messrs. Ernest Rüntz & Ford, adopted a Florentine type of Renaissance in their design, and the massive treatment has many advantages in such a position. The whole of the façades are executed in Portland stone, and the cornice, raised at a height of 80 feet, is the largest in London, below which is the ornamental frieze, the work of Mr. Hibbert Binney, of which illustrations have appeared in *The Architect*.

The main entrance is from the Strand by a columniated portico surrounded by a broken pediment; there is also another entrance near the Strand in the Garden Thoroughfare, along the greater portion of which on the mezzanine level is a projecting balcony. The area covered by the restaurant consists of 10,450 square feet, having three frontages of 370 feet in all to the Strand, Aldwych, and 10 feet Garden Thoroughfares, thus insuring a maximum of light and air unusual in similar buildings. Entering from the Strand through the main entrance-hall, a broad flight of steps leads to the joint-room in the lower level; this room is 60 feet in length, 40 feet in width and 17 feet in height. It is panelled throughout in enamelled wood with a green and gold frieze over, carpeted and upholstered in a green tint and fitted with tip-up seats of the Gaiety stalls pattern and alcoves around.

The "Adams" banqueting-hall is 45 feet in length and 30 feet in breadth, and the whole of the detail throughout is in the style of the period which gives it its title. The colour scheme here is white and green, the carpets and curtains of the richest materials, and every facility for quick service that could be devised has been carried out.

Three private dining-rooms adjoin facing the Strand, named respectively the "Nelly Farren," "Kate Vaughan" and "Fred Leslie;" all are choicely decorated and furnished, and suitable for large and small gatherings.

Leaving the mezzanine floor and continuing up the grand staircase we arrive at what is termed the first floor, where many of the apartments run through two storeys, the ceilings being underneath the third floor. Landing in a spacious lounge, as on the lower floors, on the right will be found the Masonic temple and banqueting-hall. Between these is the tiler's room, which is of sufficient dimensions to accommodate a large number of persons. From it on the western side is the entrance to the Masonic temple; the design for which has been based on Byzantine church work. This room is 45 feet in length, 27 feet in height and 26 feet in width, with an apsidal end and barrel roof over (supported on sixteen Sienna scagliola marble columns), richly decorated with emblematical paintings in the semi-dome and on the semicircular end above the organ. The prevailing colour scheme is in rich blues in the carpets, pearl velvet in the draperies, and the whole is adapted for every conceivable branch of the Masonic world.

From the tiler's room we enter the Duke of Connaught banqueting-hall, 27 feet in height, 31 feet in width, 34 feet in length. This hall is carried out entirely in Greek detail, the prevailing tints of decoration being terra-cotta, red and white. There is a separate service from the kitchens devoted to this portion of the building, also special cloak and lavatory accommodation. On this floor also is the Georgian Hall, or ball-room, and the Aldwych Salon, decorated in heliotrope, white and yellow, the former being of similar dimensions to the restaurant proper, namely, 60 feet by 40 feet, with a balcony round. It is believed that the spring floor which has been provided will be found one of the best in London, and the detail throughout is the refined treatment of that already described for the restaurant, the colour scheme being white, yellow and old gold. The niches on the floor level are occupied by suitable bronze statuettes, and a subsidiary staircase is provided for dancers to reach the balcony for sitting out during the intervals of the dances.

On the second floor are three private dining-rooms named respectively the "Carmen," "Esmeralda" and "Monte Cristo" rooms, each furnished in simple but effective taste.

On the third floor we find the suites of residential chambers. These are varied and unique; each suite is self-

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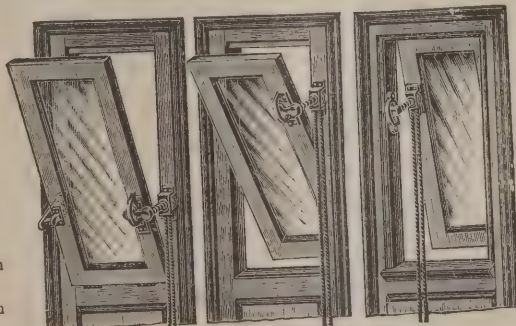
MACHINE-MADE BRASS SOCKET BOLTS.

4601
Brass,
with
Iron
Shoe.
—
4602
With
Iron
Back
Plate.

Made
in
three
widths
and
all
lengths.

THE "INVISIBLE" FANLIGHT OPENER (CARTLAND'S PATENT).

WITH SIDE
ADJUSTMENT
FOR
HEAVY
FANLIGHTS.
BRASS,
1751 1/3 each
IRON,
1752 1/3 each



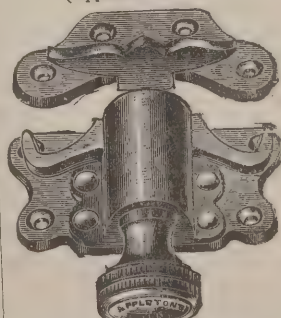
Hinged at Bottom,
Opening In.
Brass 1751 5/6
Iron 1752 4/-

For
Pivot Sashes.
Brass 1755 5/6
Iron 1756 4/-

Hinged at Top,
Opening Out.
Brass 1753 5/6
Iron 1754 4/-

The advantages of this invention will be appreciated by Builders, Architects, and others, as being a perfect Fanlight Opener, without the disadvantage of any unsightly part projecting into the room, to the impediment of blinds, &c. It is equally suitable for sashes hung at top, bottom, or pivot sashes.

THE "GRAPPLER" PATENT SASH FASTENER (Appleton's Patent).



8380. 23/- per dozen.

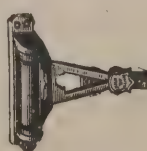
Strong machine-made, Polished. A turn of the knob causes the Grapppler to clutch the catch-plate and securely locks the sashes.

It lifts up and draws close together dropping sashes.

ORIGINAL PATENTEES & MANUFACTURERS OF CARTLAND'S PATENT HELICAL, CLIMAX, ADJUSTABLE AND RELIABLE BOOR SPRINGS.

Single Action.
5755 Iron.
3 in. 18/-
4 " 27/-
5 " 33/-
5756 Brass.
3 in. 39/-
4 " 51/-
5 " 60/-
per dozen.

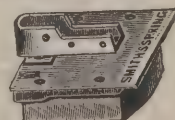
Double Action.
5753 Iron.
3 inch, 4/3
4 " 5/9
5 " 8/-
5754 Brass.
3 inch, 6/8
4 " 10/-
per pair.
5 " 14/-



5355 Iron
4 in. 22/6
5 " 30/-
6 " 39/-
5356 Brass.
4 in. 39/-
5 " 51/-
6 " 60/-
per dozen.



2401
With 2-in. Shoe,
18/- each.



28
With 2-in. Shoe,
26/- each

London Showrooms—57 HOLBORN VIADUCT, E.C.

To be obtained through Hardware Merchants, Factors, or Wholesale Ironmongers, through whom our New and Revised Catalogue of General Brassfoundry may also be obtained

contained, and consists of entrance hall or lobby, bedroom, sitting-room, bath-room and lavatory. The decorations are varied, being carried out in the Dutch, Queen Anne, Adam, Art Nouveau and the Louis XVI. styles, it having been the endeavour to supply the public with not only a varied but a refined treatment of decoration, and the furnishing throughout has been done in a costly and attractive manner.

The remaining upper floors are devoted to similar residential chambers, whilst the top floor is entirely occupied by the staff dormitories and various offices, including kitchens, beautifully ventilated, amply lighted and with an efficient service to the ballroom and residential parts of the building.

A special feature is made of the two great buffets, the one on the Strand frontage and the other on Aldwych. The former is 36 feet by 26 feet, amply lighted by large semicircular headed windows and decorated in the style of the Georgian period, with polished mahogany, moulded, panelled and carved wainscot, above which are decorative plaster panels with swags of fruit and flowers in the Grinling Gibbons style. Here will be hung portraits of celebrated actors and actresses of the period, taken from those in the National Portrait Gallery. This apartment will be known as the "Georgian Buffet." The buffet on the Aldwych side is a complete contrast, the basis of the design being on Dutch model. This buffet is 44 feet by 22 feet, and is panelled throughout in bass wood, stained green and polished, with Dutch tiles and ornamental pewter-work. The restaurant proper can be reached from this portion of the building without going through the main entrance. The residential chambers can be approached either from the main restaurant entrance or from a separate entrance, which is provided with a lift in Aldwych immediately facing the new Waldorf Theatre.

The lighting, ventilation, &c., have been carefully considered. The sanitary appliances, baths, &c., are of the most approved and modern type, and are supplied by Messrs. Doulton & Co., Ltd., and Messrs. J. Tylor & Co. Ltd., of London.

The electric lifts have been provided and fixed by Messrs. R. Waygood & Co., Ltd., of London.

The architects are Messrs. Ernest Rüntz & Ford, of 10 Walbrook, London, and, in addition to the general

structure, the whole of the decorative work is from the design and the furniture of their selection.

The contractor is Mr. James Carmichael, of War worth; the clerk of the works is Mr. Lett, and the contractor's foreman, Mr. Mackintosh.

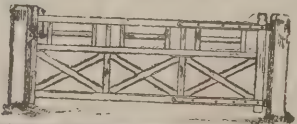
THE BUILDING EXHIBITION.

ALTHOUGH the Building Exhibition is now a memory to us, however, we hope will bring many advantages to those whose works were displayed, we have still to bring so many specialties before our readers. One is of a nature which should be one of the first thoughts in a contractor's mind when he undertakes a building. Scaffold accidents have been a boon to lawyers, but they are avoidable if the simple patent flexible galvanised steel wire ladder grips and scaffold lashing are adopted. They can be attached in a minute by any labourer, and will withstand all strains which a scaffold is exposed. Some thousands were used in the immense works in Dublin for Messrs. A. Guinness & Co., Ltd., and not one accident occurred. The worth was also tested in the Savoy hotel extensions, and the new wing of St. Thomas's Hospital. As they are manufactured by the *Bristol Wire Rope Company* there is no dependence on other works for material.

It is often difficult to clean marble, mosaics, tiles, terracotta, for the stuff employed may produce stains which are not readily removed. The Gopso manufactured by the *Gibson Soap Company* is specially adapted for the purpose and has been used in public buildings, clubs, hotels, &c. with success.

Messrs. L. Lewis & Co. were exhibiting their improved patent mastic asphalt damp-course. There are many advantages to be claimed; amongst others, that it is not affected by frost or heat, is always pliable and flexible, will not crack or stick, and is easily fixed. Another important characteristic claimed is that it is not affected by the greatest pressure. Messrs. Lewis have supplied it to the War Office, the Admiralty, London County Council, and to numerous public buildings and institutions, electric works, gas companies, railway companies, &c. The charges are particularly moderate.

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The Shannon Company had a representative exhibit of a well-known system of letter filing and labour-saving devices, also of office furniture, which for finish and excellence of workmanship could not be excelled.

At Stand No. 23 Messrs. A. C. Potter & Co. displayed an artesian well engine which has been specially designed to meet the present-day requirements of high-pressure work. They justifiably call attention to the fact that this engine has been turned out from their works made entirely of British material and by British workmen.

Mr. Jas. Oates had an exhibit at Stand 24 of his patent printing machines for wall-papers, &c., which will be of interest to decorators.

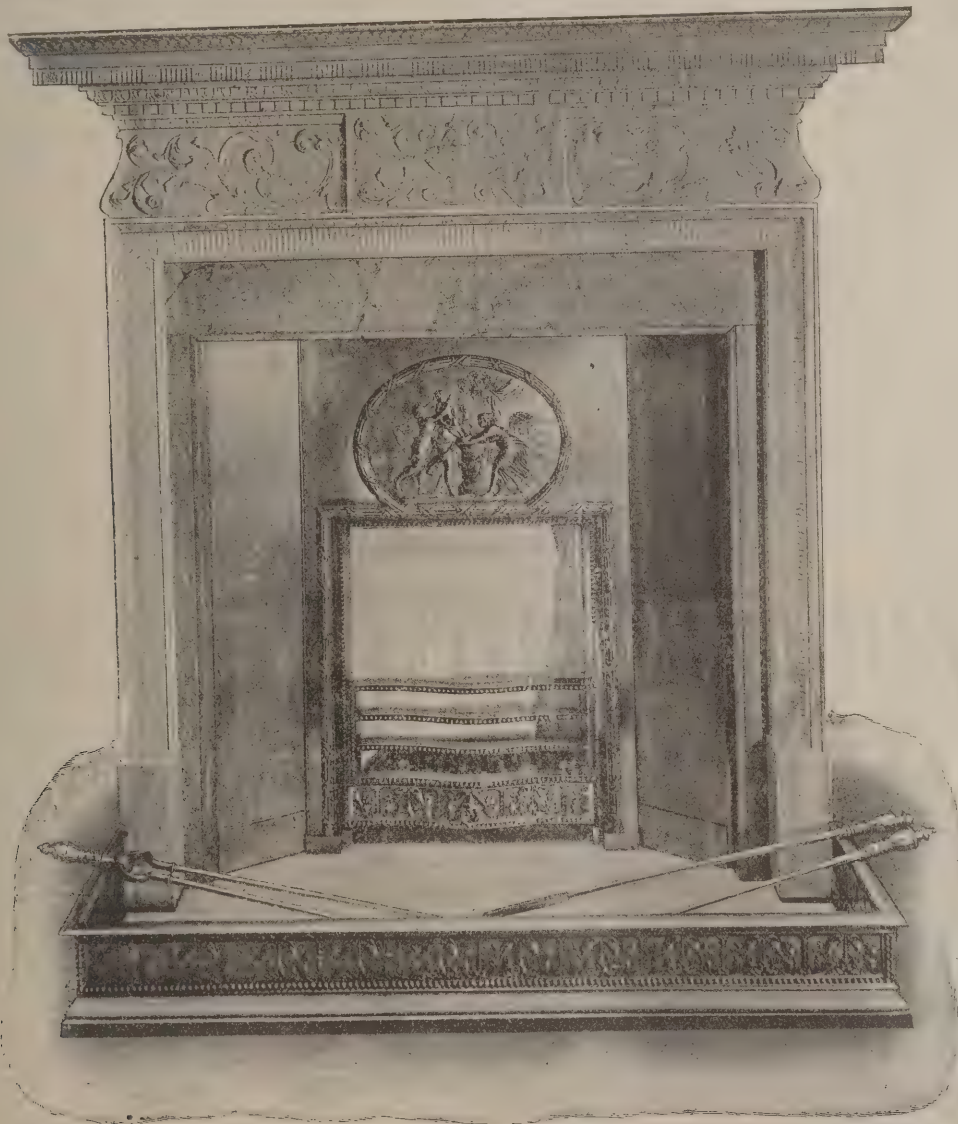
At Stand 25 was found the exhibit made by Mr. H. McKinnell of navy barrows, which were of good workmanship and supplied at a reasonable charge.

Messrs. Kershaw's exhibit at Stand 27 of French polish, spirit varnishes, &c., was of interest to the builder and decorator. The specialty was a new paint remover, which

NEW DESIGNS IN GRATES.

THE Carron Company, as we recently mentioned, have been engaged in preparing a new series of interior grates, &c., made up from eighteenth-century work which was executed at the Carron works from 1780 to 1800 by Henry and William Haworth, who were both students at the Royal Academy during the presidency of the renowned artist, Sir Joshua Reynolds. The original wood-carvings are in the possession of the Carron Company, and are undoubtedly masterpieces of the carvers' art. The adaptation, which the Carron Company hope will be found useful and meet modern requirements, have been specially arranged to suit the architectural profession by Mr. John Kinross, A.R.S.A., Edinburgh, and may now be seen along with suitable tiles at their show-rooms.

The "Shrine" is an especially attractive example of eighteenth-century work, the figure subject being well conceived and carried out. When properly combined with



apparently only requires to be properly made known to have a good sale.

Messrs. H. G. Goodwin & Son at the next stand, No. 28, had an interesting exhibit of joinery.

At Stand No. 30, Messrs. Hunt & Fages exhibited their patent scaffold fixer, which appears to be easy to fix.

Patent sliding and reversible sash windows were shown by Messrs. W. G. L. England.

The two adjacent stalls of the Stoney Lane Brick Co., Ltd., and the Erewash Valley Brick, Pipe and Pottery Co., Ltd., showed somewhat similar goods. The first named confined their attention to blue goods, while the latter included red, blue, buff and terra-cotta.

Sutton & Co., Union Pottery, Overseal, near Ashby-de-la-Zouch, sent many of their patents, including self-centring conduits for electric cables and fixed bridge troughs and other troughs for the same purpose. They likewise manufacture Green's patent Wyvurst channels and Henman's gully channel, as well as many other allied accessories.

suitable tile splays and a chimneypiece in keeping the whole will be found to be in good taste, without being pretentious. The sizes are 21 inches wide by 45 inches high by 14 inches fire; 25 inches wide by 45 inches high by 18 inches fire; 25 inches wide by 40 inches high by 18 inches fire.

REFUSE COLLECTION AND DISPOSAL.*

THE object of the following notes is simply to suggest a few points which appear to the writer to be worthy of discussion, as having a practical bearing on the question of refuse collection and disposal in its most recent aspects.

* A paper read by Mr. William H. Maxwell, A.M.Inst.C.E., borough surveyor and waterworks engineer, Tunbridge Wells, at the Conference of Municipal Engineers on the 5th inst.

In regard to collection, there is perhaps not much that can be said to be new. The most important development in this connection is probably that of the extent to which mechanical haulage can be adopted to advantage. Although the writer is not in a position to-day to place any original figures of comparative cost of mechanical *versus* horse haulage in the work of refuse collection before this meeting, some few years' experience in the mechanical haulage of road metalling into his district from an outlying quarry (some twelve miles distant), owned by the corporation, has confirmed his belief in the advantages of that mode of conveyance where long distances have to be covered; that is, where a definite journey has to be regularly accomplished, with few or no intermediate stoppages, and where the vehicles can be kept in constant use. The work of refuse collection, to the writer's mind, does not present these essentials to the success of mechanical haulage, owing to the great number of stoppages, the comparative shortness of the distances, the attendant loss due to costly vehicles and high-waged drivers standing so long in the streets for purposes of filling the dust-vans, and the difficulty of delivering the vehicles into many of the "shoots" used for the deposit of refuse.

Actual figures, carefully taken by disinterested users over long periods, and including all charges, such as wages, repairs, fuel and depreciation, would be of much service in this connection, now that this form of haulage is being so largely adopted for various commercial purposes.

In the subject of the disposal of refuse interest naturally centres mainly around the most recent features of disposal by the destructor system and the production of motive power therefrom, and in this connection the following points appear to be of importance at the present time, viz. :—

1. That, having regard to the apparent similarity of results in refuse burning and steam production achieved by several different makes of furnace, the deciding factor between competitive schemes now hinges very largely upon the question of initial capital cost and subsequent annual repairs as judged from existing plants of different types.

2. That more numerous and carefully recorded data are needed for making a reliable comparison of the cost of repairs on different makes of plant.

3. That the best types of destructors now on market are capable of extracting the last unit of heat contained in the refuse, and that future improvements of the destructor system are principally to be looked for the reduction of capital cost; in the fuller interception of heat energy for use during periods of heavy loads at power stations, in the economising of working expenses (including repairs), in the means of feeding and clinking of cells, in the utilisation of residuals, and in the reduction of possible causes of nuisance on the works and in the immediate neighbourhood.

4. That a large proportion of the published "tests" of destructor performances are unreliable, and cannot be accepted as one of the determining factors in the choice between competitive schemes. Fuller data are required as to the composition of the refuse used, its calorific value, percentage of moisture contained therein, &c.

5. That the business of burning refuse in destructors has now assumed a fairly definite form, and that makers are now able in their contracts to give definite and reliable guarantees of performances, such as both users and makers may, with a reasonable degree of certainty, expect fully to realise.

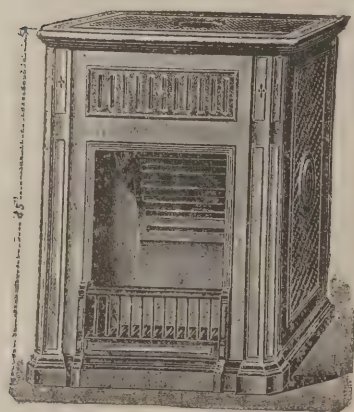
6. That mechanical, or so-called "labour-saving," devices for the handling of the refuse do not always reduce working expenses, and require much caution in regard to the introduction and design.

7. That the recent installation of several large combined destructor and electric stations affords practical proof of the growing confidence in the utility of modern destructors and power producers.

8. That, in the larger combined undertakings, embodying the latest improvements, and having a fair day load (judging from figures already reached over limited periods), the necessary heat value is contained in average refuse, and when this is fully utilised and the main sources of loss eliminated, an average yield approximating to 100 units per ton of refuse burned is attainable.

9. That largely increased capital outlay involved in the utilisation of heat from destructors is not necessarily justifiable in all cases; local circumstances must in every instance be the main determining factor.

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IMPORTANT NOTICE
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As Westminster has become one of the most important centres of the professions of Architecture and Civil Engineering, arrangements have been made by Messrs. GILBERT WOOD & CO., Limited, to establish Branch Offices in that district at

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Advertisements for Tenders, Building Land, Situations Vacant or Wanted, &c., can be left at those Offices, and copies of "The Architect," "Builders' Reporter," and other publications of Messrs. GILBERT WOOD & CO. can be obtained as early as at the City Office, Imperial Buildings, Ludgate Circus, E.C.

EDITORIAL NOTICES.

In view of the many difficulties which are certain to arise in connection with the law, practice rules and procedure under the Workmen's Compensation Act, we have added to our staff A VERY EMINENT BARRISTER, who has made the subject a special study, and will be glad to answer in the columns of this paper any questions relating to the complicated matters arising from the provisions of this difficult Act. Our LEGAL ADVISER will further answer any legal question that may be of interest to our readers. All letters must be addressed "LEGAL ADVISER," Office of "The Architect," Imperial Buildings, Ludgate Circus, London, E.C.

The Editor will be glad to receive from Architects in London and the Provinces results of Competitions and Tenders and other particulars of Works in progress in which they may be interested.

The authors of signed articles and papers read in public must necessarily be held responsible for their contents.

No communication can be inserted unless authenticated by the name and address of the writer—not in every case for publication, but as a guarantee of good faith.

Correspondents are requested to make their communications as brief as possible. The space we can devote to Correspondence will not usually permit our inserting lengthy communications.

TENDERS, ETC.

* * *As great disappointment is frequently expressed at the non-appearance of Contracts Open, Tenders, &c., it is particularly requested that information of this description be forwarded to the Office, Imperial Buildings, Ludgate Circus, London, E.C., not later than 2 P.M. on Thursdays.*

COMPETITIONS OPEN.

BOLSOVER.—May 31.—Plans for three schools. Particulars from Mr. G. H. Widows, County Education Offices, Derby.

HARROGATE.—May 24.—For proposed Primitive Methodist orphanage at Harrogate. Conditions may be obtained from Rev. J. T. Barkby, Riche Mont, Harrogate.

HIGH WYCOMBE.—May 31.—Secondary school, accommodation for 175 pupils. No premium offered. Mr. T. J. Rushbrooke, borough surveyor, 77 Easton Street, High Wycombe.

PERTH.—Aug. 1.—Plans for (1) reconstruction of the existing city hall at a cost not exceeding 6,000*l.*, and (2) erection of a new hall at a cost not exceeding 15,000*l.* Premiums will be awarded authors of plans placed first, second and third in order of merit as follows:—(1) For reconstruction, 30, 20 and 10 guineas respectively; (2) for a new hall, 50, 30 and 20 guineas respectively. Instructions, general conditions and plan of site from Mr. John Begg, town clerk.

CONTRACTS OPEN.

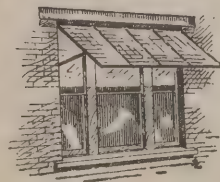
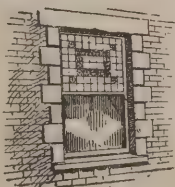
ALDEBURGH.—May 24.—For the construction of a new engine-house at the well near Aldeburgh Hall Farm, Suffolk, together with about 870 lineal yards of cast-iron pipes, 6-inch diameter, from the engine-house to the existing water-tower, including valve chambers, machinery foundations and other works. Messrs. James Mansergh & Sons, 5 Victoria Street, Westminster.

ASTON MANOR.—May 26.—For the construction of a urinal over the Hockley brook. Borough Surveyor, Council House, Aston Manor.

AYLESBURY.—May 23.—For repairs and alterations at the union house, for the Guardians. Mr. F. Taylor, surveyor, Temple Street, Aylesbury.

BAILDON.—May 23.—For the erection of a villa residence and appurtenances in West Lane, Baildon (Yorks). Send names to Mr. J. Harper Bakes, architect, Calverley Chambers, Victoria Square, Leeds, before 23rd inst., when bills of quantities will be forwarded.

LUXFER SASH CANOPY SKYLIGHT PAVEMENT PRISMS
Shops 200 feet deep
Lighted with Daylight.
Basements made available for Salesrooms.
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BAWBURGH.—June 2.—For alterations and additions to Bawburgh school, for the Norfolk education committee. Messrs. Boardman & Son, architects, Queen Street, Norwich.

BELFAST.—June 1.—For building of vested National school on Donegall Road. Mr. W. D. R. Taggart, architect, Scottish Provident Buildings.

BEVERLEY.—June 3.—For erection of an infant school (for 250 scholars) in Walkergate, Beverley. Messrs. Hawe & Foley, architects, North Bar Street, Beverley.

BILSTON.—May 20.—For the erection of boys, girls and infants' departments for 1,200 children, with cookery, manual training centres and special science classrooms, at Stonefield, Bilston. Messrs. Bailey & McConnell, architects, Bridge Street, Walsall.

BINGLEY.—May 22.—For the erection of stables, sick-room, &c., for seven horses, Bingley. Mr. Wm. Rhodes Nunns, architect and surveyor, Market Street, Bingley.

BISHOP'S STORTFORD.—May 22.—For alterations and additions to the laundry at the workhouse. Mr. Alfred G. Gwynn, clerk, Bishop's Stortford.

BLACKBURN.—May 31.—For the erection of the Regent Street special school. Mr. Fred. J. Parkinson, architect, 9 Richmond Terrace, Blackburn.

BRAMPTON.—May 24.—For the erection of new Unionist club, Brampton, Cumberland. Mr. T. Taylor Scott, architect, 43 Lowther Street, Carlisle.

BRIERLEY HILL.—May 31.—For altering and improving the town hall, for the Urban District Council. Surveyor's Offices, Town Hall, Briery Hill, Staffs.

BULCAMP.—May 29.—For the supply and fixing of an exterior iron fire-escape staircase at Bulcamp workhouse, near Halesworth. Union Offices, Bulcamp, Halesworth, Suffolk.

BURY.—For the proposed extensions at the Peel tannery, Bury, Lancs. Mr. D. Hardman, architect, Agur Street, Bury.

BUXTON.—For the reconstruction of Cowlow bridge. Mr. C. Flint (Messrs. Garlick & Flint), Terrace Road, Buxton.

CARDIFF.—May 30.—For the erection of a new goods office, for the Great Western Railway Company. The Engineer, Great Western Railway, Newport Station.

CARLTON.—May 24.—For the erection and completion of (1) a free public library and (2) a caretaker's house in Station Road, Carlton. Mr. J. C. Haller, engineer and surveyor, Carlton, near Nottingham.

CARLETON.—June 1.—For erection and completion of children's cottage homes at Carleton, near Pontefract. Messrs. Garside & Pennington, architects, Pontefract and Castleford.

CHELMSFORD.—May 22.—For the erection of block of buildings at the hospital, Baddow Road, near Chelmsford, Essex. Messrs. Rye & Bacon, architects, 16 John Street, Bedford Row, London, W.C.

CORK.—May 22.—For the erection of new stores on site of malthouse, South Mall, Cork. Mr. Samuel F. Hynes, architect, 21 South Mall.

CROYDON.—May 23.—For the following works to be done at the Croydon mental hospital, situate at Warlingham, Surrey:—Contract No. 1: The erection of cricket pavilion, cart-sheds, shelters, iron fencing, sundry fittings, &c. Contract No. 2: The erection of about a quarter of a mile of oak pale fencing. Mr. Geo. F. Carter, borough engineer, Town Hall, Croydon.

CUXTON.—May 25.—For the erection of a Council school at Cuxton, Kent. Mr. G. E. Bond, architect, 384 High Street, Rochester.

DARTON.—May 25.—For the erection of two blocks of houses at Darton, near Barnsley. Messrs R. & W. Dixon, architects, 5 Eastgate, Barnsley.

DEWSBURY.—May 22.—For the mason, joiner and slater's work required in erection of a stable and cart-shed in South Street, Dewsbury. Messrs. John Kirk & Sons, architects, Dewsbury.

DORCHESTER.—June 1.—For erecting a new schoolroom, classrooms, offices and improvements at the Primitive Methodist chapel, Durngate Street, Dorchester. Mr. J. Feacey, architect, South Walks, Dorchester.

DUNSTABLE.—May 30.—For the erection of an infectious diseases hospital for twenty beds at Kensworth, near Dunstable, in the county of Bedford. Mr. George Simcox, architect, Town Hall, Dunstable.

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FELLING.—May 27.—For additions to Windy Nook Council school, Durham. Mr. H. Miller, architect, Council Buildings, Felling.

FERRYBRIDGE.—May 29.—For the erection of a signal cabin at Ferrybridge station, for the North-Eastern and Midland Railways. Mr. W. J. Cudworth, company's engineer, York.

HOUGHTON-LE-SPRING.—May 30.—For the erection of boundary walls to enclose certain lands adjoining the union workhouse at Houghton-le-Spring, Durham. Mr. John G. Baty, clerk, Union Offices, Houghton-le-Spring.

IRELAND.—May 28.—For the erection of a residence in the suburbs of Tralee. Messrs. Robert Walker & Son, architects and civil engineers, 17 South Mall, Cork.

IRELAND.—June 3.—For the erection of a residence for King's scholars at Glasnevin, for the Commissioners of National Education. Mr. J. F. Fuller, architect, 179 Great Brunswick Street, Dublin.

IRELAND.—June 3.—For building a caretaker's house at Victoria Cemetery, Carrickfergus. Mr. W. D. R. Taggart, architect, Scottish Provident Buildings, Belfast.

IRELAND.—June 5.—For the erection of twenty-three labourers' cottages, for the Stranorlar Rural District Council. The Workhouse, Stranorlar.

KEIGHLEY.—May 23.—For the construction of boiler-seating at electricity works, for the Corporation. Mr. W. H. Hopkinson, borough engineer.

KENSWORTH.—May 30.—For the erection of an infectious diseases hospital for twenty beds at Kensworth, near Dunstable. Mr. George Simcox, architect, Town Hall, Dunstable.

KIRKBY FLEETHAM.—May 24.—For alterations and additions to the schools at Kirkby Fleetham, near Darlington. Messrs. Clark & Moscrop, architects, Feethams, Darlington.

LANCASTER.—June 3.—For the mason's work required in erection of a balustrade wall round the Oval in Dalton Square. The Borough Surveyor's Office, Lancaster.

LANCASTER.—May 27.—For the following work, &c., at the county lunatic asylum, Lancaster, for the visiting committee:—(1) Exterior painting of buildings; (2) extension of

verandah; (3) construction of iron balcony; (4) supply of cast-iron columns, wrought-iron plated girders and cast-iron framing for covered way. Clerk of Works' Office.

LICHFIELD.—May 22.—For providing and erecting a public urinal in Wade Street. Mr. Emerson Brooke, city surveyor, Stowe Street, Lichfield.

LONDON.—May 24.—For the erection of a branch library, Lea Bridge Road, E. Mr. William Jacques, architect, 2 Fen Court, Fenchurch Street, E.C.

LONDON.—May 24.—For the conversion of the annexe to the mansion at Golder's Hill, Hampstead, into conveniences for men and women. The Architect's Department, the London County Council, 16 Pall Mall East, S.W.

LONDON.—May 25.—For the erection of a columbarium and mortuary in the cemetery, Fortune Green Road, West Hampstead. Mr. Arthur P. Johnson, town clerk, Town Hall, Hampstead.

LONDON.—June 7.—For the extension of the administrative block of the borough isolation hospital, Muswell Hill. Mr. E. J. Lovegrove, borough engineer and surveyor, Municipal Offices, 99 Southwood Lane, Highgate.

LONDON.—June 12.—For the erection of the proposed new public offices and town hall at Acton. Mr. William G. Hunt, architect, 17A Vicarage Gate, London, W.

MARPLE BRIDGE.—May 24.—For the erection of a new lock-up at Marple Bridge, near Stockport, Derbyshire. Mr. J. Somes Story, county surveyor, County Offices, St. Mary's Gate, Derby.

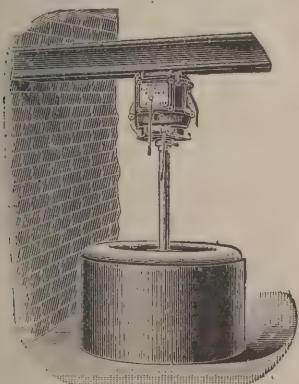
MASHAM.—May 26.—For the erection of Primitive Methodist chapel and schoolroom at Masham, Yorkshire. Rev. F. Lucas, 26 College Road, Ripon.

NELSON.—May 25.—For the supply and erection of stalls for the fish, &c., market. Mr. B. Ball, borough engineer and surveyor, Town Hall, Nelson, Lancs.

NORTH DALTON.—May 24.—For the erection of a brick retaining wall round the new well at North Dalton, near Driffield. District Surveyor, 17 Exchange Street, Driffield.

NEWCASTLE-UPON-TYNE.—May 22.—For erection of new baths and washhouses in New Bridge Street and Gibson Street. City Property Surveyor's Department, Town Hall, Newcastle-upon-Tyne.

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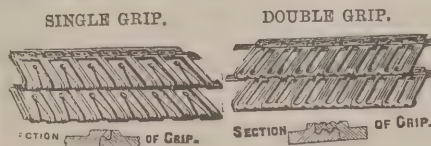
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OLD MILL.—May 22.—For the erection of a house in Wakefield Road, Old Mill, near Barnsley. Mr. J. W. E. Knight, architect and surveyor, 22 Regent Street, Barnsley.

OTLEY.—May 22.—For the erection of infirmary buildings at the workhouse, Newall, Otley, Yorks. Mr. W. H. Herbert Marten, architect, Newfield Lodge, Menston.

PERRANPORTH.—May 27.—For additions to Perran House, Perranporth, Cornwall. Mr. Alfred J. Cornelius, architect, Truro.

SCOTLAND.—May 22.—For the mason, carpenter, slater, plumber and plumber's work of dwelling-house, bakehouse and stable in Aberlour. Mr. Catto, baker, Aberlour.

SCOTLAND.—May 26.—For the mason, carpenter, slater, plumber and ironwork of warehouse to be erected at Cragganmore Distillery, Ballindalloch. Mr. Charles C. Doig, architect, Elgin.

SCOTLAND.—May 27.—For the mason, carpenter, slater, plaster, plumber, painter and glazier's work for a block of six workmen's dwellings at Aviemore Junction, for the Highland Railway Company. Mr. William Roberts, the company's engineer in chief, Inverness.

SCOTLAND.—May 27.—For mason, carpenter and slater's work of wing to offices at Sunnybrae, Park Hill, Lumphanan. Messrs. Cochran & Macpherson, advocates, 152 Union Street, Aberdeen.

SCOTLAND.—May 27.—For the mason, slater, plumber, lath, plaster and concrete, and smith's work for a residence at Advis, Strathspey. Messrs. A. Maitland & Sons, architects, Tain.

SCOTLAND.—May 29.—For mason, carpenter, plumber, slater, plasterer, painter and ironwork for business premises in Lossiemouth. Mr. R. B. Pratt, architect, Town and County Bank Buildings, Elgin.

SHEFFIELD.—For the erection of eight small dwelling-houses in Carrfield Street. Mr. W. G. Buck, architect, 4 East Parade.

SHEFFIELD.—May 27.—For erection of a three-storey hospital block at the union hospital, Fir Vale, Sheffield. Mr. H. I. Potter, architect, 24 Norfolk Row, Sheffield.

SOUTHWICK.—May 31.—For the erection of forty-two dwelling-houses at Southwick, near Sunderland, for the North-Eastern Railway Company. Mr. William Bell, architect, Central Station, Newcastle-upon-Tyne.

SUNDERLAND.—May 29.—For the supply and fixing complete of sanitary arrangements and wall-tiling in connection with underground conveniences to be erected in Sunderland. Mr. John W. Moncur, borough surveyor, Town Hall, Sunderland.

SWANSEA.—May 22.—For the erection of a villa residence in London Road, Gorseinon. Mr. Charles T. Ruthen, architect, Bank Chambers, Heathfield Street, Swansea.

SWANSEA.—May 29.—For the erection of five pairs of semi-detached houses in Dillwyn Road, Sketty. Mr. Charles T. Ruthen, architect, Bank Chambers, Heathfield Street, Swansea.

TAUNTON.—May 22.—For building a bridge at Coombe Florey, and laying sewers, &c., at Bishop's Hull. Mr. T. G. Crump, surveyor, 8 Wilton Terrace, Taunton.

THORNABY-ON-TEES.—May 23.—For internal work to the chancel of the parish church of Thornaby-on-Tees, Yorks. Mr. C. Hodgson Fowler, F.S.A., architect, The College, Durham.

WALES.—May 20.—For the erection of a new chapel and schoolroom in Mount Pleasant Road, Ebbw Vale, Mon. Mr. Henry Waters, architect, Beaufort.

WALES.—May 23.—For the erection of a Unitarian church at Morgan Street, Pontypridd. Mr. Arthur Ll. Thomas, engineer and architect, Church Street Chambers, Pontypridd.

WALES.—May 24.—For new school and alterations and additions to Penygarn chapel, Pontypool. Mr. W. Beddoe Rees, architect, 3 Dumfries Place, Cardiff.

WALES.—May 25.—For the conversion of the Bodringallt school premises into one department for boys. Mr. Jacob Rees, architect, Hillside Cottage, Pentre.

WALES.—May 25.—For the rebuilding of shop and premises at 49 Glebeland Street, Merthyr. Mr. C. M. Davies, architect, 112 High Street, Merthyr.

WALES.—May 25.—For the erection of a shop and for the rebuilding of the Ivor Arms at Caeharris, Dowlais. Mr. C. M. Davies, 112 High Street, Merthyr.

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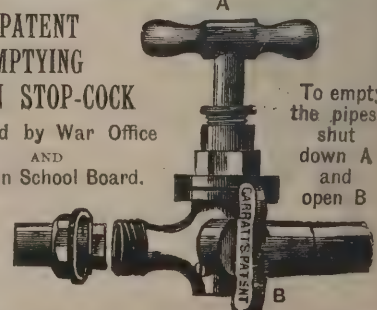
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WALES.—May 29.—For building a free library at Dowlais, for the Merthyr Tydfil Urban District Council. Mr. E. A. Johnson, architect, Abergavenny and Merthyr.

WALES.—May 29.—For the erection of 140 dwelling-houses, together with streets, sewers and surface water drains, at Mountain Ash. Messrs. Morgan & Elford, architects, 1 Jeffrey Street, Mountain Ash.

WALES.—June 5.—For the erection of a mixed school and the execution of works connected therewith at Pengenlan, Miskin, Mountain Ash. Mr. W. G. Thomas, architect, Public Offices, Mountain Ash.

WARLINGHAM.—May 23.—For the following works to be done at the hospital, Warlingham, Surrey:—(Contract No. 1) erection of cricket pavilion, cart-sheds, shelters, iron fencing, sundry fittings, &c.; (2) erection of about a quarter of a mile of oak pale fencing. Mr. Geo. F. Carter, borough engineer, Town Hall, Croydon.

WEYMOUTH.—May 25.—For the erection of entrance gates, stores, &c., at the electric-light station, Sunnybank, Weymouth. The Borough Engineer, Municipal Buildings, Weymouth.

WIGAN.—May 20.—For the erection of thirteen cottages in Spring Gardens. The Borough Engineer, King Street West.

WIVENHOE.—June 5.—For alterations and repairs to the Board school, Wivenhoe, Essex. Mr. F. Whitmore, county architect, Duke Street, Chelmsford.

WORCESTER PARK.—For the erection of a detached residence, stabling and coach-house, &c., at Worcester Park, Surrey. Messrs. W. C. Tutt & Goodchild, architects and surveyors, St. Olave's House, 18 Ironmonger Lane, E.C.

THE amount expended by the Birmingham Corporation on the water supply works in the Elan Valley during the year ended March 31, 1905, was 173,545*l.* 6*s.* 9*d.*, giving a total of 1,776,248*l.* 17*s.* 7*d.* The amount expended on the whole scheme during the year was 283,514*l.*, giving a total to March 31 of 5,539,505*l.* 18*s.* 5*d.*

TENDERS.

ASPATRIA.

For the construction of a boundary wall connected with the fire-engine station.

W. STUDHOLME (*accepted*) £116 2 10

BOSTON.

For erection of a new infirmary, &c., at workhouse. Mr. JAMES ROWELL, architect, Boston.

Richardson Bros.	£10,250	0	0
Hopkins	7,777	0	0
Thompson & Son	7,689	0	0
Crookes	7,516	15	3
Sherwin & Son	7,494	0	0
Vickers	7,115	0	0
Bowman & Sons	7,100	0	0
Greenfield	6,990	16	0
Young	6,900	0	0
Elmes	6,880	0	0
Langle & Son	6,757	0	0
Lucas	6,290	0	0
F. PARKER, Boston (<i>accepted provisionally</i>)	5,995	0	0

BRIDGWATER.

For the erection of premises, for the Industrial Co-operative Society, Ltd. Mr. JOHN WYATT HILL, architect.

Walters & Son	£2,467	0	0
Colborne	2,278	5	0
Stockham	2,199	0	0
Gleed Bros.	1,989	18	4
Westbury & Jarman	1,849	0	0
Scott	1,720	0	0
Fursland	1,700	0	0
Glen	1,698	0	0
C. BRYER, jun., Bridgwater (<i>accepted</i>)	1,600	0	0

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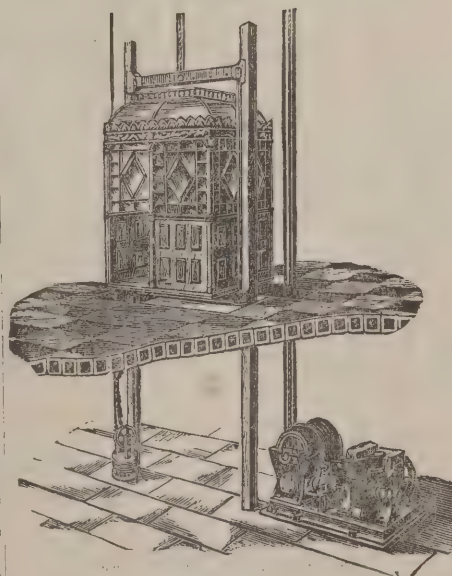
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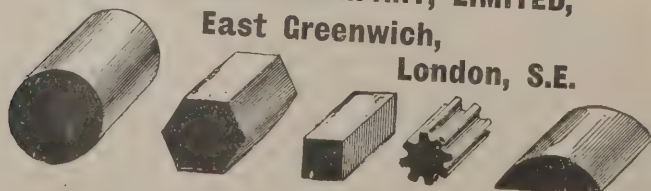


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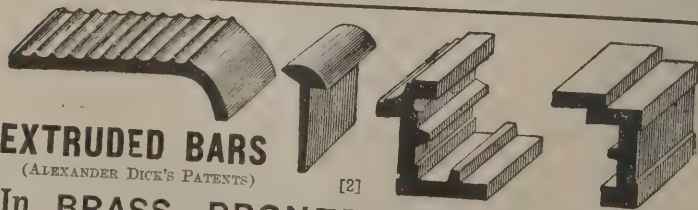
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Cuttrall, Lewis & Martin	7,167 0 0
Worthington	7,119 12 0
Loch, Andrews & Price	6,960 5 0
Jewell	6,900 4 0
Firth & Co.	6,874 2 0
ROWELL & SON, Chipping Norton (accepted)	6,605 1 0

LONDON.

For cleaning and painting, &c., at the Ladywell workhouse,	
Ladywell, S.E.	
J. J. RICHARDS, Brixton (accepted).	

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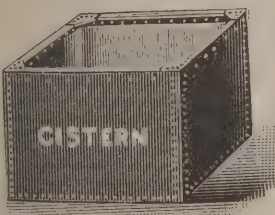


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LONDON—continued.

For heating and ventilating of the Longrove asylum.

Newton, Chambers & Co., Ltd.	£27,034	0	0
Howorth & Co.	25,792	0	0
Wenham & Waters	25,191	0	0
Körting Bros.	24,394	0	0
Haden & Sons	23,985	0	0
Sutcliffe Ventilating Co.	23,515	0	0
Keith & Blackman, Ltd.	23,017	0	0
Moorwood & Sons	22,119	0	0
Dawson & Co.	21,382	0	0
Ashwell & Nesbit	21,312	0	0
Dargue, Griffiths & Co.	20,057	0	0
Berry & Sons	19,300	0	0
Lancashire Heating Co.	18,600	0	0
Lea & Warren	18,575	0	0
Potter & Sons	17,279	0	0
Brightside Foundry Co.	16,891	0	0
Strode & Co.	16,483	0	0

Alternative schemes.

Körting Bros. (patent low-pressure system)	24,985	0	0
Moorwood & Sons (atmospheric principle)	22,119	0	0
Ashwell & Nesbit (vacuum principle)	21,023	0	0
Dargue, Griffiths & Co. (hot-water system)	20,057	0	0
STRODE & Co. (atmospheric principle) (accepted)	19,536	0	0
Lea & Warren (atmospheric principle)	18,895	0	0

For the erection of the new hospital villa for men at the Bexley asylum.

Wall, Ltd.	£14,226	0	0
Patman & Fotheringham, Ltd.	13,533	0	0
Foster & Dicksee	13,467	16	11
F. & F. H. Higgs	13,000	0	0
Holloway	12,982	0	0
Holloway Brothers, Ltd.	12,857	0	0
Lovatt, Ltd.	12,845	19	8
Leslie & Co., Ltd.	12,795	0	0
Holliday & Greenwood, Ltd.	12,589	0	0
Lawrance & Sons	12,338	0	0
JOHN GREENWOOD, LTD. (accepted)	12,142	0	0

LONDON—continued.

For the erection of heater-room at the Brook hospital.

Shooter's Hill.			
Proctor & Son	£2,380	0	0
Enness Bros.	1,957	0	0
Thomas & Edge	1,950	0	0
Wall	1,703	0	0
Friday & Ling	1,650	0	0
T. COLE, Barnsbury (accepted)	1,644	18	

For repairs to the Downs school, for the Metropolitan Asylums Board.

Kavanagh & Co.	£746	0	0
Soane	690	0	0
E. Iles, jun.	646	0	0
Grounds & Newton	628	0	0
Trueman	575	0	0
Enness Bros.	538	0	0
TREEBY & Co., Chatham (accepted)	426	8	6

For construction of tramways in Archway Road, Highgate.

	Tramway Construction.			Paving Works of Street Widening.
Muirhead, Greig & Matthews	£5,074	14	0	£1,082 1 7
Blackwell & Co., Ltd.	5,037	15	8	1,104 18 6
Griffiths & Co., Ltd.	4,954	13	8	1,034 5 10
Mowlem & Co., Ltd.	4,920	2	4	1,035 8 7
Paterson	4,807	14	2	1,036 11 9
Dick, Kerr & Co., Ltd.	4,587	15	9	1,010 8 5

For repairs, painting, &c., at the St. George's infirmary, Fulham Road, for the Guardians.

Cotching	£1,149	15	0
McArthur	845	10	0
Harris, Ltd.	839	0	0
Braithwaite	799	0	0
P. McCarthy	789	0	0
Lilly & Sons	767	0	0
Wollaston Bros.	760	0	0
M. McCarthy	690	0	0
J. J. RICHARDS, Brixton (accepted)	626	0	0

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Hard Wearing,
Easily Washed
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10 HOURS, and GRADUALLY
HARDENS.RED LABEL FOR OUT-
SIDE, DRIES IN ABOUT
15 HOURS ACCORDING TO
WEATHER.

MORPETH.

For the erection of premises, for the Ashington Industrial Co-operative Society. Messrs. LIDDLE & BROWNE, architects, Newcastle-on-Tyne.		
Sheriff	£3,918	11 8
Jeffrey Bros.	3,239	8 3
Worley, jun.	3,217	0 0
Bewley	3,215	18 7
Carr & Son	3,188	6 9
G. & C. Haswell	3,185	13 0
George	3,130	0 0
Jackson & Son	3,118	0 0
Franklin & Son	3,115	9 10
Hall	3,092	2 7
Browell	3,072	3 11
Braithwaite	2,985	0 0
J. & G. Douglas	2,949	19 9
Weallans	2,909	5 0
Dixon	2,896	13 6
Storey	2,886	5 0
Kennedy & Son	2,742	2 3
GORDON BROS., Chippington, near Morpeth (accepted)	2,736	19 2

NORTHAMPTON.

For widening and part rebuilding Blatherwycke bridge, for the Northamptonshire County Council. Mr. C. S. MORRIS, county surveyor.		
Hipwell & Co.	£1,775	0 0
Henson	1,157	10 0
Manton	1,130	0 0
Siddons & Freeman	990	0 0
Sturgess & Sons	943	17 6
HACKSLEY BROS., Wellingborough (accepted)	929	0 0

SOUTHALL.

For erection of a new public elementary school, for the Middlesex County Council. Mr. F. H. POWNALL, architect.		
GODDARD & SONS, Farnham (accepted)	£14,268	0 0

RAMSGATE.

For the conversion of house into a fire brigade station. Mr. T. C. TAYLOR, borough engineer.		
Denne	£1,447	0 0
Mirioms	1,250	9 0
Court	1,220	0 0
Forwalk	1,185	10 0
Hayward & Paramor	1,159	0 0
Huckell & Grimby	1,089	0 0
Duckett	950	0 0
White	870	0 0
Newby	825	0 0
A. E. GOODBOURN, Ramsgate (accepted)	736	0 0

SCUNTHORPE.

For the erection of buildings and other works at the market. Mr. A. M. COBBAN, engineer, Scunthorpe, Lincs.		
Ashley	£2,345	0 0
Thompson	2,145	0 0
Hollingworth	2,135	0 0
W. PALLISTER, Scunthorpe (accepted)	2,134	0 0
Engineer's estimate	1,949	0 0
For erecting engines, dynamos, pumps, motors, cables, &c., for the waterworks, both for power and lighting. THE BRITISH WESTINGHOUSE COMPANY (accepted).		
Engineer's estimate	£7,134	0 0
	8,030	0 0

WALMER.

For sewerage works, consisting of 800 yards lineal stone-ware pipe sewer, 8 inches and 9 inches in diameter; 145 yards lineal iron pipe sewer, 9 inches in diameter, &c. Mr. HERBERT W. BARKER, surveyor.		
Rigby	£725	12 10
Turner	590	7 0
Goodbourn	565	0 0
Osenton	563	12 6
Castle & Co.	542	15 0
Browning	532	0 0
J. G. SOUTER, Belvedere (accepted)	457	0 0

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389 Suite

388 Suite

390 Suite

WALES.

For carrying-out water-supply works for the parish of Llandebie and the town of Ammanford. Mr. H. HERBERT, engineer, Ammanford.

Callender & Co., Ltd.	£22,017	14	5
Davies & Griffith	20,546	0	0
Macdonald	18,352	0	0
Brebner & Co.	17,040	0	0
Mercer	16,958	0	0
Davies	16,438	17	0
Arnold	16,325	0	0
Jenkins & Maddocks	16,118	0	0
Meredith Bros.	15,964	1	7
E. POWELL, Pendennis (accepted)	15,770	14	0

WIGTON.

For laying a 2-inch branch main from the Aspatria, Silloth and District Water Board's main at Kingate Road end to Watch Hill.

Fisher & Co.	£87	18	0
Aird & Son	85	0	0
Ferguson	84	16	2
MINTO & Co., Wigton (accepted)	75	18	6

WINDSOR.

For the erection of a new police and fire station in St. Leonard's Road. Mr. E. A. STICKLAND, borough surveyor.

Goodwin	£19,895	1	5
Grey	19,332	15	0
Charman	19,057	14	7
Flint	18,742	10	0
Cox & Son	18,091	0	0
Hollis & Son	17,792	0	0
Martin, Wells & Co.	17,610	0	0
Fitt	17,481	0	0
Bowyer	17,392	0	0
Watson	17,366	0	0
Gibson	17,090	0	0
Fryer & Co.	16,920	0	0
Colbourne	16,887	8	0
Faulks	16,758	15	10
Y. J. LOVELL, High Street, Marlow (accepted)	15,926	0	0

Received too late for classification.

BRIDGWATER.

For new central premises, for the Co-operative Society, Mr. JOHN WYATT HILL, architect, King Street Chambers, Bridgwater. Quantities by the architect.

Walters & Son	£2,467	0	0
Colborne	2,278	0	0
Stockham	2,199	0	0
Gleed Bros.	1,980	0	0
Westbury & Jarman	1,849	0	0
Scott	1,720	0	0
Fursland	1,700	0	0
Geen	1,698	0	0
CHAS. BRYER, jun., Bridgwater (accepted)	1,600	0	0

OLDBURY.

For the erection of a Council school at Rood End.

Jackson	£5,950	0	0
MARK ROUND, Dudley (accepted)	5,750	0	0

PETHERTON.

For the erection of detached villa, Petherton, Somerset. Mr. JOHN WYATT HILL, architect and surveyor, Bridgwater. Quantities by architect.

Scott	£895	5	0
Bryer, jun.	630	0	0
Gleed Bros.	480	0	0
Fursland	465	0	0
SELICK & STANDERWICK (accepted)	450	0	0

STAWELL.

For the erection of farm cottage, Stawell, Somerset. Mr. JOHN WYATT HILL, architect and surveyor, Bridgwater. Quantities by architect.

GRANVILLE & RUGG (accepted)	£300	0	0
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The Brighton Aquarium committee have decided to proceed to carry out at once all the repairs and alterations needed at the Aquarium to enable Mr. Sallmayer to enter upon a lease of the institution. In the event of the Local Government Board declining to sanction a loan of 4,500l. for that purpose the work will be paid for out of the current rates.

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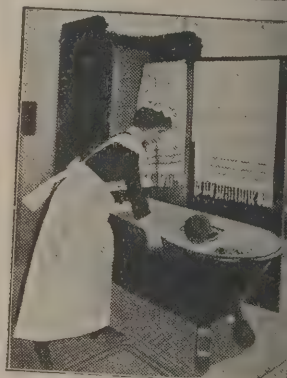
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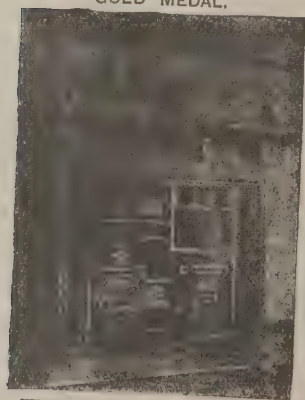
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A DESPATCH has been received at the Foreign Office from the British Commercial Attaché at Berlin enclosing a copy of the new law concerning the construction of canals in Prussia and the improvement of existing waterways. The total cost of the scheme is 16,728,750*l.*, of which 12,537,500*l.* will be the cost of building the canal from the Rhine to the Weser, including the canalisation of the Lippe and various necessary works. A sum of 2,150,000*l.* is granted for the making of a canal for large vessels from Berlin to Stettin; 1,058,750*l.* goes to improving the waterway between the Oder and Vistula and to better a portion of the Warthe; and 312,500*l.* is allowed for the canalisation of part of the Oder, subject to the agreement of certain local public bodies to contribute in respect of interest and loss on working expenses. On the Rhine-Weser Canal and branches a uniform towing system is to be worked by the State.

EXPERIMENTS are being made at Torquay with a model of a floating breakwater. The principle is that storms affect the sea only to a depth of 12 or 15 feet, and that the ordinary breakwater involves an unnecessary expenditure of money. The experiments are being made with a strong frame floated by pontoons on the land side and securely moored. Assuming that a breakwater is needed 1,000 yards long in water 60 feet deep, a frame is made to penetrate to a depth of about 40 feet, and the structure is tilted towards the sea. The frame is moored on both sides by long chains attached to its lowest part, and which lie as nearly parallel to the sea-bed as is practicable, in order to obtain the best holding power. When a sea strikes the frame it works back on its chain as a door works on its hinges, thus lessening the force of the sea, and when the sea is broken the structure floats back to its original position, ready to receive the next sea. On the inner or land side there is a horizontal network, supported by pontoons and fixed to the structure, in order to break any sea that may wash over it.

A COMMITTEE of the House of Lords on Friday last considered and rejected the London Squares and Enclosures (Preservation) Bill, promoted by the London County Council. Lord R. Cecil stated that the County Council ascertained that there were upwards of 400 gardens, squares or enclosures in the county of London, represent-

ing a total area of nearly 400 acres. Except in a very few cases, there was no prohibition against erecting buildings on these squares. The owners of 67 squares, comprising some 40 acres, expressed their approval of the Bill, and the owners of 72 squares did not express any disapproval. About 290 squares or enclosures were struck out of the schedule, and 139 remained in the schedule as it appeared before the committee. On any of the spaces dealt with under the Bill the erection of buildings other than such as might promote the enjoyment of the land would be unlawful. There was a provision against any use of the land for commercial or profit-making purposes, and another provision entitling the owner to call upon the Council to preserve and maintain it as a public open space.

THE GAIETY THEATRE AND RESTAURANT.

IN our notice of last week we should have mentioned that the work carried out in connection with this fine addition to London's hotels and restaurants was a triumph for the various sub-contractors. Particularly does this apply to Messrs. Shoolbred & Co. for the refined and excellent skill shown in the furnishing, and Messrs. Jackson & Sons, of Rathbone Place, W., for the mural decoration. The work shown is a triumph of good taste, and Messrs. Jacksons may well be proud of each and every example of their treatment to be found throughout the building.

The electric fittings are in every way in keeping with the decoration and furnishing. A careful inspection reveals to us that a decided feature has been made of the electric-light fittings. These are too often left to the discretion of the contractor and to take care of themselves, but we are pleased to see in this instance they have been specially designed for their various positions, and we are conscious that perfect harmony pervades the magnificent halls and rooms of this palatial building in consequence.

In these days of the grotesque "l'art nouveau" it is a welcome change to note the influence which old Classical models have had upon the designers of these fittings. Purity of design has been maintained whilst conforming to the

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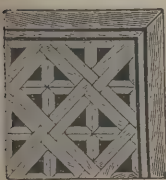
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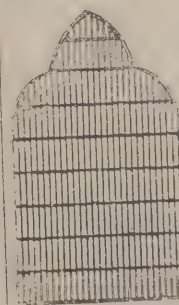
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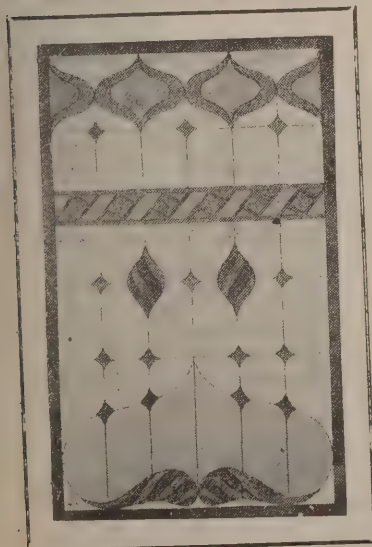


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FULL LIST, and dates when they appeared,
of THE CATHEDRALS which have been
published on Application to The Publisher.

requirements of the present-day mode of lighting of electricity. As instance of this, the fittings in the ball-room and restaurant are worthy of especial mention, beauty of design combined with high-class workmanship, and finished in a rich gold, producing a very beautiful effect. The fittings in the supper-room attached to the ball-room are also eminently adapted to their purpose, silk of a delicate shade being made use of and gracefully decorated in festoons and tassels, the whole giving a very pleasing effect, the softened and subdued light being a welcome change from the brilliance of the ball-room.

Another series of very good designs are the fittings in the rooms allotted to the Masonic fraternity. Here the designer has gone to Roman and Grecian models for his inspiration, and has faithfully preserved the dignity and grace characteristic of those periods without in any way slavishly following the originals; these are finished in very dark bronze, slightly relieved with a suggestion of verdigris, giving a very suitable and effective result. In the Masonic Temple three-light fittings drop gracefully in front of the columns, which are in pairs, a suitable support bracket being fixed between them. In the Masonic Banqueting Hall, in addition to four six-light hanging fittings of Grecian design, there are several wall-lights which take the form of torches, the effect being completed by the addition of flambeaux shades.

In the Strand buffet and in the joint-room we have some fine examples of Flemish designs, the buffet fittings being a particularly smart development of this style. This class of fitting is also utilised for the lighting of the staircases and landings in the form of sconces and chandeliers, these being fitted with patent imitation candles; original models have been followed, and the feeling maintained. Two of these sconce brackets at the entrance to the ball-room, being unique in their massive proportions, are especially worthy of notice.

In the entrance hall we are attracted by the brilliance of the cut glass which has been successfully introduced in the design of these fittings, which admirably suit the existing decorations in the style of François I., their brightness creating a lively impression on entering, and being prophetic of the beauties to be encountered on a closer acquaintance with the interior of this beautiful building.

En passant, mention must be made of the quaint buffet which fronts on Aldwych, which has been treated in a delightfully simple fashion, and is decidedly reminiscent of an old Dutch kitchen. Here again the designer has exercised his ingenuity by producing electric-light fittings in perfect harmony with the rigid simplicity of the decorations, various developments of the old Dutch lantern producing the desired effect.

The remaining positions to be noted are naturally of minor importance, yet the same thoroughness, so noticeable in the principal halls, is maintained throughout. In the various private dining-rooms which are decorated in Louis XV., Louis XVI. and Adam styles, we again have good examples of suitable electric-light fittings.

Turning from the public portion of the building, we notice that in the suites of rooms comprising the hotel special attention has been paid to the decoration thereof; comfort and convenience has been studied and exquisite taste exercised throughout; each suite of rooms has a style of its own, and the electric-light fittings have been designed to suit them, as in the case of the more important part of this building. Even in the passages, corridors, cloak-rooms, &c., we see the same care taken that nothing incongruous shall offend the eye.

On the whole, a more gratifying set of fittings could not be wished, and they reflect the greatest credit on the designers and manufacturers of them—Messrs. William Soutter & Sons, Limited, Birmingham—whose careful attention to detail and sound workmanship has attained this very satisfactory result. It is refreshing to note that we still have craftsmen with us capable of producing high-class work.

One reason for this successful issue may no doubt be attributed to the influence of the architects, whose guiding hands can be traced throughout.

VALUATION OF LICENSED PREMISES.

A PAPER was read by Mr. J. D. Wallis at the Surveyors' Institution on Monday upon the Licensing Act of 1904 as it affects the business of the surveyor. It had been estimated, he said, that 1,200,000l. a year would be leviable

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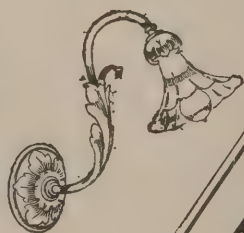
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for the compensation fund under the Act, and this sum ought in time to effect a considerable reduction in the number of licenses, but seeing that the amounts to be paid in compensation must be heavy, the change to be wrought was not likely to be a rapid one. The persons claiming compensation would include the freeholder, mortgagee, lessee, sub-lessee and licensee. There was no obligation on them to agree among themselves, yet it seemed that they would have to submit to the compensation authority a sum in writing for approval. The sum was referred to in the Act as an amount agreed on by the persons interested, but the procedure was a novel method of putting forward claims for compensation. The cost of buying out a number of interests in respect of one property was generally in excess of what would be paid to a single claimant. It would not be an easy matter for the compensation authority to decide whether the sum submitted was a reasonable one or not; it was only open to it to accept the amount submitted or to refer the matter to the Commissioners of Inland Revenue, and in the majority of cases the matter would probably be so referred. Any costs incurred by the Commissioners on appeal would be paid out of the amount of the compensation, and this should deter appeals to a considerable extent. The costs of appeal to the High Court would be a serious matter in small cases, and it was the small houses in congested areas which were first being referred for compensation. The question of arriving at the value of licensed premises would be full of difficulty, and unless one assumed that all licenses were precarious the allowance to be made for risk of loss could not be large nor could it be estimated with accuracy. The correct ascertainment of monopoly value would also be difficult, and in many cases a knowledge of the site, with an inspection of the plans of the proposed building, would be the only guide on which to base an estimate of the probable trade. It was not clear whether the surrender of old licenses could be accepted by the justices in satisfaction, in whole or part, of the monopoly value. They had to attach such conditions as they thought best adapted for securing to the public any monopoly value. The monopoly value would be the difference between the value which the premises would bear when licensed and the value when not licensed. His definition of the comparison between com-

pensation value and monopoly value would be that the monopoly value was the value of the license only, whilst the value for compensation was to be the value of the license added to the depreciation in the value of the premises due to the extinction of the license. The general effect of the Act would be that existing on-licenses would be more valuable on account of greater security. They would benefit by reduced competition, following the suppression of rival houses, and by the difficulty of obtaining new licenses. On the other hand the imposition of the annual charge would be a deduction from value. The Act presented many practical difficulties, but he hoped that it would effect some progress towards the solution of a great national question.

IMPROVEMENTS IN THE THEODOLITE.

THE earliest attempt to make a large survey with the aid of an instrument resembling a theodolite was, we believe, in a flat country—Holland or Denmark. At the time the instrument was more allied to the plane table than to the modern theodolite, and, indeed, for a long period the telescope was allowed to have only a comparatively slight elevation above or below the horizontal axis. Such a feat as turning it round in a vertical plane was considered an impossibility. Like most other things, the instrument has gone through a course of development, and if Ramsden were to appear again he would not realise the modern theodolite. It is not only costly, but the use of it requires care, which means time expended in adjustments and calculations, and also in observations. It is only necessary to look at the number of verniers, spirit-levels and screws for a stranger to the use of the instrument to realise how much has to be done and the possibilities of error amidst so many complications. Any improvement or device to save time and insure accuracy is therefore certain to be received with gratitude throughout the world.

A comparison of the woodcuts of the new Dunbar-Scott auxiliary introduced by Messrs. W. F. Stanley & Co., Ltd., with a representation of an ordinary instrument, will at once show there is an addition in the form of a second telescope. It will be observed in both that the addition is parallel to the main telescope, whether it is placed at top or

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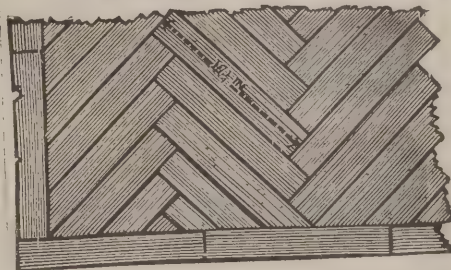
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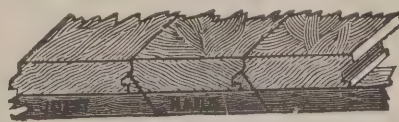
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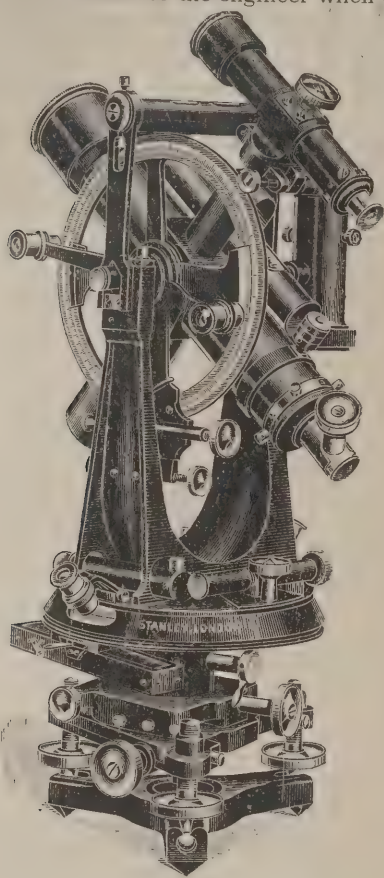
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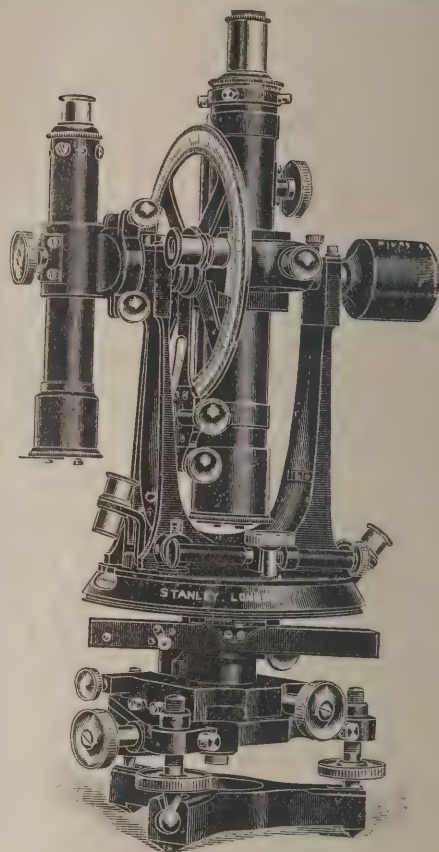
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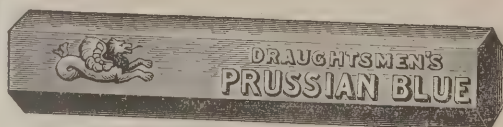
AUXILIARY ON TOP.

steeps, whether above or below the surface, to check the observation of the main telescope, for the diaphragm of the



AUXILIARY AT SIDE.

little account compared with the boon it gives. In mine surveying the auxiliary must be invaluable.

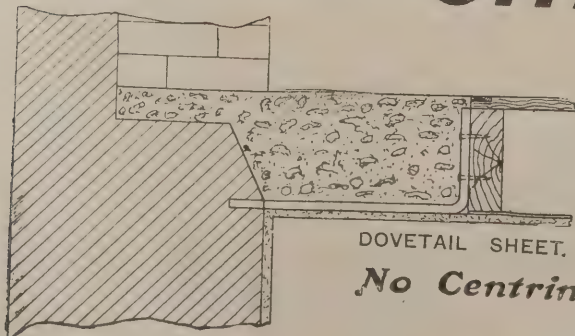


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WORKMEN'S COMPENSATION BILL.

Midland Employers' Mutual Association have a pamphlet on Lord Belper's Bill now before them. The Mutual Association of Employers was formed in Birmingham on the passing of the Act of 1897 for the purposes of indemnifying its members and of dealing with claims from the position of an intermediary. The Association had been eminently successful, it is said, in dealing with the diversified trades of the Midlands and in holding the balance even between a large number of employers and approximately 100,000 workpeople. The basis of the Bill is therefore based on varied and extensive experience.

Concerning the amount of litigation, it has been rightly pointed out (says the Association) that no Act of Parliament can be framed which would furnish definitions sufficiently clear for tests for deciding disputes on question of fact so as to be capable of universal application. It is pointed out, however, that the present provisions have been unsatisfactorily, and have been found to offer a strong temptation to the less scrupulous class of solicitors to bring in vexatious actions under the Employers' Liability Act, or in cases at common law, with the view of driving the employers to settle on advantageous terms. To meet this is an amending section in Lord Belper's Bill, but it is considered "absolutely intelligible." It made clear one point, however—"That a workman who has entered into an agreement as to the amount of compensation, which agreement has been duly registered, in accordance with the Bill, shall be deemed to have taken proceedings under the Bill."

As in the past there has been so much dispute as to what constituted exercise of option, and what facts, such as the receipt of weekly compensation, constitute an agreement, expressed or implied, this amendment of the Bill considers very desirable, adding, "A provision shall be inserted that in case a workman's incapacity is, wholly or in part, any subsequent variation of the weekly payment should be retrospective to the date of such agreement of condition."

The question of the desirability of amendment in relation to the costs of litigation is, says the Association, not yet disposed of under the Bill. It was shown to the Committee that not infrequently some trivial dispute, involv-

ing an issue of only a few pounds, had, by the power now vested in arbitrators under the Act, been permitted to carry costs amounting to four or five times the total compensation secured. "Many such cases," says the Association, "have arisen in our experience, and as an illustration we quote one where the only question was as to the time at which the incapacity of the injured workman had ceased. He admitted that he could have returned to work at the time stated by his employers, up to which date they had paid compensation, but that he refrained from doing so at the instance of his solicitor. He subsequently recovered compensation to the extent of only 32s. more than he had already been paid, viz. up to the date of hearing, and this award carried costs which were ultimately taxed at 14l." There should be introduced, adds the Association, a limitation of costs, following more closely upon the lines of the County Court Acts, and unless in exceptional cases it should be a rule that the maximum costs recoverable should in no case exceed the total of the compensation awarded.

Among other points discussed in the pamphlet are the new proposals concerning the notices of accident and claim for the recovery of damages, the extension of the Act to other industries—one of the most important features of the amending Bill and one generally approved of by the Association—the attempt made under the Bill to mitigate the position of aged and infirm workmen, upon whom the Act of 1897 was undoubtedly prejudicial, the question of the amount payable to minors—a very difficult question—the computation of average weekly earnings, compensation payable in cases of partial incapacity, medical examinations and the duties of medical referees, the paragraph dealing with the cesser of weekly payments where an injured workman ceases to reside in the United Kingdom, and the commutation of weekly payment. In directions other than those touched upon the Bill has several good features. The proposal to sweep away the distinctions as to the height of buildings or depth of quarries which were made by the 1897 Act is an unmixed blessing, doing away, as it will, with what was always felt to be an invidious distinction and fertile source of dispute and litigation. In conclusion, it is said, let it be emphatically pointed out that the one great need in amending the Acts is to provide as far as may be possible an arrangement which will work automatically.

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Litigation should be regarded as absolutely the last resource, and not the first, or anywhere near the first, means of settling of claim. For workman and employer to be constantly calling in the aid of the law cannot fail to have a bad effect upon both, and a bad effect, moreover, upon the trade of the country. The main point is for the injured person to receive all the compensation the employer is called upon to pay, without throwing away time in unnecessary delay or money in unnecessary costs.

REBUILDING BALTIMORE.

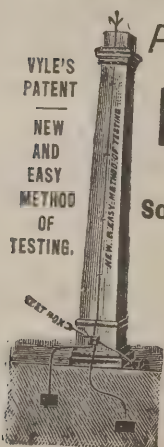
A RETROSPECT of what Baltimore was a year ago and what it is to-day reveals, says the local *Architects and Builders' Journal*, what may be regarded as a remarkable, if not a wonderful, achievement. On May 1, 1904, the large area of the city's business section lay in ruins, practically untouched since the great conflagration of February 7 and 8. The delay caused by the adjustment of insurance losses, the agitation over the widening of streets and the changing of grades, together with other circumstances, prevented anything like general operations until the beginning of May. During the ensuing twelve months a veritable transformation has taken place. Entire blocks of substantial stores and warehouses have taken the place of the piles of debris, and many of them are occupied by business firms, and trade is going on as it was before the disaster. There are many vacant lots yet to be rebuilt, but gradually these are being cleared to give place to modern structures. In the face of a calamity overwhelming in magnitude, Baltimore merchants, capitalists and business men went pluckily to work to rehabilitate the destroyed section, and what has been already accomplished has evoked praise and admiration from all parts of the country. Trade, which had been temporarily diverted, has been recovered, and the volume of business has more than equalled that of any year in the history of the city. Disastrous as the fire was, it was indirectly a benefit, as it has had the effect of broadening the ideas of our people, and suggested the possibilities for improvements. Not only are the buildings which have been erected more substantial and in many respects more ornate than their predecessors, but as one want creates another, so it has become apparent that other

municipal improvements were required. The consequence of a general sewerage system, the enlargement of public parks, the improvement of the annexe in the western section of the city, are among the projects of the city the Greater Baltimore. For the accomplishment of these works loans aggregating 13,000,000 dols. have been authorised, and these are to be submitted to the vote Tuesday, May 2, for ratification. That they are endorsed is evident from the expression of sentiment on the general desire to see the city develop and attain unprecedented eminence. All this means expansion, expenditure of capital and a steady forward movement to become better, more beautiful and more enterprising and has shown a self-reliance and municipal pride in the face of obstacles which have justly challenged the attention of the world.

FIREPLACES AND SMOKY CHIMNEYS.

At a recent meeting of the Devon and Exeter Architectural Society Mr. E. F. Hooper opened a discussion on "Fireplaces and Smoky Chimneys." He said:—I have prepared a few simple notes to lay before you. We may divide them under many heads, but the most important are:—(1) Badly constructed chimneys in favourable positions, (2) badly constructed chimneys in unfavourable positions, (3) badly constructed fireplaces, well-fires and otherwise, (4) open fireplaces, well-fires and otherwise, (5) bad plans as to windows, doors, &c., (6) stoves, grates, &c., which do not readily draw. To make a badly constructed chimney draw is very troublesome. The owner of a house some while ago spent just 30s. in trying to improve a defective chimney. It was at last set right by a smith, who suggested a plain galvanised sheet-iron pot resembling in shape a letter T, with two pipes at the end, stuck in the ordinary earthenware chimney-pot. A good-built chimney and flue in an unfavourable position—under a hill or high building or near trees—is often a great nuisance. Open fireplaces which include a plain brick or stone opening, with any dog or other grate, seem to be much in request both in town and country. A plain, perforated iron grating is in the bottom, slightly elevated above the surrounding hearth. If these go all right they are

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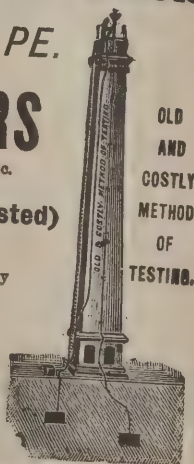
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high success, but if not they may well be christened a "smoky evil," for who can remain in a smoky room where the air is being consumed, without having a few tears in his eyes? Well-fires appear to be a matter of opinion. In adapting them to old buildings it is absolutely necessary to carefully examine the surroundings, as frequently the removal of old grates, &c., mouse, rat and other vermin take upon themselves the action of flues, which lead to disastrous results. The matter of planning is sometimes a very difficult one; at others it is very easy. Every site has its good and its bad sides, as also has the client, whose wishes often have to prevail, in spite of the professional knowledge brought to bear against the amateur suggestions. There will have none but large airy flues, while others prefer them as small as possible. I am in favour of the latter, but consider the forming of the "going" above the archway an important one, the size and shape of which must not be lost sight of, especially in ranges and other fires. As regards stoves and grates which do not draw well, perhaps they may be prejudice on our part or owing to bad setting. We are generally convinced that our work is all right, as is the builder also regarding his work.

ELECTRICITY AND STEEL MAKING.

LECTURE was given on Friday before the Manchester Institution of the Society of Chemical Industry by Mr. R. S. Eaton, of the Manchester University, in which he outlined progress which has been made on the Continent during the last two or three years in the application of the electric furnace to the manufacture of steel. At least one important revolution in the steel industry, he said, is likely to undergo a complete revolution. As the new methods aim chiefly at the production of high quality crucible tool steels, in which our own country has always excelled, it is reassuring to find that the revolutionary processes are not of such a nature as to be unsuited for application over here. Owing to the enterprise of the Canadian Government valuable reports have been published of an independent commission set out specially to investigate and criticise the electrical processes of manufacturing steel. The essential novelty of these new methods of manu-

facture lies in the substitution of electric heating for the gas or coke firing which has up to the present been employed in the various stages of treatment which iron has to pass through in the course of its transformation into steel. As a direct result of the application of the electric furnace it has been found possible to turn out steel of a quality at least equal to that of the best Sheffield crucible steels, starting with far less costly materials than those at present utilised. The cause of this possibility lies in the fact that the electric furnace enables the refining of a poor grade steel to be carried to such a high point as to produce a metal of crucible steel grade. This is particularly noticeable in the ease with which phosphorus and sulphur, which are so injurious to the quality of steel, can be eliminated. In present-day practice the crucible steel manufacturer has to select his raw materials most carefully and so mix them that, after fusion in the crucible, they shall have the desired chemical composition and accompanying mechanical properties. On the other hand the Bessemer and open-hearth processes, which are so widely employed for steels of lower grades, do not admit of the refining of the metal up to the quality of a crucible steel. In the electrical processes it is already possible to heat some four tons of metal at a time, and there is no reason why very much larger furnaces should not be constructed so soon as the development shows sufficient promise.

The cost of production in this country, so far as the higher-grade steels are concerned, will certainly be in favour of the new methods. The consumption of electric energy ranges from 718 to 1,100 Board of Trade units per ton, according to the kind of steel manufactured. The relative cost of this energy will be only a small fraction of that which is paid for electric current for lighting or power purposes. In such manufactures as this it is possible to work continuously night and day throughout the year, and under these circumstances electric energy can be generated and sold at prices which are far below what is possible with the very intermittent load of motors or electric lighting. It seems quite probable that in the near future the electric furnace will be considered a necessary adjunct to many of our ordinary steel processes. In this connection it is likely at first to be used chiefly for finishing off the refining of an ordinary steel. It has been shown that even in the

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present small plant an ordinary Bessemer steel if transferred in the molten condition to the electric furnace can be brought up to the quality of a crucible steel for the expenditure of only 120 Board of Trade units per ton. The extra cost of this treatment will in any case be only a mere fraction of the enhanced value of the product.

THE WIDNES AND RUNCORN BRIDGE.

The first transporter bridge in this country has been constructed across the Mersey to connect Widnes with Runcorn. There is already a high-level bridge over the river belonging to the London and North-Western Railway Company, but it could only be partially useful. An Act was therefore obtained to construct the new bridge, and the works were commenced about three years ago. According to the *Liverpool Courier* the bridge is precisely similar in design to the ordinary stiffened suspension pattern, with the exception that the approaches are at a low level, thus dispensing with the very costly high-level approaches, and the traffic, both foot and wheel, is carried over in a car suspended to the underside of the bridge. There are only three others in existence, viz. one over the Seine at Rouen, another which crosses the river Nervion, between Portugalete and Las Avenias in Spain, and a third at Bizerta in Tunis. The general construction of these bridges is entirely different from the Widnes and Runcorn bridge, the principle only being the same. It is on the same site as one proposed by Telford, and is of exactly the same span (viz. 1,000 feet between the centres of the towers). This is the longest span of any bridge designed for road traffic in the United Kingdom, exceeding the Clifton Suspension Bridge by nearly 300 feet and the Menai Bridge by 430 feet, while the Conway Suspension Bridge is less than one-third of the length. The bridge is approached on the Runcorn side from Waterloo Road, and on the Widnes side from Mersey Road, the approaches consisting of new roadways at an improved level, nearly flat, built between stone and concrete retaining walls as far as the water's edge. The main towers carrying the cables and the stiffening girder are built, two on the south side of the Manchester Ship Canal and two on the foreshore of the north bank of the

river, and are approached from the above earth approaches by steel elliptical girders resting on cast-iron columns, carrying a corrugated steel flooring, upon which are laid timber blocks on concrete, forming a roadway 35 feet wide between the parapets, the footpaths being 6 feet wide. The roadway in front of the towers is widened out to 70 feet for marshalling the traffic and providing space for waiting-rooms, &c.

The towers are constructed wholly of steel, and stand 190 feet above high-water level, and are bolted firmly to the cast-iron cylinders below. There are four cylinders, 9 feet diameter, under each of the towers. These cylinders are bolted firmly to the solid rock, which is near the surface on the Widnes side, but is about 35 feet below the surface on the Runcorn side. The latter cylinders were sunk by means of compressed air and are filled with strong cement concrete. Each tower consists of four legs, 4 feet 10 inches wide at the base, tapering to 2 feet 3 inches wide at the top, all well braced together with strong horizontal and diagonal bracing. The legs of each tower are spaced 30 feet apart at the base and 6 feet 9 inches apart at the top landing, which is 10 feet 6 inches wide. Each pair of towers are 70 feet apart, and are braced together with strong horizontal and diagonal frames. Upon the top of the towers are fixed the saddles, on steel cables, the rollers being adapted for taking up the variations in the length of the cable due to the loads and the temperature.

Each of the two main cables consists of nineteen steel ropes bound together, each rope being built up of 127 wires, 0.16 inch in diameter, the whole cable thus consisting of 2,413 wires. The diameter of the cable is about one foot. The ends of the cable backstays are anchored into the solid rock about 30 feet from the rock surface, screw adjustment being fixed between the anchorages and the backstays. The weight of the steel cables is about 248 tons, and the wire is capable of withstanding a tensile stress of 95 tons per square inch. The interstices between the wires of the ropes were filled during manufacture with a bituminous compound, and when built up into the cables—the ropes being laid parallel—the whole was covered with the same compound and wrapped with two layers of strong sail cloth saturated with bitumen.

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ing girders 18 feet deep, and placed 35 feet apart ontally, the under side of the girders being 82 feet the level of high water. The two girders are firmly d together horizontally to withstand the wind pressure, is the heaviest stress to which the bridge will be itted. The pressure allowed for in the calculations is board of Trade requirement of 56 lbs. per square foot. e transporter car consists of a platform 55 feet long feet wide, and is suspended from the trolley by steel-ropes, so hung that they prevent at either side or end ation of the car. It is capable of holding at one time two-horse farmers' waggons loaded and 300 passengers, latter being protected from the weather by a glazed er, with folding doors at the ends and sides. On the f the car is fixed the operator's cabin, in which is placed witchboard, so that the operator has a full view of the se and has the car quite at his command. He can se, go ahead, or put on the brakes at a moment's e. The time occupied by the car in crossing will be t two and a quarter minutes, so, allowing the time for ing and unloading, it will be capable of making about or ten trips per hour. The car will be about 12 feet e high-water level, and will clear the Ship Canal wall bout 4 feet 6 inches.

The engineers for the work were Mr. John J. Webster, st.C.E., of Westminster, and Mr. John T. Wood, st.C.E., of Liverpool, the resident engineer being Mr. l. Chase, M.Inst.C.E. The contract for the masonry was o Messrs. W. Thornton & Sons, Liverpool, the contract he steel superstructure being let to Arrol's Bridge and f Company, Glasgow. The whole of the electric instal- and equipment, including the lighting of the structure, een carried out by Messrs. Mather & Platt, of Salford works, Manchester, and the woodwork by Mr. Joseph vlinson, Garston.

TUNNELLING THE DEE.

important piece of engineering work is at present in gress at Aberdeen, where a tunnel is being carried er the river Dee in connection with a new outfall sewer ich is in course of construction. Recently an inspec-

tion of the tunnel, so far as it has been pierced, was made by the members of the Aberdeen Civil Engineers' Associa- tion.

The outfall sewer, which is $3\frac{1}{2}$ miles in length, says the *Glasgow Herald*, intercepts the whole of the drainage of the western part of the city, and at Point Law the sewage is carried under the river Dee in a cast-iron tunnel to Old Torry, and then under Greyhope Road, St. Fittick's Road, and the north foreshore of Nigg Bay to Girdleness Point, where it will be discharged into the sea below low-water mark.

This tunnel will be 114 lineal yards in length, and has been designed to form duplicate inverted syphons, so as to carry the sewage from the outfall sewer on the north to that on the south side of the river by gravitation. The tunnel, which is $8\frac{1}{2}$ feet external diameter and 7 feet 8 inches internal diameter, is formed of rings of cast-iron segments (made by the British Hydraulic Foundry Company, Whiteinch, Glasgow), 18 inches in length, each ring being made up of five segments and a special key piece. The total weight of each ring is $26\frac{1}{2}$ cwt. Each circumferential joint has forty-two 1-inch steel bolts and each longitudinal joint three 1-inch bolts, making a total of sixty for each complete ring. The flanges are machined through-out and are provided with a 1-inch caulking space. Each segment is also tapped for $1\frac{1}{4}$ -inch screw plugs for grouting purposes. The bottom segments and the key piece have cast upon them special machined flanges, 10 inches wide, for the purpose of bolting to them an upright steel diaphragm after the tunnel has been driven. This diaphragm is arranged so as to divide the tunnel into two parts, and thus form the duplicate syphons. It will be built up with $\frac{5}{8}$ -inch steel plate, stiffened every 18 inches by means of rivetted steel angles. The whole diaphragm and the segments will afterwards be lined with concrete, so as to present a smooth surface to the sewage flow. The top of the tunnel is about 20 feet below the bed of the river, or about 41 feet below high-water mark O.S.T. In connection with the dockisation of the river Dee, now being carried out by the Harbour Commissioners, a joint arrangement between them and the Town Council was arrived at for the purpose of constructing permanent quay wall cylinders on both sides of the river, so as to avoid any interference with the tunnel in the future.

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These cylinders, which are of concrete faced with granite, form permanent abutments for the tunnel, and were sunk to about the same level and simultaneously with the tunnel shafts. A circular opening, $9\frac{1}{2}$ feet diameter, has been left on each side for the tunnel to pass through, and the space in the Torry cylinder has been filled up solid with concrete at the back of the rings as it was pierced by the tunnel.

At the Point Law and Torry sides of the river 13 feet diameter cast-iron shafts have been sunk. The Point Law shaft has been sunk to a depth of 53 feet, and that at Torry to a depth of $62\frac{1}{2}$ feet below high-water mark O.S.T. These shafts are formed of rings of segments, each ring breaking joint with that below it, seven segments forming a complete ring. After the tunnel has been driven these shafts will receive two $4\frac{1}{2}$ -feet diameter cylinders to connect each half of the tunnel with the syphon inlet and outlet. Over both shafts, above the surface of the ground, valve-houses will be erected, containing the hydraulic cylinders, &c., for controlling the penstocks on the syphon inlets and outlets. At the Torry shaft provision is made for a "sludge" pit and pumping plant and other apparatus will be laid down, worked by electric power, for the purpose of emptying either syphon during cleaning operations. The available fall between the inlets and outlets of the syphons is 16 inches. Considerable difficulty was experienced in sinking both shafts, owing to large inrushes of water, the final operation of plugging the shafts being accomplished by allowing them to fill with water and sending down divers, who deposited 3 to 1 concrete to a depth of 6 feet over the bottom. By adopting this method a thoroughly water-tight plug was obtained.

Owing to the special difficulties that arose in sinking the shafts it was found absolutely necessary, before removing the tunnel junction plates, to make preparations for carrying on the work of tunnelling under air pressure. The strata the tunnel passes through is a very loamy alluvial clay, with thin beds of fine stratified sand, and when exposed to ordinary atmospheric conditions and water often changes into silty mud. The air-compressing plant has been laid down on the Torry side, about 200 yards west of the shaft adjoining the engine and boiler-house of the old Torry Brickworks. There are two Ingersoll-Sergeant horizontal

"straight-line" piston inlet air compressors, with water-jacketed air cylinders and heads, having 16 inches diameter steam and $18\frac{1}{4}$ inches diameter air cylinders, and the machine is capable of supplying 37,800 cubic feet of air per hour to the tunnel.

The hydraulic tunnelling shield (built by Markham & Co., of Chesterfield), is 6 feet $9\frac{1}{4}$ inches long and $8\frac{1}{2}$ inches outside diameter. The shell is composed of $\frac{1}{4}$ -inch steel plates rivetted together. The cutting edge is formed of eighteen steel knives; the diaphragm is double and composed of two $\frac{1}{4}$ -inch steel plates, and has an opening 4 feet 9 inches by 4 feet 2 inches, with a steel chain rivetted on to permit of 4-inch planking being placed across to close up the face. The shield is fitted with six hydraulic rams $6\frac{1}{2}$ inches in diameter, having 22-inch stroke; working pressure is 1 ton per square inch. The rams have forged steel cross-heads.

The backs of all tunnel plates are grouted with Portland cement grout (1 of sand to 1 of cement) by means of a Greathead grouting pan; a small independent air compressor, fixed in the engine-house at the top of the shaft, utilised for this purpose, supplying air under a pressure from 60 to 70 lbs. a square inch for the purpose.

The usual rate of progress made is two rings, or 3 feet a day. The work is carried on by the men working the eight-hour shifts with a break of half an hour in the middle. The air pressure in the tunnel is about 14 lbs. above atmospheric pressure. Electric light is used throughout the tunnel; this assists largely in rendering the air comparatively pure, the average amount of carbon dioxide in the air being from 12 to 14 parts per 10,000 volumes. As far as possible a supply of free air equal to 5,000 cubic feet per hour for each man working in the tunnel is allowed. A medical air lock has been fitted up at the top of the Torry shaft for use in the event of any of the workmen suffering from "bends," i.e. compressed air illness. The first treatment consists of recompression to the tunnel pressure, and then slow decompression over a period extending from half an hour to an hour. Fortunately, owing to the favourable conditions under which the work is carried on, it has not been necessary to use this lock.

The scheme is being carried out under the supervision of Mr G. R. G. Conway.

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NEW CATALOGUE.

is often offered as a recommendation of things, that the cost will be saved in a short time. That argument might be brought forward in favour of the wrought-iron bins which are the specialties of Messrs. Farrow & Jackson, Ltd. But everyone who is proud of his wine, as every gentleman ought to be, would say that economy was only one of the least advantages of their system. They have caused a revolution in the wine cellar, for with such fittings it became possible to have dry and clean cellars, and in many cases they will bear comparison with the strong iron bins of banks. Each bottle being kept in position, rolling is impossible, and, we might add, theft is at once detected. Then we find that wine merchants and hotel-keepers make use of Messrs. Farrow & Jackson's bins there can be no doubt about their advantage in private cellars. In every gentleman's house arrangements should be made for the use of those requisites. The firm have also gone a step further, for they now produce refrigerating chambers. Designers of hotels and taverns will find the assistance of Messrs. Farrow & Jackson facilitate the working of those establishments.

TRADE NOTES.

The new union workhouse hospitals, Bury, are being warmed and ventilated by means of Shorland's double-fronted patent Manchester stoves, with descending smoke tubes, Manchester grates and special ventilators.

We have been requested to announce that the Delta Metal Company, Ltd., of London and Birmingham, have removed their registered offices from 110 Cannon Street, London, E.C., to meet the constantly growing demands for their goods, to their new works and offices which they have erected on the riverside at East Greenwich; all communications for the Delta Metal Company, Ltd., should therefore be addressed in future, East Greenwich, London, S.E.

At the Hollymoor asylum, Rubery, Worcestershire—Messrs. Henman & Cooper, of Birmingham, architects—over 6,000 yards of marble mosaic floors have been laid by

Diespeker, Limited. In addition to the flooring they have fixed their curved skirting at the junction of the floor and walls, which does not admit of the collection of any dust, dirt or germs, and makes the floor much easier to cleanse. A twenty years' guarantee was given with this work.

The Fireproof Partition and Spandrel Wall Company of Bank Chambers, Tooley Street, London, write us pointing out that in our notice of their exhibit at the Building Exhibition we stated that in the length of walling exhibited it was supported at each end. This was quite correct, but an error was made in the note by stating that it was also supported in the centre. This latter was a mistake, as in their system there is no necessity for such support, as a perfect rigid spandrel wall was at the Agricultural Hall erected without any intermediate support.

Among the photo-engravers and producers of blocks for business purposes, Messrs. E. Hamel & Co., of Nottingham, are likely to secure a prominent place. They make a specialty of architectural requirements for illustrating, and keep special artists employed retouching and working up photographs and drawings so to reproduce facsimile on copper or zinc the articles or goods, &c. Most of their plant is duplicated in order that work can be turned out quickly. They have spacious daylight studios, and the work being under the direct supervision of Mr. Hamel, who has had years of practical experience both in London and America, they are in a position to cope with any amount of high-class work speedily and at moderate rates.

The Yokohama Specie Bank, Yokohama, Japan, was commenced in 1899 and completed last year. Dr. Yorinaka Tsumaki, the architect, chose the Renaissance style for his design. The area covered is 23,217 square feet, and the height of the main portion is 55 feet. A considerable portion of the imported accessories came from the United States. An Otis hydraulic coin elevator connects the cash department with the basement vaults. Messrs. Clark, Bunnett & Co., New Cross Road, S.E., supplied their revolving shutters. The rolled glass was manufactured by Messrs. Pilkington Bros., Ltd., St. Helens, Lancashire.

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ELECTRIC NOTES.

ON Tuesday last the borough of Southend, Essex, appointed Mr. Robert Birkett, late borough electrical engineer of Burnley, as the borough electrical engineer and general manager of the electric tramways.

SIR G. ARMYTAGE, chairman of the Lancashire and Yorkshire Railway Company, in speaking at a dinner given in Washington by the American Railway Association to 300 members of the International Railway Congress, predicted great development in electric traction.

THE Third International Electric Tramway and Railway Exhibition will be held at the Agricultural Hall, Islington, from July 3 to July 14. The purpose of the exhibition is to show the latest apparatus designed for the equipment of tramways of all systems. Over eighty town councils will appoint official deputations to visit the exhibition.

THE Carlisle Town Council have adopted the following resolution:—"That in future the price to be paid for the lighting by electricity of the Corporation offices and buildings other than Tullie House be fixed at the same rate as private consumers, viz. 5d. per Board of Trade unit, and that the resolution of the electric-lighting committee of December 29, 1899, fixing the charge at 2d. per unit, approved by the Council on January 9, 1900, be varied accordingly."

MR. J. A. JEKELL, the Coventry city electrical engineer, lectured on Saturday before the Birmingham and District Electric Club on "Cheap Electrical Energy for Power Purposes." The lecturer said there were a great number of stations throughout the kingdom where the plant was not as economical as should be, and it was these stations which hesitated to go in for a cheap supply of electricity. Many industries were dying out in the smaller towns which might be kept going if power could be obtained cheaply, without the necessity of using boilers, steam-engines and chimneys.

THE Lord Provost's committee of Edinburgh Town Council had a meeting on the 11th inst. with managers of three systems of electric tramway traction other than the overhead trolley. These systems, the "Dolter," the "Kingsland" and the "G.B.," were explained. It is understood that a complete working section of the "Kingsland"

system is to be set up. The "Dolter" and the "G.B." are what is known as electro-magnetic, while in the "Kingsland" the electric current is switched on or off automatically by the car itself by means of a simple mechanical switch. During the meeting Professor Kennedy, the electrical adviser of the Corporation, was present, and he will shortly present a report.

GOODWOOD HOUSE, Goodwood, the seat of the Duke of Richmond and Gordon, has just been fitted with electric lighting. The number of lights amounts to between 800 and 900. The wires have been introduced with no damage to existing decorations, yet there are no casings or tubes visible on the surface. In most of the rooms the existing fittings have been adapted for the electric light. The power is obtained from two 30 horse-power gas-engines, supplied by producer gas on the suction principle. With the special system adopted a unit of electricity can be produced for 2d., including fuel, labour, lubricating oil, repairs and loss in accumulator. A large storage accumulator has been provided capable of supplying 1,120 8 c.-p. lamps for five hours, and as the engines and dynamos are in duplicate a breakdown is practically impossible. The work has been carried out by Messrs. Drake & Gorham, Ltd., 66 Queen Victoria Street, S.W. The Duke of Richmond has also placed the lighting of Gordon Castle in the hands of the same firm. Here the motive-power will be water obtained from the river Spey, and the scheme also includes the lighting of the town of Fochabers with about 1,300 lights.

BUILDING AND BUILDERS.

IN our last number we referred to the works at Bloomsbury Chapel, which included new seating in circular form of pitch pine on the ground floor, and new seating in the galleries. It should have been mentioned that the whole of the reseating was carried out by the North of England School Furnishing Company, Ltd., under the instructions and in accordance with the drawings of Messrs. Barnes & Son.

THE plans and buildings committee of the Handsworth District Council have approved of the plans for a theatre in Soho Road. The project for the erection of this theatre

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SOUTHWARK POLICE COURT.—EXTERIOR.

STAIRCASE, COUNTY SESSIONS HOUSE, PRESTON.

created violent opposition some months ago. The promoters, however, have now complied with the by-laws, and it is stated that the Council has no power to refuse to pass the plans.

THE Master Masons' Association of Glasgow and neighbourhood have issued a circular stating that it has come to the knowledge of the Association that the reconstruction of the Royal Infirmary is to be carried out in terra-cotta so far as the outer walls are concerned, and calling a special meeting of the Association to protest against this method of reconstruction being adopted for so important a building.

THE Grimsby Corporation building plans committee have passed plans for two new theatres. The first, the Tivoli Theatre of Varieties, is to be erected in Duncombe Street. The second comprises a large theatre, an hotel and an arcade of twenty shops, to be built fronting Hamilton and Park Streets, New Cleethorpes. The scheme will cost about 70,000*l*.

THE Sunderland Town Council rejected by thirty-two votes to fifteen a motion that as an experiment a works department be established for two years. It was contended that money could be saved by the Corporation carrying out its own work, and the work would be done more satisfactorily. The opponents of the scheme stated that out of sixty-four boroughs which had been approached only four had works departments.

A CONTRACTOR carrying out the erection of a new post office in Berwick-on-Tweed recently made application for a place to tip rubbish. It was suggested that part of the fosse connected with the old Edwardian wall be thus filled up. Several members objected to any interference with

the outworks of the ancient fortifications, one describing it as a piece of pure vandalism. It was agreed, on a vote, not to allow the fosse to be filled up.

AN inquiry has been held in Birmingham by Major Stewart, the Local Government Board inspector, into an application for sanction to borrow 41,000*l*. for works of paving, 1,550*l*. for the purchase of property in Park Street for the extension of the public lighting depôt, and 920*l*. for works of sewerage in Wellington Street. The paving works are in connection with the proposed construction of thirty-two miles of additional tramway lines.

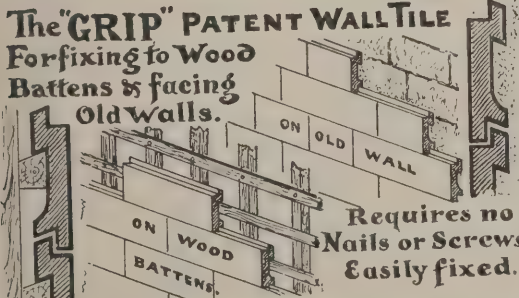
MR. J. WILLIAMS BENN, M.P., has given notice to ask the President of the Local Government Board whether he is aware that if the basis of the present assessment of the Houses of Parliament, namely, 40,000*l*., were amended to accord with the basis of the Carlton Club it would be 105,000*l*., and of the National Liberal Club, 122,000*l*.; and whether, in view of the rising rates of London, he will take steps to insure Government property bearing its proper share of rating.

THE Building Trades Federation of Birmingham some months ago proposed by 95 votes to 5 to take the necessary steps to dissolve it. A poll has resulted in votes being cast as follows:—For dissolution 2,582, against 311, spoiled papers 37. The total number of members who voted was, therefore, 2,930, and this is stated to be less than half the members. The rules provide that the Federation shall not be dissolved unless with the consent of two-thirds of the members, but the executive committee consider the figures satisfactory, and propose to proceed with the dissolution as speedily as possible. The income for three-quarters of 1904 is given as 145*l*. 7*s*. 10*d*. and the expenditure 91*l*. 16*s*. 8*d*., there being a balance of 53*l*. 11*s*. 2*d*., which, being added to 936*l*. 5*s*. 8*d*. brought forward, makes a total of 989*l*. 16*s*. 10*d*. This balance it is proposed to distribute.

THE executive committee of the Isthmian Canal Commission have decided to purchase in the markets of the world the material and ships which will be required for the construction of the Panama Canal.

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VARIETIES.

THE Saffron Walden Town Council have decided to spend 20,000*l.* on a new sewage scheme.

THE Engineering Standards Committee have issued three further reports dealing with structural steel for shipbuilding, pipe threads for iron or steel pipes or tubes, and screw threads.

THE Federal Council of Switzerland state that in view of the progress made towards the completion of the Simplon Tunnel it will be possible to open the line at the beginning of October.

THE Surrey County Council have resolved to carry out a number of experiments for the prevention of dust caused by motor-car traffic, and a sum of 2,000*l.* was voted for the purpose.

MR. LIONEL BARNETT JOSEPH, the original inventor and patentee of the tramway rail running flush with the level of the streets, recently died in London at the age of seventy-eight.

THE Liverpool City Council have accepted a recommendation of the water committee that Mr. W. H. Lever should be paid the 138,449*l.* awarded him by arbitrators and upheld by the Court of Appeal, as the price of his Rivington estate. An amendment that a further appeal should be brought to the House of Lords was rejected.

THE erection in Lancashire of four large new mills has been decided upon during the last few weeks, making thirty-seven factories in all to be erected, which will hold 3,310,000 spindles. Three mills, not included in the above figures, have just been completed for working purposes. The cost of the thirty-seven mills will be in round numbers 4,000,000*l.*

THE Widnes and Runcorn transporter bridge will be formally opened on May 29. The bridge was thoroughly tested on May 9 and 12, Dr. E. Hopkinson, of Messrs. Mather & Platt, Ltd., superintending the tests. Messrs. Mather & Platt, Ltd., have supplied the whole of the electrical plant, having as sub-contractors Messrs. Crossley Brothers for gas-engines.

THE finance committee of the Manchester City Council in their report on the annual estimates of expenditure state the amount required by the improvement and buildings committee is 4,306*l.* in excess of last year's estimate. Of

this amount 3,511*l.* represents the additional charge in respect of the increasing debt for public street improvements, and a sum of 630*l.* is provided for the first time in respect of the services of the city surveyor's and city architect's assistants.

THE German Reichstag has passed the first and second reading of the Convention signed at the International Sanitary Conference in Paris on December 3, 1903, by the representatives of Germany, Austria-Hungary, Belgium, Brazil, Spain, the United States, France, Great Britain, Greece, Italy, Luxembourg, Montenegro, the Netherlands, Persia, Portugal, Roumania, Russia, Servia, Switzerland and Egypt.

A LOCAL GOVERNMENT BOARD inquiry was opened on the 11th inst. in Kingstown, Ireland, into an application for a loan of 29,100*l.* by the Urban District Council, the principal amounts being:—1,500*l.* to defray the expenses of the small-pox outbreak, 1,200*l.* for improving the baths at Sandycove, 1,000*l.* for erecting a public lavatory, 4,000*l.* for erecting a refuse destructor, 1,000*l.* for constructing sewers at Sallynoggin, 5,000*l.* to provide technical schools, 2,500*l.* for the erection of wash-houses, and 11,000*l.* for new Victoria Baths.

By kind permission of the Worshipful Company of Carpenters, an exhibition of the competitive plans and drawings for the new buildings of King's College Hospital at Denmark Hill will be held in the Court-room of the Carpenters' Hall, London Wall, E.C., from May 26 until June 1. The exhibition will be open on May 26 from 12 noon until 5 P.M., and on the five remaining days from 10 A.M. until 5 P.M., except on June 1, when it will close at 4 P.M. Admission on presentation of visiting card.

THE foundation-stones of the new Baptist church, Shooter's Hill Road, Blackheath, Kent, were laid on Thursday, May 4, by Mrs. Vinson, of Orpington, Mrs. Greenwood, of Shoreham, Mrs. Olney, of Champion Hill, and the Rev. W. L. Mackenzie. The number attending the ceremony was 500. Amongst those present were the Mayor of Greenwich, the Revs. Greenhough, Fotheringham and Joseph, Messrs. G. Lidgett, J.P., R. S. Jackson, L.C.C., F. Warmington, L.C.C.; the joint architects, Dottridge & Walford, and James F. Parker, the managing director of Patman & Fotheringham, Ltd., the builders.

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NOTICE TO ADVERTISERS.

Under no circumstances whatever can the proprietors of this Journal guarantee alteration of copy if received after the first post on Tuesday mornings, and no proofs can be submitted if copy arrives later than first post on Saturday mornings.

EDITORIAL NOTICES.

In view of the many difficulties which are certain to arise in connection with the law, practice rules and procedure under the Workmen's Compensation Act, we have added to our staff A VERY EMINENT BARRISTER, who has made the subject a special study, and will be glad to answer in the columns of this paper any questions relating to the complicated matters arising from the provisions of this difficult Act. Our LEGAL ADVISER will further answer any legal question that may be of interest to our readers. All letters must be addressed "LEGAL ADVISER," Office of "The Architect," Imperial Buildings, Ludgate Circus, London, E.C.

The Editor will be glad to receive from Architects in London and the Provinces results of Competitions and Tenders and other particulars of Works in progress in which they may be interested.

The authors of signed articles and papers read in public must necessarily be held responsible for their contents.

No communication can be inserted unless authenticated by the name and address of the writer—not in every case for publication, but as a guarantee of good faith.

Correspondents are requested to make their communications as brief as possible. The space we can devote to Correspondence will not usually permit our inserting lengthy communications.

TENDERS, ETC.

* * As great disappointment is frequently expressed at the non-appearance of Contracts Open, Tenders, &c., it is particularly requested that information of this description be forwarded to the Office, Imperial Buildings, Ludgate Circus, London, E.C., not later than 2 P.M. on Thursdays.

COMPETITIONS OPEN.

BOLSOVER.—May 31.—Plans for three schools. Particulars from Mr. G. H. Widows, County Education Offices, Derby.

HIGH WYCOMBE.—May 31.—Secondary school, accommodation for 175 pupils. No premium offered. Mr. T. J. Rushbrooke, borough surveyor, 77 Easton Street, High Wycombe.

HOVE.—Aug. 1.—Designs for new free library, not to exceed 10,000*l.* (exclusive of furniture). Premiums of 50*l.*, 30*l.* and 20*l.* Further particulars, Mr. H. Endacott, town clerk, Town Hall, Hove.

PERTH.—Aug. 1.—Plans for (1) reconstruction of the existing city hall at a cost not exceeding 6,000*l.*, and (2) erection of a new hall at a cost not exceeding 15,000*l.* Premiums will be awarded authors of plans placed first, second and third in order of merit as follows:—(1) For reconstruction, 30, 20 and 10 guineas respectively; (2) for a new hall, 50, 30 and 20 guineas respectively. Instructions, general conditions and plan of site from Mr. John Begg, town clerk.

CONTRACTS OPEN.

ANNFIELD PLAIN.—May 31.—For the execution of Democratic club and institute, Front Street, Annfield Plain, Durham. Mr. Thomas E. Taylor, architect and surveyor, Prospect House, Lanchester, or 2 Victoria Terrace, Annfield Plain.

ANNFIELD PLAIN.—June 2.—For the erection and completion of house at Annfield Plain, Durham. Mr. Geo. Thos. Wilson, architect, 22 Durham Road, Blackhill.

BAWBURGH.—June 2.—For alterations and additions to Bawburgh school, for the Norfolk education committee. Messrs. Boardman & Son, architects, Queen Street, Norwich.

BELFAST.—June 1.—For building of vested National school on Donegall Road. Mr. W. D. R. Taggart, architect, Scottish Provident Buildings.

BEVERLEY.—June 3.—For erection of an infant school (for 250 scholars) in Walkergate, Beverley. Messrs. Hawe & Foley, architects, North Bar Street, Beverley.

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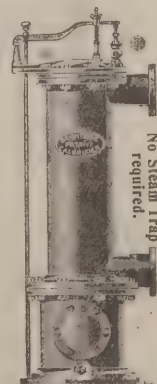
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BLACKBURN.—May 31.—For the erection of the Regent Street special school. Mr. Fred. J. Parkinson, architect, 9 Richmond Terrace, Blackburn.

BOURNE.—May 31.—For the erection of fourteen cottages in Bourne, Lincs. Mr. F. G. Shilcock, architect, Bourne.

BRIERLEY HILL.—May 31.—For altering and improving the town hall, for the Urban District Council. Surveyor's Offices, Town Hall, Brierley Hill, Staffs.

BRISTOL.—May 30.—For the renewal of the roof, &c., of stables at Portwall Lane, Bristol, for the Great Western Railway Company. The Engineer at Bristol Station.

BULCAMP.—May 29.—For the supply and fixing of an exterior iron fire-escape staircase at Bulcamp workhouse, near Halesworth. Union Offices, Bulcamp, Halesworth, Suffolk.

BURSLER.—June 13.—For the erection of a new school of art in Queen Street, for the Town Council. Messrs. A. R. Wood & Son, architects, Queen Street, Burslem.

CANTERBURY.—May 29.—For the erection of foundations for the proposed bandstand in the Dane John Gardens. Mr. Arthur C. Turley, city surveyor, Canterbury.

CARDIFF.—May 30.—For the erection of a new goods office, for the Great Western Railway Company. The Engineer, Great Western Railway, Newport Station.

CARLETON.—June 1.—For erection and completion of children's cottage homes at Carleton, near Pontefract. Messrs. Garside & Pennington, architects, Pontefract and Castleford.

CHEVINGTON.—For new parochial building. Mr. A. B. Plummer, architect, Newcastle.

COLCHESTER.—June 13.—For the construction of an engine-house, boiler-house, coal-store, reconstruction of reservoirs, retaining walls and other works in connection therewith, for the Colchester Corporation. Mr. C. E. Bland, waterworks superintendent, Town Hall, Colchester.

COMPTON.—May 31.—For alteration and additions to the Compton and Up Marden National schools, Petersfield, Hants. Mr. A. E. Stallard, architect, West Street, Havant.

CROYDON.—May 29.—For the erection of iron buildings and sheds and repairs to buildings at the drug mills, Bed-

dington Corner. Mr. George F. Carter, borough engineer, Town Hall, Croydon.

CROYDON.—June 12.—For the erection of cottage homes on the workhouse premises, Croydon. Mr. J. Hatchard Smith, architect, 41 Moorgate Station Buildings, London, E.C.

DORCHESTER.—June 1.—For erecting a new schoolroom, classrooms, offices and improvements at the Primitive Methodist chapel, Durngate Street, Dorchester. Mr. J. Feacey, architect, South Walks, Dorchester.

DORCHESTER.—June 24.—For repairing and painting, &c., at the headquarters police-station, Dorchester, where specifications may be seen.

DUBBO.—For new schoolmaster's house. Mr. A. B. Plummer, diocesan architect, Newcastle.

DUNSTABLE.—May 30.—For the erection of an infectious diseases hospital for twenty beds at Kensworth, near Dunstable, in the county of Bedford. Mr. George Simcox, architect, Town Hall, Dunstable.

EDINBURGH.—May 31.—For mason, iron, joiner, plumber and plasterwork, also electric-light installation and new electric passenger lift, in connection with the extension and reconstruction of the Council Offices, Castle Terrace. Mr. R. M. Cameron, architect, 53 Great King Street, Edinburgh.

FELLING.—May 27.—For additions to Windy Nook Council school, Durham. Mr. H. Miller, architect, Council Buildings, Felling.

FERRYBRIDGE.—May 29.—For the erection of a signal cabin at Ferrybridge station, for the North-Eastern and Midland Railways. Mr. W. J. Cudworth, company's engineer, York.

GLASGOW.—May 31.—For (1) the digger, mason and brickwork; (2) carpenter, joiner, glazier and ironmongery work; (3) plumber, gasfitter and bellhanger's work; (4) plasterwork; (5) slaters' work; (6) tilework; and (7) painters' work of four tenements of dwelling-houses to be erected in Howard Street, Bridgeton. The City Engineer, 64 Cochrane Street, Glasgow.

GLASGOW.—June 3.—For the execution of the following works, viz.:—(1) Excavator, mason and brick; (2) carpenter, joiner and glazier; (3) steel and smith; (4) slater; (5)

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plumber and gasfitting; (6) lath and plaster; (7) heating; and (8) asphalt, required in connection with the erection of St. Paul's Church. Mr. Colin Young, measurer, 141 West George Street, Glasgow.

HALBERTON.—May 31.—For the erection of a pair of cottages at Widhayes Farm, Halberton, Tiverton. Mr. S. Dobell, architect, Queen Street Chambers, Exeter.

HIGH HARRINGTON.—May 27.—For building three cottages at High Harrington. Messrs. W. G. Scott & Co., architects and surveyors, Victoria Buildings, Workington.

HINDHEAD.—June 5.—For the erection of a new school at Hindhead, Surrey. Messrs. Jarvis & Richards, architects, 36 Victoria Street, Westminster.

HOUGHTON-LE-SPRING.—May 30.—For the erection of boundary walls to enclose certain lands adjoining the union workhouse at Houghton-le-Spring, Durham. Mr. John G. Baty, clerk, Union Offices, Houghton-le-Spring.

HUNTINGDON.—May 30.—For the erection of an elementary school for 450 children at Huntingdon. The County Surveyor, 36 High Street, Huntingdon.

IPSWICH.—June 5.—For the enlargement of the Springfield Council school. Messrs. Bishopp & Cautley, architects, 32 Museum Street, Ipswich.

IRELAND.—May 28.—For the erection of a residence in the suburbs of Tralee. Messrs. Robert Walker & Son, architects and civil engineers, 17 South Mall, Cork.

IRELAND.—May 30.—For the erection of a shop and dwelling-house at Glenties, co. Donegal. Mr. Daniel Conroy, architect, 21 Shipquay Street, Londonderry.

IRELAND.—June 3.—For the erection of a residence for King's scholars at Glasnevin, for the Commissioners of National Education. Mr. J. F. Fuller, architect, 179 Great Brunswick Street, Dublin.

IRELAND.—June 3.—For building a caretaker's house at Victoria Cemetery, Carrickfergus. Mr. W. D. R. Taggart, architect, Scottish Provident Buildings, Belfast.

IRELAND.—June 5.—For building a house in Eden Place, and improvements to two houses, Rossville Street, Londonderry. Mr. E. J. Toye, architect, Great James Street, Londonderry.

IRELAND.—June 5.—For the erection of twenty-three labourers' cottages, for the Stranorlar Rural District Council; The Workhouse, Stranorlar.

KEIGHLEY.—June 2.—For the erection of three shops and houses, South Street, Keighley. Messrs. J. B. Bailey & Son, 3 Scott Street, Keighley.

KENSWORTH.—May 30.—For the erection of an infectious diseases hospital for twenty beds at Kensworth, near Dunstable. Mr. George Simcox, architect, Town Hall, Dunstable.

LANCASTER.—May 27.—For the following work, &c., at the county lunatic asylum, Lancaster, for the visiting committee:—(1) Exterior painting of buildings; (2) extension of verandah; (3) construction of iron balcony; (4) supply of cast-iron columns, wrought-iron plated girders and cast-iron framing for covered way. Clerk of Works' Office.

LANCASTER.—June 3.—For the mason's work required in erection of a balustrade wall round the Oval in Dalton Square. The Borough Surveyor's Office, Lancaster.

LEEK.—June 2.—For the construction and fixing complete of a sewer carrier, 66 feet long, across the river Churnet, on the Westwood estate. Mr. W. E. Beacham, surveyor, Town Hall, Leek.

LLANDOW.—May 29.—For the erection of new farm buildings and other work at Tynycia Farm, Llandow, near Cowbridge. Messrs. Gwyn & Gwyn, solicitors, Cowbridge.

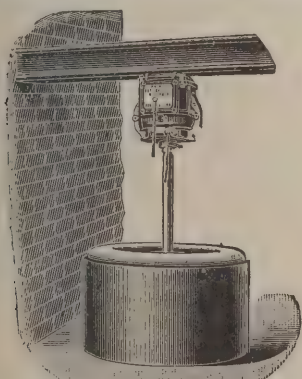
LONDON.—May 30.—For the erection of a new infants' school, caretaker's house, &c., in Lordship Lane, Wood Green. Mr. C. J. Gunyon, architect, Town Hall, Wood Green.

LONDON.—June 6.—For repairs and painting at the public urinals, for the Islington Borough Council. Mr. J. Patten Barber, borough engineer, Town Hall, Upper Street, N.

LONDON.—May 30.—For repairs to the stucco work of the offices at Paddington Station, for the Great Western Railway Company. The Engineer, Paddington Station.

LONDON.—June 6.—For repairs, painting and other work at the public gardens, for the Islington Board of Guardians. Mr. J. Patten Barber, borough engineer, Town Hall, Upper Street, N.

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LONDON.—June 7.—For the erection of new public baths in Manor Street, King's Road, Chelsea. Messrs. Wills & Anderson, 4 Adam Street, Adelphi, W.C.

LONDON.—June 7.—For the extension of the administrative block of the borough isolation hospital, Muswell Hill. Mr. E. J. Lovegrove, borough engineer and surveyor, Municipal Offices, 99 Southwood Lane, Highgate.

LONDON.—June 12.—For the erection of the proposed new public offices and town hall at Acton. Mr. William G. Hunt, architect, 17A Vicarage Gate, London, W.

MACCLESFIELD.—June 7.—For alterations to the Roebuck inn, Market Street. Borough Surveyor's Office, Town Hall.

MANCHESTER.—May 30.—For the supply of terra-cotta for the Seymour Road municipal school, Clayton, Manchester. The Education Committee Offices, Manchester.

PENBOTHIDNOE.—May 31.—For the erection and completion of a farmhouse at Penbothidnoe, Constantine. Mr. Horace W. Collins, architect, Clinton Road, Redruth.

PERRANPORTH.—May 27.—For additions to Perran House, Perranporth, Cornwall. Mr. Alfred J. Cornelius, architect, Truro.

PORTSMOUTH.—June 14.—For the construction of dining-rooms, dormitories, hall and other works, for the committee of the Royal Sailors' Home, Portsmouth. Mr. G. C. Vernon-Inkpen, architect, 40 Commercial Road, Portsmouth.

PRESTWICH.—June 3.—For alterations and additions at the Heaton Park British school, Prestwich, near Manchester. Messrs. Clegg & Thorp, architects, 41 Corporation Street, Manchester.

PRUDHOE.—June 5.—For the erection and completion of five new houses and five new flats at Edgewell Colliery, Prudhoe, Northumberland. Mr. John C. Eltringham, architect and surveyor, Bishopley Lane, Blackhill.

SCOTLAND.—May 27.—For the mason, carpenter, slater, plaster, plumber, painter and glazier's work for a block of six workmen's dwellings at Aviemore Junction, for the Highland Railway Company. Mr. William Roberts, the company's engineer in chief, Inverness.

SCOTLAND.—May 27.—For mason, carpenter and slater's work of wing to offices at Sunnybrae, Park Hill, Lumphanan.

Messrs. Cochran & Macpherson, advocates, 152 Union Street, Aberdeen.

SCOTLAND.—May 27.—For the mason, slater, plumber, lath, plaster and concrete, and smith's work for a residence at Advis, Strathspey. Messrs. A. Maitland & Sons, architects, Tain.

SCOTLAND.—May 29.—For mason, carpenter, plumber, slater, plasterer, painter and ironwork for business premises in Lossiemouth. Mr. R. B. Pratt, architect, Town and County Bank Buildings, Elgin.

SCOTLAND.—May 31.—For the mason, carpenter, slater, plumber, plasterer, painter and glazier's work of dwelling-houses to be erected in Grant Street, Burghead. Mr. James Jamieson, architect, 77 High Street, Elgin.

SCOTLAND.—May 31.—For the erection of corrugated iron-building for office, for the Parish Council of Kilbrandon and Kilchattan. Mr. Kenneth Macrae, architect, Columba Buildings, Oban.

SCOTLAND.—June 1.—For the mason, carpenter, slater, plumber and ironwork of warehouse at Cardow Distillery, Strathspey. Mr. Charles C. Doig, architect, Elgin.

SHEFFIELD.—May 27.—For erection of a three-storey hospital block at the union hospital, Fir Vale, Sheffield. Mr. H. I. Potter, architect, 24 Norfolk Row, Sheffield.

SHEFFIELD.—June 1.—For the erection of a public elementary school at Lydgate Lane, Sheffield. Mr. W. J. Hale, 13 St. James's Row.

SHEFFIELD.—June 8.—For alterations to the Grammar school buildings. Messrs. Gibbs & Flockton, architects, 15 St. James's Row, Sheffield.

SOUTHWICK.—May 31.—For the erection of forty-two dwelling-houses at Southwick, near Sunderland, for the North-Eastern Railway Company. Mr. William Bell, architect, Central Station, Newcastle-upon-Tyne.

SUNDERLAND.—May 29.—For the supply and fixing complete of sanitary arrangements and wall-tiling in connection with underground conveniences to be erected in Sunderland. Mr. John W. Moncur, borough surveyor, Town Hall, Sunderland.

SWANSEA.—May 29.—For the erection of five pairs of semi-detached houses in Dillwyn Road, Sketty. Mr.

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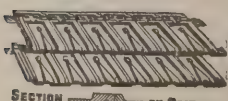
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Charles T. Ruthen, architect, Bank Chambers, Heathfield Street, Swansea.

SWINEFLEET.—June 1.—For repairs required at the Swinefleet Provided school, near Goole. Mr. J. Vickers Edwards, county architect, County Hall, Wakefield.

WAKEFIELD.—June 1.—For works required at Appleton Roebuck (new school), near Tadcaster, builder, carpenter, slater, plasterer, plumber, ironfounder and smith, and painter. Also at other Provided schools. Mr. J. Vickers Edwards, county architect, County Hall, Wakefield.

WALES.—For pulling-down and rebuilding the King's Head hotel at Pontnewydd, Mon, and also for forming roads and sewers upon land adjacent. Messrs. Swallowell & Havard, architects and surveyors, Steam Packet Chambers, Dock Street, Newport, Mon.

WALES.—May 29.—For building a free library at Dowlais, for the Merthyr Tydfil Urban District Council. Mr. E. A. Johnson, architect, Abergavenny and Merthyr.

WALES.—May 29.—For the erection of 140 dwelling-houses, together with streets, sewers and surface water drains, at Mountain Ash. Messrs. Morgan & Elford, architects, 1 Jeffrey Street, Mountain Ash.

WALES.—May 29.—For the erection of additions to Caerau and Spillers Co-operative Stores at Caerau, near Maesteg. Messrs. Evans & Jones, architects and surveyors, 4 Trinity Place, Swansea.

WALES.—May 29.—For rebuilding 21, 22 and 23 Castle Street, Merthyr. Mr. C. M. Davies, 112 High Street.

WALES.—May 31.—For additions at the Colliers' Arms, Merthyr. Mr. C. M. Davies, 112 High Street.

WALES.—June 1.—For the erection of new mechanics' institute, Pontardulais, near Swansea. Mr. W. Beddoe Rees, architect, 3 Dumfries Place, Cardiff.

WALES.—June 3.—For building a vicarage at Llandilo. Mr. David Jenkins, architect, Llandilo.

WALES.—June 3.—For the erection of a new police-station at Cwmavon, Glamorgan. The County Council offices, Westgate Street, Cardiff.

WALES.—June 5.—For the erection of a mixed school and the execution of works connected therewith at Pengenlan,

Miskin, Mountain Ash. Mr. W. G. Thomas, architect, Public Offices, Mountain Ash.

WALES.—June 14.—For rebuilding of Newport (Mon) head post office. H.M. Office of Works, &c., Storey's Gate, S.W.

WEAVERHAM.—June 8.—For alterations and additions to the school buildings, Weaverham, Cheshire. Mr. H. Beswick, county architect, Newgate Street, Chester.

WHEATLEY HILL.—May 30.—For alterations and repairs to Wheatley Hill Council school, Durham. Mr. W. Rushworth, architect, County Education Offices.

WIVENHOE.—June 5.—For structural alterations and repairs to the old Board school, Wivenhoe, Essex. Mr. F. Whitmore, county architect, Duke Street, Chelmsford.

WOLVERHAMPTON.—June 7.—For the following works at certain schools, for the education committee:—(1) Painting and colouring of premises; (2) structural alterations; (3) supplying and fixing hot-water apparatus. Mr. T. H. Fleming, architect to the committee, 10 Queen Square, Wolverhampton.

YAFFORTH.—May 31.—For the erection of privies, ashpit, play-shed and other work in connection with new playground at Yafforth school, near Northallerton. Waistell's Office, Northallerton.

A new combination poorhouse for the parishes of Cambusnothan, Shotts and Bothwell was formally opened on the 12th inst. The site extends to ten acres, and the institution consists of ten different blocks of buildings, providing accommodation for 203 inmates, under the following classifications:—Receiving or probationary block, 10; four ordinary pavilions, two storeys in height, divided into day-rooms and dormitories for 70 males, 48 females and 24 children; hospital block, 24 males and 18 females; and a ward of five beds for maternity cases. In this block accommodation is also provided for nurses and the doctor. There is also a block of two cottages intended for married couples. The cost of the whole building will be about 175*l.* per bed, or altogether about 40,000*l.* The architect was Mr. Alexander Allan.

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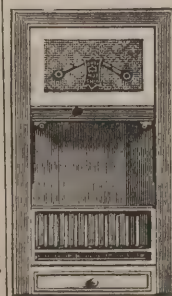
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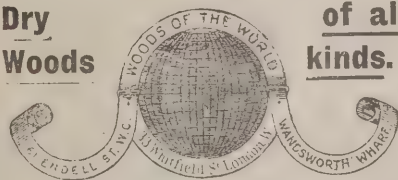


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Do.	... Loss £60.
J. Ireland & Sons, Dundee	... Loss £25.
Name withheld by request, Glasgow	... No claim.
(Signalled and fire put out; sprinkler did not act)	
Shaw, Walker & Co., Glasgow	... Loss £225.
Aberdeen University Press	... No claim.
Clark & Co. (Ltd.), Anchor Mills	... Under £50.
S. Henderson & Sons, Ltd., Edinburgh	... Under £50.

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Sir Chas. Tennant, The Glen	... Loss £100,000.
Long Acre Motors, &c.	... Loss £250,000.

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TENDERS.

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For gas-tank and holder, for the Dalton-in-Furness Urban District Council. Mr. W. RICHARDSON, surveyor.		
Holmes & Co.	£1,208	0 0
Newton, Chambers & Co., Ltd.	1,100	0 0
ASHMORE, BENSON, PEASE & Co., LTD., Stockton-on-Tees (accepted)	1,073	0 0

BEDFORD.

For sewerage and roadmaking on the St. Cuthbert's Glebe building estate. Mr. R. LUND, surveyor, Bedford.		
Ginn & Brace	£1,092	9 2
Wilmott	1,082	13 9
Jackson	1,038	9 0
Harrison	922	7 6
F. RAY, Bedford (accepted)	798	11 0

BRIDGEND.

For the erection of two shops and dwelling-houses in Wyndham Street. Mr. P. J. THOMAS, architect.		
Lloyd	£1,675	0 0
Jones	1,626	0 0
Price & Morgan	1,575	0 0
Thomas	1,535	0 0
P. GAYLARD, Bridgend (accepted)	1,512	0 0

CORBY.

For the erection of a pair of residences, for the Kettering Industrial Co-operative Society, Ltd. Messrs. BIRD & BATLEY, architects, Kettering.		
Colyer	£697	3 0
Streather & Son	630	0 0
C. & F. Henson	616	0 0
Smith & Edmunds	608	0 0
Kettering Co-operative Builders, Ltd.	598	10 0
Dresser	574	0 0
Andrew	568	0 0
H. JUDKINS (accepted)	566	0 0

BELTINGHAM.

For the erection of organ chamber. Mr. B. PLUMMER, diocesan architect.
GEORGE WILSON, Bardon Mill (accepted).

CLEETHORPES.

For about 7,308 square yards of 3-inch thick tar macadam, 11,014 square yards of 4-inch thick tar macadam, for the District Council. Mr. E. RUSHTON, engineer.		
Ames, Crosta & Co.	£3,939	15 0
Asphaltic Limestone Concrete Co.	3,849	5 4
J. & M. Patrick	3,528	0 0
Barry	3,299	0 0
Northern Quarry Co., Ltd.	3,237	13 4
Vickers	3,130	8 6
Starkey	3,069	10 10
Parker & Sharpe	3,054	10 8
Watson, Ltd.	2,947	6 2
Smart & Son	2,933	3 4
Reed & Son	2,932	6 0
Deeley & Co.	2,932	6 0
Bell	2,932	6 0
Ellison	2,810	1 4
Stansbery	2,794	12 6
Chittenden & Simmons	2,772	2 3
Ashley	2,748	6 0
Brunton	2,703	5 6
Pearson & Turner	2,687	16 8
Hadfield & Son	2,428	7 2
Mason	2,411	19 8
Ingham	2,352	0 4
White	2,336	11 6
North of England Asphalte Co.	2,321	11 4
Constable, Hart & Co.	2,276	2 2
PARRY & SON, LTD., Kirton Lindsey (accepted)	2,260	4 8
Brooke	2,107	11 0
Haigh & Co.	2,061	17 6
Hardy & Atkinson	1,969	17 6
Brunton	1,954	17 4
Moran	1,832	12 8
Pickthall & Son	1,744	10 0

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Barry	£6,206	13	1
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Starkey	5,536	6	2
Bell	5,385	8	10
J. & M. Patrick	5,210	0	0
Vickers	5,067	0	0
Parker & Sharpe	5,064	13	0
Ashley	5,028	19	0
Pearson & Turner	4,997	10	0
Brunton	4,892	14	9
Brunton	4,865	7	3
Hardy & Atkinson	4,778	1	3
Mason	4,753	17	11
Brown	4,581	0	4
HEWINS & GOODHAND, Grimsby (accepted)	4,569	7	9
Watson & Co.	4,486	8	2
Moran	3,917	8	5
Pickthall	3,737	0	0

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For the supply of surface condenser with electrically-driven pumps. Mr. J. W. SPARK, borough electrical engineer.

Hayward, Tyler & Co.	£2,142	0	0
Wheeler Condensing Engineering Company	2,091	0	0
Haste Pump & Co.	1,750	0	0
Mather & Platt	1,620	0	0
Belliss & Morcom	1,535	0	0
Browett-Lindley	1,500	0	0
Carrick & Wardle	1,485	0	0
Allen & Son	1,387	0	0
Balcke & Co.	1,384	0	0
Bertrams, Ltd.	1,336	0	0
Worthington Pump Company	1,334	0	0
Richardsons & Westgarth	1,320	0	0

DEVONPORT—continued.

Willans & Robinson	£1,304	0	0
Wright & Co.	1,271	0	0
Brush Electrical Engineering Company	1,261	0	0
Masson & Scott & Co., Ltd.	1,250	0	0
Storey & Son	1,215	0	0
Cole, Marchent & Morley	1,158	0	0
MIRRELES, WATSON & Co. (accepted)	1,105	0	0
Summers & Scott, Ltd.	1,090	0	0

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For painting at Victoria Park. Mr. H. RICHARDSON, surveyor.

Horton & Son	£618	0	0
Dunkley	492	0	0
Wiltshire Bros.	461	5	0
Pratt	450	0	0
Watkins	412	10	0
Cotterill	393	0	0
Garfield	330	0	0
Ostins & Sons	322	7	4
Hulbert & Ladbury	320	0	0
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M. S. ROGERS, Flint (accepted)	313	4	0
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ISHAM.

For the erection of residence and fencing. Messrs. BIRD & BATLEY, architects, Kettering.

Brown & Son	£797	10	0
Berrill & Green	789	0	0
Capps, Rowley & Keach	768	0	0
Lewis	765	0	0
Lewin & Son	763	0	0
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Lewis	750	0	0
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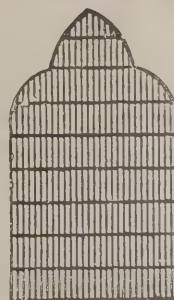
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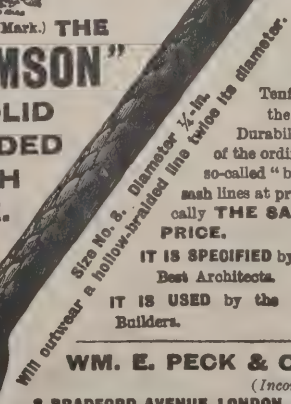
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Flavell & Churchill	1,150 0 0
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"	alternate 775 0 0
Rodgers & Kaye	740 0 0
Holt & Willett	725 0 0
Smith, Ltd.	699 0 0
Carrick & Sons, Ltd.	680 0 0
"	alternate 761 0 0
Carrick & Ritchie, Edinburgh (recommended for acceptance)	678 0 0
Gibb & Co., Ltd.	664 0 0
Jessop & Appleby Brothers, Ltd.	620 0 0
Herbert, Morris & Bastert, Ltd.	(Not to specification) 477 8 0 (Not to specification)

For the erection of a building and stores, for the Edmonton Urban District Council. Mr. HENRY W. DOBB, architect.

Porter	£291 0 0
Thomas	236 0 0
Wallis	230 2 8
Groves & Sons	219 0 0
Read	217 19 0
A. G. CHRISP, Walthamstow (accepted)	188 0 0

MACCLESFIELD.

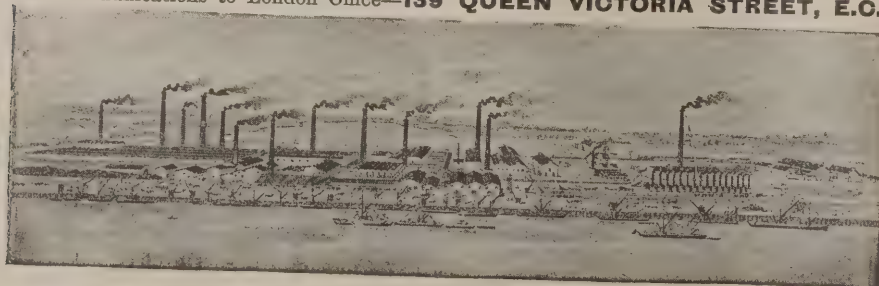
For the erection of boundary walls at the workhouse. Mr. JABEZ WRIGHT, architect.

Bailey	£480 0 0
Dakin	479 0 0
Roylance & Co., Ltd.	430 0 0
Cundiffe	414 12 11
Pickford	389 6 6
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Brazier	1,818 0 0

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For alterations, additions and in part taking down and rebuilding premises for the Norwich Masonic Association, Ltd. Mr. ALBERT C. HAVERS, architect, Norwich.	
Smith	£2,700 0 0
Boddy & Son	2,516 0 0
Anderson & Son	2,497 0 0
Daws & Son	2,489 0 0
Scarles Bros.	2,465 0 0
Evans	2,455 0 0
YOUNGS & SON, Norwich (<i>accepted</i>)	2,425 0 0
Greengrass	2,400 0 0
Chapman	2,399 0 0
Gill	2,397 0 0

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For carrying-out the work in connection with the proposed surface-water sewer at Bangor.	
Davies	£108 15 0
Williams & Sons	91 0 0
PRICE WILLIAMS, Overton (<i>accepted</i>)	83 4 0
Williams	79 0 0

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ESHELBY & SON (<i>accepted</i>)	£3,712 5 0

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For the erection of new church. Mr. ARTHUR B. PLUMMER, F.R.I.B.A., diocesan architect, Newcastle.	
JOHN GOULDING, Blyth (<i>accepted</i>).	

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Baker, Ltd.	£7,874 0 0
Girling & Smith	6,753 0 0
Riches	6,734 0 0
Chapman	6,590 0 0
Carter & Wright	6,549 0 0
Porter	6,400 0 0
Youngs & Son	6,348 0 0
Lines	6,323 11 0
Hawes	6,290 0 0
Spencer, Santo & Co.	6,260 0 0
Greengrass	6,250 0 0
Sadler	6,247 0 0
Neale	6,200 0 0
Bullen	6,149 0 0
Chapman	6,145 0 0
Gill	6,080 0 0
Oak Building Co.	6,008 0 0
Hannant	5,997 0 0
Blyth	5,965 0 0
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C. J. Nevitt, Stafford	£235 4 0

WELLINGTON.

For alterations in the Council's yard.	
Holmes	£127 3 0
Pearce	125 0 0
Edwards	120 0 0
Bright	114 0 0
A. ROPER (<i>accepted</i>)	104 0 0
Carver	103 0 0

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Walker & Sons	2,549	7	9
Robinson	2,224	6	5
Public Works Co.	1,943	3	0
Asphaltic Co.	1,896	7	5
Read & Sons	1,888	0	9
Collins & Co.	1,886	7	2
Constable, Hart & Co.	1,885	6	4
Smart & Sons	1,832	18	6
Whitwill	1,832	18	6
Ellison	1,750	5	2
Ingham	1,739	7	4
John	1,722	14	0
Brook	1,722	14	0
Bradshaw & Sons	1,722	14	0
Haig & Co.	1,722	14	0
Burgess & Co.	1,693	3	9
Lowe	1,557	7	3
Smith-Jones	1,557	6	9
Shepherd	1,540	6	9
Asphalte United Co.	1,447	2	9
NORTH OF ENGLAND ASPHALTE CO., Manchester (accepted)	1,367	9	10

WINDSOR.

For alterations at the Guildhall, Windsor. Mr. E. A. STICKLAND, borough surveyor.

Hendry	£385	0	0
Watson	295	0	0
Burfoot & Son	295	0	0
Reavell	295	0	0
Cooper & Son	289	0	0
GREEN & SON, Clewer (accepted)	252	0	0

Received too late for classification.

BILSTON.

For construction of sewers in the town, for the District Council.

H. HOLLOWAY, Wolverhampton (accepted) £38,495 0 0

GOUROCK.

For extension of gasworks.

Accepted tenders.

William Steel & Co., mason.

J. & R. Houston, iron.

G. M'C. Stevenson, slater.

D. M'Ewing, plumber.

NORWICH.

For proposed restoration of tower at church of St. Gregory Norwich.

Youngs & Son	£823	0	0
Hawes	656	18	0
Hall	645	4	2
J. T. SMITH, Norwich (accepted)	619	0	0

For partial restoration of Stody Church, Norfolk.

Chatton & Grimson	£2,793	9	7
Chapman	1,626	1	2
Riches	1,590	0	0

TRADE NOTES.

MESSRS. SAINSBURY BROS., LTD., Walthamstow, London, have just erected a new clock in the United Methodist Free church at Bude, Cornwall. It shows the time on two dials and strikes the hours and half-hours. It was executed generally to the designs of the late Lord Grimthorpe.

MR. HEINRICH, who for a number of years has been connected with the Custodis Company, has started business, trading under the name of Heinrich & Co., and is prepared to undertake the erection of tall chimney-shafts for factories, &c., on an improved system.

WHENEVER the history of the strengthening of concrete by the aid of steel is written the name of Coignet should be on the first page. The system has been widely utilised. It will henceforth be available in England, for Mr. G. C. Waterman, who has been a member of M. Edmond Coignet's staff for several years, has been appointed general agent for the United Kingdom. He has already been entrusted with the construction of floors and roofing on the Coignet system.



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MANUFACTURERS OF
every description of
GLAZED TILES, SLABBED PANELS,
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ILLUSTRATIONS.

LANGWITH LODGE, NOTTS.

THE RESTORATION OF MARK CHURCH, SOMERSET.—VIEW LOOKING N.W.—INTERIOR, LOOKING S.E.

NO. 1 COURT, COUNTY SESSIONS HOUSE, PRESTON.

A HOUSE AT SIDCUP.

SEWER VENTILATION.

THERE is an objection everywhere to sewer ventilators, and if it were not for the strong arm of the law they would be likely to be destroyed by inhabitants of houses in their vicinity. Rawlinson's coarse maxim was, "The greater the stink, the more efficient is the ventilator," but it will take a long time for those who are not officials to accept that belief. Mr. W. E. Farrer, by his "Omnifex" system, will enable the evil, as well as the prejudice, to be overcome. His apparatus is not merely an outlet for foul air from sewers; it is at the same time a fresh-air inlet. By having two tubes of different sizes, one being within the other, the two kinds of air pass in different directions. The fresh air enters through a "bonnet" with aluminium flaps and gratings. It has sometimes happened that sanitary apparatus do not realise all the expectations of inventors, but from its simplicity and scientific principles the "Omnifex" system appears to be fitted to become a most efficient aid towards public health, for the outlet can be raised to any height which is desired.

NEW CATALOGUE.

It is not long since we noticed a catalogue of boilers and radiators manufactured by Messrs. Hartley & Sugden, Ltd., of the Atlas Works, Halifax. They have just issued another containing the latest information on the subject. Their foundry department has been enlarged, and they are now prepared to supply the whole of the necessary parts for heating apparatus, both boilers, radiators, pipes and

valves, &c. Their cast-iron sectional boilers are already widely used throughout Great Britain and on the Continent, and their wrought-iron boilers are also well known and approved. All wrought-welded and cast-iron boilers are most carefully tested by hydraulic pressure before leaving the works, and a "certificate of test and origin" given, if desired; they also guarantee the materials, workmanship and general satisfactory working of their boilers for a period of two years. The catalogue contains superior illustrations, and much information is given in tabular form.

VENTILATION AND SECURITY.

ONE of the difficulties at the present time is to utilise ordinary windows at night without diminishing the security of the building against burglars. The evidence given in courts at every assizes reveals that the window is commonly selected as the point of attack. Various means have been proposed. The latest is the "Lorie" patent ventilating window-fastener. By an ingenious arrangement the window can be opened to the extent of, say, 6 inches, but it cannot be moved from the outside. When the handle is turned downwards the fastener is ejected and holds a plate securely. Another advantage is that the rattling of windows is prevented. The fastener is manufactured by Messrs. W. & T. Avery, Ltd., of the Soho Foundry, Birmingham, and the name of the firm is a sufficient guarantee of the worth of the new fastener.

PHENIX-LIKE there has arisen on the Cleethorpes pier, owned by the Great Central Railway Company, a very handsome new concert and dancing pavilion, in place of the old one destroyed by fire. The new structure is to be opened on the Saturday before Whitsuntide, and to mark the special occasion a remarkably strong array of musical talent has been engaged by the company. Almost needless to say, excursions will be run from all parts at cheap fares, and it is anticipated that Cleethorpes will enjoy a record number of visitors.

THE LEEDS FIRECLAY CO., LD.

Glazed Bricks.

LEEDS.

Salt
Glazed
Bricks.

BRANDS:-
Cliff, Ingham,
Wortley Co., Burmantoffs
Brooke, Oates & Green Ltd.

BUILDING AND BUILDERS.

THE architects of the Bloomsbury Chapel, lately referred to in this column, are Messrs. George Baines and R. Palmer Baines.

THE Central Employers' Federation in Stockholm last week declared a lock-out against the bricklayers. Other branches of the building trade are also affected by this decision, which throws 15,000 men out of employment.

WESLEY COLLEGE, Sheffield, is to be altered in order to provide accommodation for 400 scholars; at an estimated cost of 18,000*l*. Messrs. Gibbs & Flockton are the architects. The building is now in charge of the education committee.

MR. WILLIAM WILSON FREEMAN, builder and contractor, Chester, died suddenly at his residence on the 20th inst. at the age of sixty-three. Among his more important jobs were the restoration of Chester Council chamber after the fire, the building of the isolation hospital and the public baths, and extensive contracts for the late Lord Harlech and others.

THE members of the Birmingham district of the National Association of Master Plumbers held their annual outing on the 20th inst., when, by permission of the Corporation of Birmingham water department, they visited the Elan valley and inspected the waterworks. On arrival at Rhayader the party were taken over the works to the various dams and reservoirs.

THE new Crown and Mitre hotel, Carlisle, which has been in course of erection for some years, will be opened on June 1. Accommodation has been provided for about sixty beds, at a cost of 50,000*l*. The hotel comprises basement, ground floor and first, second and third floors. At the wings there is a fourth floor. The basement is excavated and cellared, and six shops have been arranged for on the ground floor. Messrs. Oliver & Dodgshun, of Carlisle and Leeds, are the architects, and Messrs. Beaty Bros. builders.

A BILL has been passed by both houses of the New York State Legislature "to amend the Greater New York Charter in relation to the use of patented articles." One clause decrees that "No officer of the city government shall order any householder or freeholder to use any patented article on any building or in any public street or place, except

under such circumstances that there can be a fair and reasonable opportunity for competition, the conditions to secure which shall be prescribed by the Board of Estimate and Apportionment."

THE Liverpool Corporation have decided to give an assurance to the Local Government Board that the Corporation would rehouse, upon the sites cleared under the powers of the Liverpool Sanitary Amendment Act, or upon other sites to be approved by the Board, such proportion (not less than one-half) of the persons who might be displaced under future presentments by such clearances, unless the Board subsequently consented to waive or modify this requirement in view of the amount of suitable vacant land accommodation available for the persons to be displaced.

HOLY TRINITY CHURCH, London Road, Derby, which replaces a structure erected in 1831, was dedicated on the 18th inst. The new church is in the Early English style, and consists of a nave with aisles and transepts and an apse at the east end; the west end of the nave merges into the tower, which rises to a height of about 120 feet, and which is fitted with a clock with four dials. The exterior of the building is of red brick, with Coxbench stone dressings. The roof of the nave is lofty and is supported by stone pillars. The dressings to the arches and windows are, also of stone. There is seating accommodation for 800. The cost was about £11,500. The church is from the design of Mr. Charles E. Hewitt, of Westminster and Brighton. The contractors are Messrs. Walker & Slater, of Derby.

ELECTRIC NOTES.

ESTIMATES are sought by the Edinburgh electric-lighting committee amounting to 4,000*l*. for new water-tube boilers for M'Donald Road station. The total candle-power applied for during the year has amounted to 84,375.

THE Ashton Board of Guardians have adopted a scheme for lighting by electricity the new hospitals and the workhouse. The cost will be 3,162*l*., and Mr. Rhodes, of Manchester, will superintend the work.

THE largest electric generator in the world has been completed at Niagara Falls by the Canada Electric Com-

THE LATEST PRODUCTION.

**A PERFECT ENAMEL
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**FOR PRACTICAL WORK,
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"SANALENE"

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Easily Washed
and Polished.**

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NEW CROSS, S.E.**

**One Gallon covers from
60 to 70 Square Yards
on a prepared surface.**

**BLUE LABEL FOR IN-
SIDE, DRIES IN ABOUT 8 to
10 HOURS, and GRADUALLY
HARDENS.**

**RED LABEL FOR OUT-
SIDE, DRIES IN ABOUT
15 HOURS ACCORDING TO
WEATHER.**

pany, of Peterborough, Ontario. It is to be used in the power works erected at the Falls and is of 12,000 horse-power.

THE London County Council last week decided to purchase the unexpired term of the lease of the North Metropolitan Tramway Company and its stock for 436,000*l.*, and to proceed with the electrification of the system. The ultimate cost of the acquisition of the London tramway lines and their electrification is estimated at 12 millions sterling.

THE directors of the Electric Railway and Tramway Carriage Works, Preston, have decided to purchase the Castle Car Works, Hadley, Salop, and the British Electric Car Works, Old Trafford, Manchester, for 85,000*l.* from the Amalgamated Waggon Company, Birmingham, who bought the undertakings when in liquidation for 65,000*l.*

MESSRS. M'DOWALL, STEVEN & CO., LTD., manufacturers of iron staircases, &c., of Glasgow, Falkirk, and 4 Upper Thames Street, London, have secured a large order from Messrs. Preece & Cardew, consulting engineers, London, on behalf of the River Plate Electricity Company, Ltd., for the electric-light arc-lamp pillars and carriers required for La Plata.

THE Penrith Urban Council received an offer from the National Electric Construction Company to take over, on favourable terms, the powers of the Council as to electricity supply obtained by provisional order. The Council decided that they would entertain the question of leasing their powers to a company, and that offers from substantial companies be invited by public advertisement.

NEGOTIATIONS between Greenock Corporation and the Greenock and Port Glasgow Tramway Company with respect to terms for a supply of electricity for the next five years from Whitsunday have been brought to a conclusion. According to the agreement, the company guarantees a minimum annual consumption of 500,000 units, and the payment is to be at the following rates:—First 500,000 units, at 1.5*d.* per unit; next 200,000 units, 1.25*d.* per unit; next 200,000 units, 1*d.* per unit; and all units per annum consumed in excess of 900,000 units, 0.85*d.* per unit. The maximum demand is not to exceed 660 k.w.

A SCHEME is being promoted in Germany for the connection of certain important towns by means of electric railway. It is proposed to establish between Düsseldorf and Cologne, a distance of twenty-four miles, between Halle and Leipzig, a distance of twenty miles, and between Wiesbaden and Frankfurt-on-Maine, a distance of twenty-six miles, a train service which in the towns and suburbs shall serve all the purposes of a tramway, but shall traverse the intervening distances at a speed of between fifty and sixty miles an hour.

THE Islington Borough Council were informed by the electrical engineer that the cost of a report on everything connected with the Council's electricity undertaking by an expert must depend upon the status of the expert called in and the magnitude of the work he was called upon to do. Professor Kennedy's fee for advising on the proposed expenditure of 15,000*l.* would be 75*l.*, and on that basis a report on the whole of the 400,000*l.* invested would cost about 2,000*l.*, and if extensive reports were required a good deal more.

THE electricity department of the Manchester Corporation were recently summoned before the city justices, on the information of the chief inspector of the sanitary department of the Corporation, for allowing dense black smoke to be emitted from the tall chimney at the Stuart Street electricity station. The offence was admitted, and an explanation was offered by the resident engineer that the smoke was caused by certain experiments. The usual order to abate in twenty-eight days was made. Several manufacturing firms were also fined for allowing black smoke to escape from their chimneys.

THE International Railway Congress have had an opportunity of examining a device for the prevention of train wrecks exhibited by the Pennsylvania Railway authorities in the Railway Appliance Exhibition, Washington. It is believed, says the special correspondent of the *Glasgow Herald*, that the invention will absolutely prevent train wrecking. The device works independently of the engine-driver. An electrical mechanism automatically sets the brakes in the case of a broken rail, an open drawbridge, a misplaced point or any similar defects. It also operates a valve that shuts off steam on the engine.

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Awarded Royal Sanitary Institute's Medal, Exhibition, London University, Feb. 1905.



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147 STRAND, LONDON, W.C. (FIRST FLOOR.)

THE Wednesbury Town Council have approved an agreement with the South Staffordshire Tramway Company for the purchase of the tramway undertaking in the borough, including the dépôt, offices and machinery at King's Hill, but excluding any portion of the line between James Bridge and Darlaston, for 28,920*l.* Of this, 11,500*l.* represents the price of the dépôt which was to be resold, and the balance would be repayable in thirty years, the tramway company reimbursing both principal and interest. A promise had been given that the reconstruction and electrical equipment of the Darlaston line should be undertaken forthwith, and when this had been carried out measures could be taken for the reopening of the Dudley section.

THE electrified section of the Lancashire and Yorkshire Railway between Liverpool and Southport is being metalled with a very hard marble-like stone of great non-conductive power. This stone, which will take 3,000 volts without penetration, is spread in a thin coating underneath and between sleepers, and renders the live rail perfectly harmless. Under these circumstances anyone touching the live rail receives no shock unless he forms a direct contact between the live and dead rail. This special non-conductive ballast, which is obtained from a quarry near Darlington, has already been adopted on the North-Eastern Railway's electric lines in the Newcastle district with satisfactory effect.

VARIETIES.

MESSRS. J. & W. STEWART, Great Brunswick Street, Dublin, and Belfast, have received the contract from the Department of Agriculture for the erection of temporary buildings for the Royal College of Science in Dublin.

THE Birkenhead Corporation have been making experiments with a new dust-laying composition, with what appear to be satisfactory results. The scene of the operations was about a mile in length of Laird Street.

THE Glasgow Corporation have appointed a deputation to proceed to Berlin and Brussels to examine and report as to the system in use in those places for giving the correct time on the public clocks. In Glasgow several unsuccessful attempts have been made to accomplish this object.

THE Mantada partition slabs of the Adamant Company, Ltd., have been subjected to tests by the British Fire Prevention Committee. The 2½-inch slab withstood the heat for 100 minutes before a vertical crack appeared. A 2¼-inch slab stood well through the fire test, but the partition was weakened by the carbonising of the wood slips which should have held it together.

A LOCAL GOVERNMENT BOARD inspector inquiry was held on the 23rd inst. at the Public Hall, Erdington, respecting an application of the District Council to borrow 8,000*l.* for the purchase of the Rookery estate at Birches Green for the purpose of a dépôt and recreation ground, and 11,000*l.* for the provision of Council offices and public library.

AT Canterbury new sewerage and sewage-disposal works have been opened at the irrigation farm. The works were commenced about seventeen months ago, and the plant consists chiefly of four pumps capable of pumping 100,000 gallons per hour, and two larger ones capable of dealing with 200,000 per hour. The cost of the whole scheme was about 28,000*l.*

THE Dunfermline Town Council recently resolved to proceed with a scheme involving an expenditure of between 8,000*l.* and 9,000*l.* for the erection of an additional storage tank and the construction of filters at the auxiliary ponds. The finance committee, however, have since recommended that it is inexpedient, in view of the state of the burgh finances, to proceed with the scheme.

THE Building Societies' Association in their thirty-sixth annual report presented on Wednesday, state that the Association now occupies a stronger and more assured position than in any previous period of its history. It now represents building societies whose total assets, according to the last report issued by the chief registrar, amount to upwards of 39,000,000*l.*

THE police and sanitary committee of the House of Commons have signified their consent to clauses of the Liverpool Corporation omnibus Bill relating to the borrowing of 200,000*l.* for street improvements. Clause 31 sanctions the repayment of the loan by means of a cumulative sinking fund in addition to the usual way of annual equal instalments.

THE MOMENTUM ENGINE (Patented). The Discovery of Mechanically-made Power.

NOW IN OPERATION AT THE ALEXANDRA PALACE, LONDON, N.

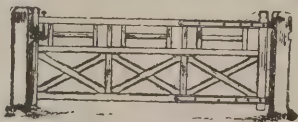
THE discovery; that, a free racing Flywheel possesses two natures, under one—it will receive rotary motion for the application of twenty pounds—notwithstanding it weighs a ton, and the second nature of the Flywheel is, that when it is connected to a working load it will throw out the rotary value of the centres of the weights in motion, by the square of the velocity, the centre of Gyration.

This discovery means several great Flywheels, each separately driven by any motive power, each Flywheel taking its regular turn to revolve a working shaft, to which it is connected, and from which it is disconnected for a greater length of time. Radium, and also these Engines, prove that the Theory of Energy is false. This Engine can be seen running the electric light at the Alexandra Palace. It is explained free.

The Engine has taken a first-class Diploma of Merit at the Alexandra Palace for Electric Lighting.

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BRICKS, as supplied to Derby and other Corporations.

TERRA-COTTA IN RED, BUFF,
TAWNY and GREY.

CONTRACTORS TO THE LONDON COUNTY COUNCIL.

A LARGE blast furnace on the American principle, erected by the Frodingham Iron and Steel Company, Ltd., was lighted on the 19th inst. The latest machinery in the market in the shape of blowing engines, &c., and automatic charging apparatus is attached, and the make of pig-iron at this furnace is expected to treble any one of those now in blast on the firm. All the ironstone is calcined before using.

A CONFERENCE of representatives of the City Corporation, the Westminster City Council and metropolitan borough councils held at Westminster on Friday last passed a resolution urging the Government to introduce a Bill into Parliament to give the highway authorities greater power to prevent the constant opening of public streets by the Postmaster-General and electric light, tramway and other companies.

A NEW hospital, erected at a cost of 10,000*l.*, on the pavilion system has been opened in Mexborough. The designs of Mr. J. E. Knight, Rotherham, were selected from the 27 sets submitted. The contractors were Messrs. W. Thornton & Son, Rotherham. The granolithic paving was supplied by Messrs. Hodkin & Jones, Ltd., Havelock Bridge Works, Sheffield. The laundry was equipped by Messrs. Summerscales, Ltd., Keighley, Yorks.

THE Bishop of Carlisle, in dedicating new bells at Bowness Church, near Carlisle, referred to the sweetness of bells in some country places, but said that he had lived in towns and would have been thankful if he could have buried nine-tenths of the bells whose clanging noise made them a nuisance. It was no testimonial to a church or chapel to have a cracked bell making a row all down the street. The whole question of bells in towns wanted reconsideration.

THE waterworks committee of the Lincoln City Council have conferred with Mr. G. H. Hill, of the firm of G. H. Hill & Sons, engineers, with regard to a new supply of water for the city. He recommended a scheme for obtaining it from Dorrington at a probable capital cost of 90,000*l.* exclusive of legal and engineering expenses. The working expenses for softening and pumping, exclusive of interest on capital, will probably be between 8,000*l.* and 9,000*l.* a year. The committee came to no definite decision in the matter.

THE Surrey education committee some months ago issued picture postcards to the schools under their control as an encouragement to the pupils to attend regularly. The scheme has not proved an unqualified success, and the opinion of the divisional school attendance committees is being asked as to the advisability of continuing it. The cost is about 750*l.* per annum. A sum of 500*l.* appeared in the estimates for the supply of a million postcards.

A SECOND edition of the "Furniture Styles," by Herbert E. Binstead, editor of the *Furniture Record*, will be issued immediately. The work has been well received, and the first edition published in November last is entirely exhausted. No book covering the same ground has hitherto been issued at such a low price (five shillings). It is fully illustrated throughout and covers a period from the Elizabethan to L'Art Nouveau styles, the latter style being fully treated. The publisher is Mr. A. H. Botwright, 14 City Road, E.C.

MESSRS. WESTGARTH, RICHARDSON & Co., Ltd., have completed the first of a pair of the largest rolling mill engines in the world. The engines are intended to drive a new 40-inch cogging mill. They consist of a set of three crank vertical compound engines of 15,000 horse-power, having cylinders of 45-inch diameter and 52-inch stroke. The engines are designed to work up to 200 revolutions per minute, the steam pressure being 200 lbs. per square inch. The weight of the engines is 500 tons each. The labour saving contrivances will enable them to be operated by one man.

THE Association of Master Plumbers, at their annual meeting in Buxton on Monday, confirmed the minutes of the half-yearly and central board meetings, the latter containing a resolution expressing great regret and disapproval at the resolution of the sub-committee of the water regulations joint committee suggesting that local associations should insist on registration as a qualification of authorisation. The Association also considered that the effects would be most unjust to many engaged in plumbing, because registration in its present condition could not be taken as an absolute test of qualification. The resolution was ordered to be sent to the committee on water regulations and the various local authorities and the Local Government Board.

ART PLATES FROM "THE ARCHITECT."

Awarded Gold Medals, International Health Exhibition and Architectural and Building Trades Exhibition (1889).

PROOFS on PLATE PAPER of the following Illustrations which have appeared in "THE ARCHITECT" can now be obtained in a separate form on proof paper suitable for Framing.

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 - No. III. THE FRANKS VICTORIOUS.
 - No. IV. THE BAPTISM OF CLOVIS.

Each piece Twenty Inches by Fifteen Inches. Price, Six Shillings the set; free by post, carefully packed inside patent roller.

JAS. NORTHCOTE, ESQ. By JAS. NORTHCOTE, R.A. Size, Twenty Inches by Fifteen Inches. Price, One Shilling each; free by post, carefully packed inside patent roller.

A BACCHANTE (LADY HAMILTON). From the Painting by Sir JOSHUA REYNOLDS. Size, Twenty Inches by Fifteen Inches. Price, One Shilling; free by post, carefully packed inside patent roller.

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ST. PAUL PREACHING AT EPHEBUS. By EUSTACHE LE SUEUR. From the Painting in the Louvre. Printed in red or black. Size, Thirty Inches in depth by Twenty Inches in width. Price, Two and Sixpence each; free by post, carefully packed inside patent roller.

May be obtained from all Newsagents, Booksellers, Messrs. W. H. SMITH & SON'S Bookstalls, or from the

Publishers, GILBERT WOOD & CO. Ltd., 6-11 Imperial Buildings, Ludgate Circus, London, E.C.

SUPPLEMENT

"The county surveyor to the Cumberland County Council in his report to the highways committee states that the increasing use of traction engines and motor cars must necessarily increase the cost of maintaining the main trunk roads. He finds as a rule that the inflated tyres of the quickly driven motor car do quite as much damage to the surface of the strong roads as the heavier traction engine, as they pull up the binding and so loosen the surface of the roads. If the speed were limited to fifteen miles an hour this damage would be almost imperceptible.

The floating steel dry dock now approaching completion at Baltimore for the Philippines will be the largest structure of its kind in the world. It is 500 feet long over all, 134 feet wide, 42 feet high on the walls clear of the pontoons, and has a lifting capacity of 20,000 tons. It contains 11,000 tons of steel, the side walls are 64 feet high from the bottom and the pontoons are 18 feet deep. When floating at light draught the dock will draw $6\frac{1}{2}$ feet of water, and when submerged it will require 63 feet of water to give a draught of 30 feet above the blocks. The cost will be 24,800.

THE official inspection by the Board of Trade inspector has been made of the Bangour Railway, which has been constructed by the Edinburgh District Lunacy Board from Uphall station to Bangour as a means of communication with the village pauper lunatic asylum at that place now being constructed. The railway—2½ miles in length—has cost over 30,000*l*. It has been in operation for some time in conveying material for the buildings in course of erection at Bangour, and it is estimated that it has saved about 18,500*l*. on contract prices in consequence of the facilities it has afforded for the conveyance of stone and lime and iron to the works.

AN official memorandum showing progress and expenditure, &c., on items in the Naval Works Act, states that though the date fixed in the Act for the completion of Dover Harbour is 1907-8, it is probable that the work will not be completed until the following year, viz. 1908-9. The Admiralty Pier extension, the east arm and the east reclamation are all completed, except the above-water work at the extremities of the breakwaters. The south breakwater has been commenced, and a short portion at the east end is up to water-level. The expenditure incurred

up to March 31, 1905, was about 2,287,000%, the total estimate under the Act being 3,500,000%.

A COMMISSION recently appointed by the Italian Government to study a plan of river navigation along the Po and its confluent between Venice and Milan have arrived at the following conclusions, viz. :—(1) To establish a direct service for 397 kiloms, with 600-ton flat boats from Venice to Milan, through Brondola, Cavanella, Adda, Pizzighettone and Lodi. (2) To group and connect all the branch lines to the principal one and to the lakes in a uniform manner, so as to cover a distance of 3,410 kiloms. The expenditure to be incurred in excavating and improving the services has been computed to be about 4,720,000*l*.

FALKIRK Town Council on Monday considered the application of the contractors laying the tramways in Falkirk for consent to the opening up of thoroughfares within the burgh at stretches greater than 100 yards, the maximum allowed by the Act, provided the local authority withhold consent. The application arose out of an interim interdict taken out against the contractors for opening a road at stretches of 400 yards and leaving crossings shorter than a quarter of a mile. The interdict was withdrawn on condition that the defenders abided by any stipulation the Town Council might make, and the Council have now determined not to grant their consent.

In pursuance of a resolution of the House of Commons, the Local Government Board have recently sent to the clerk of each metropolitan borough council and to the clerks of every county council, borough council, urban and rural district council and board of guardians in England and Wales a circular letter asking for replies to the following questions:—(1) Date of the last contract for the execution of works entered into by the local authority, *i.e.* each local authority mentioned above; (2) do the contracts for the execution of works entered into by the local authority specify any conditions as to the wages to be paid by the contractor, or other conditions with regard to the persons employed by him? (3) if so, what are the conditions so specified? When the local authorities have sent in their replies the information will be tabulated in a return to be laid before the House of Commons.

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THE sea-water baths erected by the Corporation of Carnarvon at a cost of 2,675*l.* have been opened on the Aber shore. The bath measures internally 250 feet by 95 feet 6 inches, and will contain at high tides about 690,000 gallons of water, ranging in depth from 3 to 10 feet. A caretaker's office and 20 bathing boxes are provided on a terrace at the inner part of the bath, and space provided for future extension and the erection of hot and cold private baths. Room for spectators is provided above the bathing boxes. The bath and buildings have been constructed by Messrs. George Roberts & Bro., Llandudno, from the designs and under the supervision of Mr. Edward Hall, M.S.E., borough engineer.

A LOCAL GOVERNMENT inquiry has been held into the application of the Eccles Town Council to borrow 12,500*l.* for the purpose of erecting workmen's dwellings in Lewis Street and Mellor Street, Patricroft. The Council propose to acquire 12,000 square yards of land at a cost of 2*d.* per yard. Upon 6,820 square yards it is intended to erect forty-six semi-detached houses, and upon the remainder of the land to erect a public elementary school to accommodate about 1,000 children. The houses are to be semi-detached, with three bedrooms, and a garden at the back of each. The rents will average about 7*s.* per week. On the Timothy Street site (the insanitary area) the Council propose to erect nineteen houses on the west side of Corporation Road, which is now being laid out for building purposes; but as to the remainder of the area the Council has not yet decided upon a scheme. By the present proposals accommodation would be provided for 390 persons.

In a report on the trade of Mexico for the year 1903, Mr. Bjorklund, clerk to H.M. Legation at Mexico City, states:—"There are quite a number of articles which are made in the United Kingdom which for some reason or another have decreased in importance, or which, through an oversight on the part of the manufacturers and exporters, other nations have been allowed to enter the field where once they had control. With the development of the country, the opening up of new districts, both agricultural and mining, the building of the port works and other public works, the construction of railways, the sanitation of many of the large towns of the Republic, the starting of new

industries, &c., an ample field is open for all kinds of articles which in former years were never even thought of for this market. Electricity, too—a power which under the present conditions seems destined to take the place of steam and water—supplies motive-power in districts which last century were still considered to be too far from any centre to be of any importance either for commercial or industrial purposes."

BUILDING IN EDINBURGH.

A REPORT has been prepared by Mr. James Massie, burgh engineer and master of works for the city of Edinburgh, on the work done by his department during the year ended December 31, 1904.

Notwithstanding the outcry about dulness of trade and want of employment among the working classes, the upward tendency in value of work presented for warrant to the Dean of Guild Court seems to show that much was contemplated during the past year if little has been realised. Both in the number of warrants granted and in the value of the work which these warrants represent are there considerable increases over the corresponding figures of the previous year, the totals being 862 warrants granted for 1904, against 802 for 1903, and the values of the work 994,940*l.* and 825,584*l.* for these years respectively. Turning to the work certified as completed during the year, the value is given as 668,820*l.*, as against 824,972*l.* for the year preceding. This does not necessarily imply a reduction of 156,152*l.* in the value of the work executed, as works started or in progress are not included, but in this respect the figures for the two years are on the same footing. The great reductions in value come under the heading of "Public Buildings and Alterations," which only total 99,920*l.* for 1904, against 175,322*l.* for 1903. Judging from the figures relating to villas, self-contained houses and tenements, it would appear that speculative building has suffered no check during the past year, as the estimated value of these classes of buildings certified amounts to 568,900*l.*, against 449,650*l.* for the year before. Whether the demand will equal the supply in this direction remains to be seen, but it appears that the allurements of fresh paint and new surroundings prove irresistible to a certain class, and new tenement property

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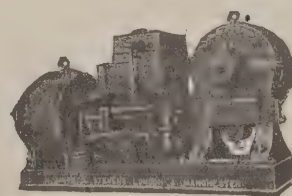
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of a good kind finds ready tenants. Whether it is to satisfy a demand, or is only a chance circumstance, the number of warrants applied for during the year, and the value these represent, show a large increase in the case of self-contained houses. Villas also show an increase, but in a less degree.

The report states that the only works carried out in connection with the housing of the working classes during the year had been the reconstruction of old tenements in Greenside. Of the 13,700*l.* sanctioned for the building scheme in this district, 6,500*l.* was allowed in the year's estimates for the rebuilding and remodelling of two tenements in Greenside Row, three tenements in Queen's Place and one in Gilchrist's Entry, embracing in all forty-eight houses of kitchen and bedroom and thirty-five houses of single apartment. The estimated cost of rebuilding these five tenements was 6,950*l.*, and the estimates accepted for the works amount to 6,907*l.* 10*s.* 5*d.* The rebuilding of the two tenements in Greenside Row was commenced in February, and the houses were ready for occupation in December. The second contract for reconstruction of two tenements in Queen's Place was commenced in April, and the houses are about ready for occupation; and a third contract for reconstruction of tenements in Queen's Place and Gilchrist's Entry was commenced in December. The work still to be undertaken under the scheme, as sanctioned by the Council, embraces the reconstruction of three tenements in Simpson's Court, two tenements in Greenside Row and Marshall's Court, the paving of the streets and courts and the demolition of certain old properties incapable of renovation. The sum allowed for this work is 6,550*l.*; but since the adoption by the Council of the proposals contained in report of September 14, 1903, two other properties have been acquired, which will require to be dealt with in a manner similar to those now in hand, and for which no allowance has yet been made. Of the properties acquired in Cowgate and Robertson's Close by private treaty, and comprising four tenements in Robertson's Close, one tenement in Cowgate, tenement, stables, &c., in South Niddry Street, three tenements and all the stables have been demolished, and the sites are presently open ground. Of the three tenements remaining, the two in Robertson's Close have been recon-

structed. The work was sanctioned by the Council in May, at a probable cost of 1,030*l.*, and was commenced in June and completed at the end of December for the sum of 997*l.* To complete the improvement of this area, the remaining tenement in Cowgate would require to be taken down and set back to the line of the buildings adjacent, as the carriage-way of Cowgate at this point is only about 17 feet wide, and this tenement and the one almost opposite form now the only obstructions to this thoroughfare, the street having been widened and improved at the east and west ends by the Improvement Scheme and Act of 1893. The clearing away of the old properties in Paul Street was carried out during the year. Gilmour Street has been widened to 40 feet.

The period of exemption under the Act of 1899 having now elapsed, all advertisement sites, with the exception of those specially provided for by the Act, can only exist and be continued under the license of the Corporation. Of the sites referred to, 177 have been licensed for a period of two years from October 25, while licenses for thirty-two sites have been declined.

Vans and lorries drawn by horses, and hand-carts or barrows, besides the usual sandwichmen, are now largely used. This undesirable mode of advertising, it is alleged, is the result of want of space on hoardings and gables, and it might be well, he thinks, to keep that fact in view when applications are being considered. The demand for sky-signs still continues, and it is satisfactory to note the continued improvement in design and workmanship of these productions, the evident desire of all interested being to exhibit some sign both original and artistic.

IGREEK MARBLES.

THE British Consul at Piræus reports that among the most important items exported from the district is the marble from the quarries of Pentelicus, owned for the most part by the British company, "Marmor." Most of this is shipped to Hamburg, but it is satisfactory to note from the shipments last year indications that fresh markets are being developed. This industry has naturally a formidable rival in Carrara, and only by perseverance and great attention to economy in

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the cost of production and transport will it be able to compete on satisfactory terms. The company is at a distinct disadvantage at present in the matter of transport, owing to the absence in the port of Piræus of properly appointed loading jetties in connection with the railway, alongside of which vessels of reasonable draught could lie. It is consequently necessary to load from lighters, the marble thus undergoing an extra handling, which has to be paid for. During last year there was an output from the company's quarries of Stamatovouni, Vlachos, Melana, &c., of 2,262,019 cubic metres; from Skyros the amount was 758,888 cubic metres; from quarries at Styra and Tinos 261,029 cubic metres, making a total for 1904 of 3,281,936 cubic metres.

CANAL DEVELOPMENT.

A MEETING of the Liverpool Chamber of Commerce was held on Monday, when Mr. G. H. Cox referred to the position of the new Canal Bill, which had been agreed to by the Chambers and the Mansion House Association. The Bill would, he said, be proposed on Friday by Mr. Barran, one of the members for Leeds. It provided for the taking over, improving and managing of certain canals which formed a chain of intercommunication between the principal ports in England. Powers were also taken for acquiring subsequently other canals—with the exception of the Manchester Ship Canal, which was a port from one end to the other—and for their improvement and management. Such consolidation of interest and management would improve the facilities for water carriage and establish a complete system of intercommunication. They were all agreed that we were very much behind continental nations and our cousins in the United States and in Canada as to better means of communication by water, with the consequence that our internal transit was very much more expensive than it was in any other country. We were waking up to that fact, but unless some means were adopted in this country for cheapening the cost of transit, we should lose a considerable portion of our international trade, which was being captured by our continental neighbours and by the United States and Canada. He did not think the public had any

idea of the vast sums of money that had been spent during the last ten years on the Continent and on the other side of the Atlantic in perfecting great canal and waterway schemes. The Bill had one fatal flaw, in that it only provided that eight members of the trust were to be elected by the tollpayers. This was far too small a proportion, and he feared would never serve the interests of the traders.

Mr. W. F. Lawrence, M.P., associated himself with what Mr. Cox had said about intercommunication by water. When we read that in France there was practically communication from the Bay of Biscay to the Mediterranean and considered the various waterways in the heart of Germany, and that in retrograde and slow-moving Russia they were actually talking of having a connection—not, he feared in the very near future—between St. Petersburg and the Black Sea, it was time for us to repair the perhaps mistaken policy of sixty or seventy years ago, when the railways were initiated and canals, of which we now saw the extreme importance, were unduly depreciated.

Mr. Austin Taylor, M.P., hoped it might be truly said that we were now at a point of expanding trade.

NICKEL AND IRON.

At the meeting of the Iron and Steel Institute a paper was read by Mr. Robert A. Hadfield describing "Experiments relating to the effect on mechanical and other properties of iron and its alloys produced by liquid air temperatures." He said that the importance of the discovery of the toughening effect of nickel upon iron at low temperatures will be seen when it is understood that whilst it has been well known that nickel in certain percentages produced important improvements in the qualities and properties of iron and steel alloys, no microscopical or chemical research work has yet proved why this came about. To Mr. Hadfield it seemed clear that these experiments go a long way towards offering a satisfactory explanation. It will be seen that the purest iron, as represented by the "S.C.I." containing 99.82 per cent. iron and of specially high quality and purity, becomes brittle to an extraordinary degree under the influence of the low temperature—182 degs. C. (test Nos. 95A and 136), whereas nickel itself tested at the same low temperature

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(test No. 120) has improved rather than deteriorated, not only in tenacity, which iron also does, but in ductility, in which latter quality iron entirely breaks down. If nickel therefore is present in an iron alloy containing but little carbon or comparatively low in that element, it acts as a preventive of brittleness, or is a very considerable modifier of that objectionable quality.

At ordinary temperatures the toughness or ductility of nickel is no greater than that of iron. For example, in comparative tensile tests, made by him, of nickel and pure iron, the ductility of iron was greater. The reduction of area in the material generally shows its condition as regards ductility; in the specimens in question the reduction of area in the tensile test bars was nearly 20 per cent. greater for iron in both his "S.C.I." and Arnold's pure iron than in the nickel specimen tested. Iron to a more or less degree, at any rate in manufacturing operations, always seems to be endeavouring to wander out of the "paths" of ductility and toughness; it is constantly endeavouring to become brittle. It will often assume its apparently brittle nature on the slightest provocation, and the metallurgist by his arts is always trying to correct this tendency. As with humanity, there seems to be a law of tendencies, and iron by heredity is constitutionally weak. It would appear therefore that iron, a cheap and convenient metal itself, must be permeated by some element that will mask or modify its properties. Until comparatively recently carbon was the only element known to modify the properties of iron; but this element, where great toughness is required, only helps to make matters worse. Fortunately for iron, however, its close companion, nickel, singularly enough in the same group, comes along and acts as a friend in keeping it—iron—up to the mark, and preventing it from wandering out of the narrow road of metallurgical rectitude; that is, of toughness or ductility. Exactly why this should be so cannot easily be explained, but this is the fact. Possibly some interpenetration of the atomic mass causes a change which cannot as yet be deduced by any known chemical investigations. Iron, too, is a very crystalline metal, whereas nickel appears to be much more amorphous; it is possible, therefore, that nickel tends to prevent iron crystallising in this manner, or prevents it cooling in such large or dangerous type of crystals. This action of nickel is simply marvellous in

certain of the alloy specimens; for example, with an alloy of iron, carbon 1.18 per cent., nickel 24.30 per cent., and manganese 6.05 per cent. Here the ductility is extraordinary at not only ordinary but low temperatures, probably the highest known for any iron alloy, and certainly for an alloy having such tenacity as 84 tons per square inch. There is still present in this alloy 68 per cent. of iron, yet the tendency of the latter metal to wander into the paths of brittleness is not only entirely checked at the liquid air temperature—and this brittleness, as shown so clearly in this research, occurs to an extraordinary extent in pure iron cooled to -182 degs. C.—but the elongation or ductility already so great is considerably increased, namely, from 60 per cent. to $67\frac{1}{2}$ per cent. There is also an increase of tenacity in both cases, namely, a rise of from 10 to 38 per cent. Thus the nickel present—as these results cannot apparently be ascribed to any other cause—enables the bar under this high tension and at 182 degs. C. to remain far more ductile than the very best of ductile iron of one-third the tenacity.

Although the action of nickel has been specially referred to, it must not be overlooked that in this alloy there is also present 6 per cent. of manganese, which in its ordinary combination with iron—that is, with no nickel present—would confer intense brittleness upon the iron, and render it more brittle than if not present. This treble combination of nickel-manganese with iron appears to reverse all the known laws of iron alloys. M. Osmond's theory as regards these iron nickel-manganese alloys is that manganese acts here in the nature of nickel. He considers that 1 per cent. of manganese is equivalent in its action upon iron to 2 per cent. of nickel. In conclusion, it may be said that the many extraordinary changes brought about in the physical properties of iron and its alloys could not have been deduced from any known laws. Iron in the main is "embrittled" to an extraordinary degree by liquid air temperature, and yet it will be seen that this "hereditary" tendency can be entirely checked in certain of its nickel iron-manganese combinations. These various changes appear to be certainly not chemical, and it is rather to the physicist we must eventually look for a full and correct explanation of the many curious results obtained in this research.



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NOTICE TO ADVERTISERS.

Under no circumstances whatever can the proprietors of this Journal guarantee alteration of copy if received after the first post on Tuesday mornings, and no proofs can be submitted if copy arrives later than first post on Saturday mornings.

EDITORIAL NOTICES.

In view of the many difficulties which are certain to arise in connection with the law, practice rules and procedure under the Workmen's Compensation Act, we have added to our staff A VERY EMINENT BARRISTER, who has made the subject a special study, and will be glad to answer in the columns of this paper any questions relating to the complicated matters arising from the provisions of this difficult Act. Our LEGAL ADVISER will further answer any legal question that may be of interest to our readers. All letters must be addressed "LEGAL ADVISER," Office of "The Architect," Imperial Buildings, Ludgate Circus, London, E.C.

The Editor will be glad to receive from Architects in London and the Provinces results of Competitions and Tenders and other particulars of Works in progress in which they may be interested.

The authors of signed articles and papers read in public must necessarily be held responsible for their contents.

No communication can be inserted unless authenticated by the name and address of the writer—not in every case for publication, but as a guarantee of good faith.

Correspondents are requested to make their communications as brief as possible. The space we can devote to Correspondence will not usually permit our inserting lengthy communications.

TENDERS, ETC.

* * As great disappointment is frequently expressed at the non-appearance of Contracts Open, Tenders, &c., it is particularly requested that information of this description be forwarded to the Office, Imperial Buildings, Ludgate Circus, London, E.C., not later than 2 P.M. on Thursdays.

COMPETITIONS OPEN.

HOVE.—Aug. 1.—Designs for new free library, not to exceed 10,000*l.* (exclusive of furniture). Premiums of 50*l.*, 30*l.* and 20*l.* Further particulars, Mr. H. Endacott, town clerk, Town Hall, Hove.

PERTH.—Aug. 1.—Plans for (1) reconstruction of the existing city hall at a cost not exceeding 6,000*l.*, and (2) erection of a new hall at a cost not exceeding 15,000*l.* Premiums will be awarded authors of plans placed first, second and third in order of merit as follows:—(1) For reconstruction, 30, 20 and 10 guineas respectively; (2) for a new hall, 50, 30 and 20 guineas respectively. Instructions, general conditions and plan of site from Mr. John Begg, town clerk.

CONTRACTS OPEN.

ALNWICK.—June 8.—For various works at the Alnwick workhouse. Mr. H. W. Walton, clerk, Alnwick.

ANCROFT.—June 13.—For the improvements, comprising new windows, clock-room, conveniences, drainage and road-making, &c., at the Ancroft, Scremerston Council school, Northumberland. Mr. J. A. Bean, county surveyor, Moot-hall, Newcastle-on-Tyne.

ASHTON-UNDER-LYNE.—June 10.—For the erection of a detached house, Mellor Road, Ashton-under-Lyne. Messrs. Thos. George & Son, architects, 7 Warrington Street, Ashton-under-Lyne.

BARBON.—June 5.—For proposed additions at Burnside, Barbon, Westmorland. Messrs. Walker, Carter & Walker, architects, Windermere.

BERWICK-ON-TWEED.—June 7.—For the erection of a block of houses in Greenside Avenue. Messrs. W. Gray & Nephew, architects, 2 Ivy Place, Berwick-on-Tweed.

BEVERLEY.—June 3.—For erection of an infant school (for 250 scholars) in Walkergate, Beverley. Messrs. Hawe & Foley, architects, North Bar Street, Beverley.

BICKINGTON.—June 10.—For the partial rebuilding and repair of a stable and cowhouse, with loft over, at Love Lane farm, Bickington, near Newton Abbot. Mr. Colman, tenant.



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BRIDGEND.—June 7.—For erection of a house on the Parca Bach estate, Bridgend. Messrs. Cook & Edwards, architects, Bridgend.

BRIDLINGTON.—June 6.—For erection of a house, stables, &c., Midway Avenue. Mr. A. T. Martindale, architect, Bridlington.

BROCKHILLS.—June 10.—For erection of farm buildings at Brockhills, near Totnes. Messrs. Bourne & Son, surveyors, Totnes.

BURSLER.—June 13.—For the erection of a new school of art in Queen Street, for the Town Council. Messrs. A. R. Wood & Son, architects, Queen Street, Burslem.

BUXTON.—For erection of a residence, White Knowl Park. Messrs. Garlick & Flint, architects, Buxton.

CARDIFF.—For the rebuilding of a portion of show-rooms, erection of stables, carrying out certain other alterations and additions to premises in Working Street, Cardiff. Mr. Henry Budgen, architect, 95 St. Mary Street, Cardiff.

CLAYTON.—June 6.—For the erection of a park shelter in the Victoria Park, Clayton, near Bradford. Mr. Sam Spencer, architect, Old Bank Chambers, Great Horton, Bradford.

COLCHESTER.—June 13.—For the construction of an engine-house, boiler-house, coal-store, reconstruction of reservoirs, retaining walls and other works in connection therewith, for the Colchester Corporation. Mr. C. E. Bland, waterworks superintendent, Town Hall, Colchester.

CRICKLEWOOD.—June 22.—For the construction of covered reservoirs, the laying of pipes, the formation of roads, culverts, &c., at Cricklewood, in the county of Middlesex, for the Metropolitan Water Board. The District Secretary at the New River District Office, 173 Rosebery Avenue, E.C.

CROMER.—June 19.—For the following works, for the Cromer Urban District Council, viz. erection of storeyard buildings, Central Road; erection of fire station, Canada Road. Mr. A. F. Scott, surveyor, West Street, Cromer.

CROYDON.—June 12.—For the erection of cottage homes on the workhouse premises, Croydon. Mr. J. Hatchard Smith, architect, 41 Moorgate Station Buildings, London, E.C.

DARTFORD.—June 19.—For the construction and erection complete of car sheds adjacent to the electricity works,

Priory Road, Dartford. Mr. T. E. Tiffin, surveyor, Council Offices, Dartford.

DONISTHORPE.—June 8.—For proposed new schoolroom, &c., at the Wesleyan Reform chapel. Mr. C. R. Ross, architect and surveyor, York Chambers, Long Eaton.

DORCHESTER.—June 24.—For repairing and painting, &c., at the headquarters police-station, Dorchester, where specifications may be seen.

DUNDALK.—June 12.—For the erection of municipal technical school. Mr. Maurice Sellars, engineer and surveyor, Town Hall, Dundalk.

EDINBURGH.—June 6.—For mason and brick, carpenter and joiner, smith, plumber, plaster, glazier and painter's work in the reconstruction of tenements, 6 Simpson's Court and 1 Cuddy Lane. The Burgh Engineer, City Chambers, Edinburgh.

FERRYBRIDGE.—June 5.—For the erection of a signal cabin at Ferrybridge station, Yorks, for the North-Eastern and Midland Railways. Mr. W. J. Cudworth, company's engineer, York.

GAINSBOROUGH.—July 6.—For the erection of an elementary school at Gainsborough, Lincs, to accommodate 934 children, for the Lindsey Council education committee. Messrs. Scorer & Gamble, architects, Bank Street Chambers, Lincoln.

GILDERSOME.—June 6.—For alterations to classrooms, asphaltting yards, &c., at the Gelderd Road Provided school, Gildersome, Yorks. Mr. J. Vickers-Edwards, county architect, County Hall, Wakefield.

GLANVILLES WOOTTON.—June 7.—For erecting a new classroom and improvements at Glanvilles Wootton school, Dorset. Mr. J. Feacey, architect, South Walks, Dorchester.

GLASGOW.—June 3.—For the execution of the following works, viz. :—(1) Excavator, mason and brick; (2) carpenter, joiner and glazier; (3) steel and smith; (4) slater; (5) plumber and gasfitting; (6) lath and plaster; (7) heating; and (8) asphalt, required in connection with the erection of St. Paul's Church. Mr. Colin Young, measurer, 141 West George Street, Glasgow.

GREENSIDE.—For erecting five cottages. Mr. W. Senior, Woodside Lane, Greenside.

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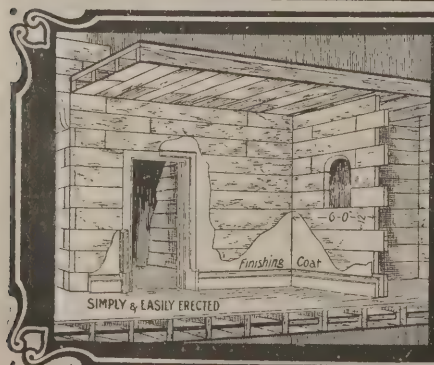
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GLOUCESTER.—June 14.—For the enlargement of the George Street post office, Gloucester. H.M. Office of Works, &c., Storey's Gate, S.W.

HALIFAX.—June 6.—For the erection of workpeople's dining-room, comprising fireproof constructions, steel roofing, &c., at Stansfeld Mills, Triangle. Mr. W. Clement Williams, architect, 29 Southgate, Halifax.

HALIFAX.—June 8.—For the mason and bricklayer, carpenter and joiner, slater and plasterer, plumber and glazier, painter, electric-light engineer and heating engineer's (low-pressure steam) trades required in alterations to the Oddfellows' Hall, St. James's Road, Halifax. Mr. Thomas Kershaw, architect, L. and Y. Bank Chambers, Halifax.

HINDHEAD.—June 5.—For the erection of a new school at Hindhead, Surrey. Messrs. Jarvis & Richards, architects, 36 Victoria Street, Westminster.

ILFORD.—June 15.—For the erection of a dust destructor of six cells, viz. cells, flues, dust chamber and boilers. Mr. H. Shaw, borough engineer, Town Hall, Ilford, Essex.

IPSWICH.—June 5.—For the enlargement of the Springfield Council school. Messrs. Bisshopp & Cautley, architects, 32 Museum Street, Ipswich.

IRELAND.—June 3.—For the erection of a residence for King's scholars at Glasnevin, for the Commissioners of National Education. Mr. J. F. Fuller, architect, 179 Great Brunswick Street, Dublin.

IRELAND.—June 3.—For building a caretaker's house at Victoria Cemetery, Carrickfergus. Mr. W. D. R. Taggart, architect, Scottish Provident Buildings, Belfast.

IRELAND.—June 5.—For the erection of a house and shop in Queenstown. Messrs. W. H. Hill & Son, architects, 28 South Mall, Cork.

IRELAND.—June 5.—For building a house in Eden Place, and improvements to two houses, Rossville Street, Londonderry. Mr. E. J. Toye, architect, Great James Street, Londonderry.

IRELAND.—June 5.—For the erection of twenty-three labourers' cottages, for the Stranorlar Rural District Council The Workhouse, Stranorlar.

KEIGHLEY.—June 5.—For the erection of a shelter in Devonshire Park. Mr. W. H. Hopkinson, borough engineer.

LANCASTER.—June 3.—For the mason's work required in erection of a balustrade wall round the Oval in Dalton Square. The Borough Surveyor's Office, Lancaster.

LANGLEY PARK.—June 3.—For the erection of fourteen cottages at Langley Park, Durham, and one cottage at Consett. Mr. C. E. Oliver, architect, General Offices, Consett.

LITTLE SAMPFORD.—June 5.—For rebuilding a bridge in the parish of Little Sampford, near Saffron Walden. Mr. Henry Smith, highway surveyor, Ashdon Road, Saffron Walden.

LONDON.—June 6.—For repairs and painting at the public urinals, for the Islington Borough Council. Mr. J. Patten Barber, borough engineer, Town Hall, Upper Street, N.

LONDON.—June 6.—For repairs, painting and other work at the public gardens, for the Islington Board of Guardians. Mr. J. Patten Barber, borough engineer, Town Hall, Upper Street, N.

LONDON.—June 7.—For the erection of new public baths in Manor Street, King's Road, Chelsea. Messrs. Wills & Anderson, 4 Adam Street, Adelphi, W.C.

LONDON.—June 7.—For the extension of the administrative block of the borough isolation hospital, Muswell Hill. Mr. E. J. Lovegrove, borough engineer and surveyor, Municipal Offices, 99 Southwood Lane, Highgate.

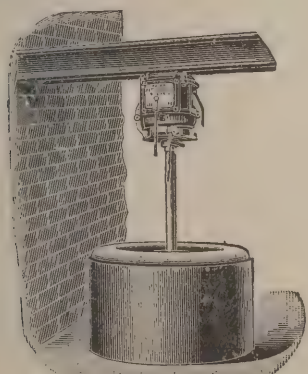
LONDON.—June 7.—For pulling-down 6, 8, 10, 12 and 14 Highgate Hill, adjoining the infirmary, and for removal of old materials, for the Guardians of Holborn Union. Mr. J. Allan Battersby, clerk, 53 Clerkenwell Road, E.C.

LONDON.—June 12.—For the erection of the proposed new public offices and town hall at Acton. Mr. William G. Hunt, architect, 17A Vicarage Gate, London, W.

LONDON.—June 19.—For the laying of tar-paving to playgrounds at three schools during the summer vacation, for the West Ham education committee. Mr. William Jacques, architect, Fen Court, E.C.

MACCLESFIELD.—June 7.—For alterations to the Roebuck inn, Market Street. Borough Surveyor's Office, Town Hall.

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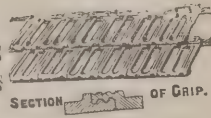
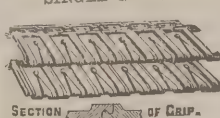
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MANCHESTER.—July 8.—For the erection of the Seymour Road municipal school, Clayton, Manchester. Mr. C. H. Wyatt, director of elementary education, Education Offices, Deansgate, Manchester.

MEXBOROUGH.—June 9.—For the erection of two new classrooms, &c., to the mixed department at the Doncaster Road Provided school, Mexborough, near Rotherham. Mr. J. Vickers-Edwards, County Hall, Wakefield.

NEWCASTLE-UPON-TYNE.—June 10.—For erecting boiler-house and laundry at the workhouse, Westgate Road, Newcastle-upon-Tyne. Messrs. Newcombe & Newcombe, architects, 89 Pilgrim Street.

NORTHFLEET.—For the reconstruction of the nave roof of St. Botolph's Church, Northfleet, Kent. Mr. G. E. Clay, architect, 27 King Street, Gravesend.

OXFORD.—June 14.—For additions to the infirmary buildings at the Poor Law schools, Cowley, Oxon, for the Oxford Incorporation. Mr. Adolphus Bullard, 5 and 6 Magdalen Street, Oxford.

PERSHORE.—June 17.—For the erection of walls, iron fencing and construction of drains at the Pershore cemetery. Mr. Lionel E. Clayton, clerk to the committee, Bridge Street, Pershore.

PETWORTH.—June 14.—For pulling-down the existing wooden bridge at Drungewick, near Loxwood, Sussex, and building a steel girder bridge and other works. The Council Offices, Petworth.

PORTSMOUTH.—June 14.—For the construction of dining-rooms, dormitories, hall and other works, for the committee of the Royal Sailors' Home, Portsmouth. Mr. G. C. Vernon-Inkpen, architect, 40 Commercial Road, Portsmouth.

PRESTWICH.—June 3.—For alterations and additions at the Heaton Park British school, Prestwich, near Manchester. Messrs. Clegg & Thorp, architects, 41 Corporation Street, Manchester.

PRUDHOE.—June 5.—For the erection and completion of five new houses and five new flats at Edgewell Colliery, Prudhoe, Northumberland. Mr. John C. Eltringham, architect and surveyor, Bishopley Lane, Blackhill.

RHYL.—June 24.—For taking-down the old police station buildings and for the erection on the site of a public free

library and extension to the town hall. Mr. Arthur A. Goodall, town surveyor, Council Offices, Clwyd Street.

SCOTLAND.—June 2.—For the mason, carpenter, slater and plasterer's work of (1) dwelling-house at Craighill, Tullynessle; (2) mason, carpenter and slater's work of steading to be erected at Newton, Tullynessle; and (3) balance of steading for the farm of Crookmore. Messrs. Alexander Stronach, jun., & Son, advocates, 20 Belmont Street, Aberdeen.

SCOTLAND.—June 5.—For building boundary wall and gate pillars at Holytown cemetery, Bothwell. Mr. R. W. Dron, 55 West Regent Street, Glasgow.

SCOTLAND.—June 6.—For the following works at Partick, viz.: (1) digger, mason and brickwork; (2) carpenter, joiner and glazier; (3) cast-iron and steel and iron roofing; (4) slater; (5) plumber; and (6) painter, for the proposed extension of the electricity department. Mr. John Bryce, burgh engineer, 1 Maxwell Street, Partick.

SCOTLAND.—June 12.—For construction of enclosure walls, gateways and keeper's lodge and laying-out grounds of new cemetery at New Dykes, Prestwick. Messrs. J. & H. V. Eaglesham, architects, 24 Wellington Square, Ayr.

SCOTLAND.—June 14.—For the construction of a storage reservoir on the line of the Bannockburn, near North Thord. Messrs. Warren & Stuart, civil engineers, 94 Hope Street, Glasgow.

SHEFFIELD.—June 5.—For the extension of carpets at Tinsley car sheds. Mr. C. F. Wike, city surveyor, Town Hall, Sheffield.

SHEFFIELD.—June 8.—For alterations to the Grammar school buildings. Messrs. Gibbs & Flockton, architects, 15 St. James's Row, Sheffield.

SHIPLEY.—For the erection of a detached villa at Nab Wood, Shipley, Yorks. Mr. Percy Fox, architect, Manchester Road, Bradford.

STAINCLIFFE.—June 5.—For the erection of a Wesleyan school at Staincliffe, Yorks. Messrs. John Kirk & Sons, architects, Dewsbury.

TROON.—June 5.—For alterations to the Wesleyan chapel, Troon, Camborne, Cornwall. Mr. Horace W. Collins, architect, Clinton Road, Redruth.

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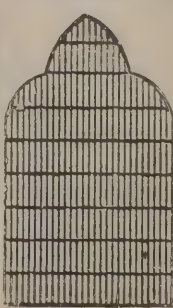
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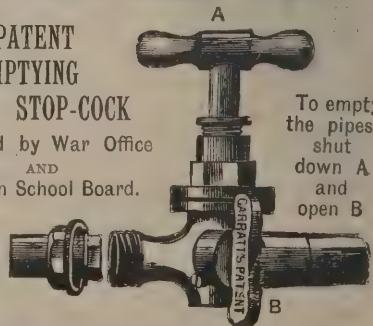


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WAKEFIELD.—June 15.—For the erection of parochial hall buildings, residence, boundary walling, &c., in connection with the parish of St. Andrew's. Mr. Simpson, Southgate Chambers.

WALES.—For rectory at Blaina. Mr. J. Cook Rees, architect, Neath.

WALES.—June 3.—For building a vicarage at Llandilo. Mr. David Jenkins, architect, Llandilo.

WALES.—June 3.—For the erection of a new police-station at Cwmavon, Glamorgan. The County Council offices, Westgate Street, Cardiff.

WALES.—June 5.—For the erection of a mixed school and the execution of works connected therewith at Pengenlan, Miskin, Mountain Ash. Mr. W. G. Thomas, architect, Public Offices, Mountain Ash.

WALES.—June 5.—For renewing (in part) the decking and treads of the footbridges at Frederick Street, Williams Street and Temple Street, Newport, Mon. Mr. Robert H. Haynes, borough engineer, Town Hall.

WALES.—June 7.—For the following works, for the Glamorgan County Council, viz. (1) alterations and additions at the Castell Coch Council school, Tongwynlais, near Cardiff; (2) erection of temporary classroom at the Coychurch Higher Council school, near Bridgend; (3) forming path, &c., at the Porth intermediate school. The County Offices, Westgate Street, Cardiff.

WALES.—June 7.—For the following work in connection with the Brecon and Radnor asylum:—1. Wiring of the new farm buildings, including the supply and fixing of motors; 2, fire-alarm intallation at the asylum. The Clerk, Brecon and Radnor Asylum, Talgarth, R.S.O.

WALES.—June 7.—For the following work, for the Glamorgan County Council:—(1) Additions to the Glais Council school, Swansea Valley; (2) extension of playground and removal and reinstatement of offices at the Plasnewydd Boys' Council school, Maesteg. The County Offices, Cardiff.

WALES.—June 10.—For the erection of sixteen or more houses at the Bryn, between Maesycwmmmer and Pontllanfraith. Mr. W. A. Griffiths, architect and surveyor, Pontllanfraith, Mon.

WALES.—June 10.—For the erection of a C.M. chapel at Penygroes, near Llandebie, and schoolroom at Cross Hands. Mr. W. Wilkins, architect, Llanelly.

WALES.—June 14.—For the electric lighting of the new Cardiff Corporation asylum at Whitchurch. Mr. A. Ellis, borough electrical engineer, The Hayes, Cardiff.

WALES.—June 14.—For the erection of large swimming-baths, &c., at Llwynpia. Mr. W. Beddoe Rees, architect, 3 Dumfries Place, Cardiff.

WALES.—June 14.—For rebuilding of Newport (Mon) head post office. H.M. Office of Works, &c., Storey's Gate.

WALES.—June 23.—For additions to the Llansantffraid Glyn Ceriog Council school, Denbighshire. The Headmaster, Council School, Llansantffraid Glyn Ceriog.

WARMINSTER.—June 14.—For the erection of a fire station in the Close Road, Warminster. Mr. Chas. H. Lawton, surveyor, Warminster.

WEAVERHAM.—June 8.—For alterations and additions to the school buildings, Weaverham, Cheshire. Mr. H. Beswick, county architect, Newgate Street, Chester.

WESTBOROUGH.—June 9.—For the erection of three terrace houses at Westborough, Dewsbury. Messrs. J. Firth & Son, architects, 67 Vulcan Road, Dewsbury.

WIVENHOE.—June 5.—For structural alterations and repairs to the old Board school, Wivenhoe, Essex. Mr. F. Whitmore, county architect, Duke Street, Chelmsford.

WOLVERHAMPTON.—June 7.—For the following works at certain schools, for the education committee:—(1) Painting and colouring of premises; (2) structural alterations; (3) supplying and fixing hot-water apparatus. Mr. T. H. Fleming, architect to the committee, 10 Queen Square, Wolverhampton.

WREXHAM.—June 3.—For erection of warehouses, carriage works, house, offices, stables and cart-shed, &c., in Pentrefelin. Mr. M. J. Gummow, architect, Egerton Street, Wrexham.

THE Belgian Parliament have under consideration a Bill for the extension and fortification of the port of Antwerp. The total cost of the work is estimated at 4,320,000l.—3,080,000l. for fortifications, &c., and 1,240,000l. for armament.

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Messrs. J. Thomasson & Sons, Spinners, of Bolton write:—"A small fire occurred on our premises. The May-Oatway Alarm worked satisfactorily, 10 minutes before the Automatic Sprinkler went off." Loss £48. What have you done to limit your loss?

Messrs. S. Henderson & Sons, Ltd., Biscuit Works, Edinburgh, write:—"A fire broke out in our factory during the dinner hour on January 18, 1905, when the May-Oatway installation (put in since our previous fire) saved a very serious loss. We now have a pleasing sense of security in having an automatic system which not only gives immediate warning to our own staff, but calls the Fire Brigade as well." Loss under £50.

MAY-OATWAY FIRE ALARM.—Rt. Hon. Richard Seddon, P.O., Premier, writes:—"This system has been largely adopted in New Zealand, and has given the greatest satisfaction." (The Government are the largest users; protecting Schools, Asylums, &c.)

Mr. H. Jenkinson, Printer, Leeds, writes:—"Fire March 16 and December 12. Both instantly signalled to Fire Station by the May-Oatway Fire Alarm, and resulting in comparatively little loss." Claims paid, £10 and £50 respectively. What have you done to limit your loss?

Send for circular, or call and inspect 94 Paul Street, E.C. : Glasgow, Liverpool and Manchester.

"FROSTERLEY MARBLE."

Agents:

EMLEY & SONS, Ltd.

Steam Marble Mills,
NEWCASTLE-UPON-TYNE.

For Index of Advertisers, see page x.

TENDERS.**ABERTILLERY.**

For building chancel to the parish church. Mr. C. TELFORD	
EVANS, architect, Cardiff.	
Skidmore & McWhirter	£2,887 0 0
Gaen Bros.	2,850 0 0
Jenkins	2,823 0 0
Pugh	2,765 0 0
Bagley	2,519 0 0
J. JONES, 45 Powell Street, Abertillery (accepted)	2,494 7 0

BARKING.

For the erection of three flats at Kennedy Road, Barking, E., for Mr. R. Bennett. Mr. J. M. H. GLADWELL, architect, Essex House, High Street, Stratford, E.	
Jones	£1,133 0 0
Calcutt	1,131 0 0
North	1,095 0 0
Bull	1,080 0 0
Groom	1,050 0 0

BELLSHILL (SCOTLAND).

For works in connection with additions to Bothwell hospital, for the District Committee. Mr. A. CULLEN, architect, Hamilton.

Accepted tenders.

Mackenzie & Donaldson, Motherwell, mason	£2,121 13 2
Wotherspoon & Grant, Bellshill, joiner	758 1 8
Cormack & Sons, Glasgow, heating	617 11 4
Renfrew & Newall, Glasgow, plumber	426 0 9
Coldwell, Baillieston, plasterer and cementer	248 11 9
Cherry & Co., Ltd., Glasgow, tiler	140 8 9
Robertson, Glasgow, slater	116 18 0
Law & Macfarlane, Bellshill, painter	78 17 7

BILSTON.

For the erection of a school for 1,200 children at Stonefield, Bilston. Messrs. BAILEY & McCONNAL, architects, Bridge Street, Walsall.

T. HARDY, West Bromwich (accepted) . £12,784 0 0

BIRMINGHAM.

For the supply of rails, &c., for the tramways committee of the City Council.

Accepted tenders.

1,650 tons of tram rails, with the necessary number of fishplates, Bolckow, Vaughan & Co., Middlesbrough, £5 10s. per ton.
Special tramway work, Hadfield's Steel Foundry Co., Sheffield, £1,708 10s.
Reconstructing the permanent way, Dick, Kerr & Co., Preston, £42,261 15s. 1d.

For the supply of 200 cars, including provision for spare parts and contingencies.

Dick, Kerr & Co. £110,411 12 0

BRIGHTON.

For supplying and fixing additional switch gear at North Road station.

BRITISH WESTINGHOUSE ELECTRIC AND MANUFACTURING Co., LTD. (accepted) . £69 0 0

For supplying isolating switch to all existing feeders and accessories at the Southwick generating station.

BRITISH WESTINGHOUSE ELECTRIC AND MANUFACTURING Co., LTD. (accepted) . £1,450 0 0

BRISTOL.

For painting, cleaning and other work at Arley Congregational chapel. Mr. A. HARFORD, architect.

Derrick	£228 13 0
Barrett & Son	200 0 0
Cottrell Bros.	198 0 0
Ridd	193 0 0
Broadbear	185 0 0
James	185 0 0
Walters & Son	178 0 0
Woodward	162 6 8
Beavan	157 15 0
Dark Bros.	145 10 0
F. W. WATERS, Lawrence Hill, Bristol (accepted)	127 0 0
Williams & Sons	109 0 0

Hot-water heating.

DARK BROS. (accepted) 120 0 0

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CARLTON.

For the erection and completion of a free public library and caretaker's house. Mr. J. C. HALLER, C.E., engineer.

Hutchinson & Son	£2,390	0	0
J. & J. Warner	2,387	0	0
Maule & Co.	2,320	0	0
Messon	2,290	0	0
Harper	2,191	0	0
Wood	2,159	0	0
Cuthbert & Son	2,153	10	0
Loach	2,010	9	0
G. T. TEGERDINE, Carlton (accepted)	1,960	0	0
Young	1,780	0	0

For construction of 9,400 lineal yards of 9-inch sewers, with all the necessary manholes, flushing chambers, &c., on the Porchester and Carnarvon estates; and 1,600 lineal yards of 12-inch and 520 lineal yards of 9-inch sewers, with the necessary manholes and flushing chambers. Mr. J. C. HALLER, C.E., engineer.

Palmer	£8,308	0	0
Hutchinson	7,900	0	0
Loch, Andrews & Price	7,843	0	0
Wilmot	7,684	0	0
Thorpe & Sutherland	7,433	0	0
Buckley	7,372	0	0
Jenkins	7,239	0	0
Henson	7,075	0	0
Moss & Sons, Ltd.	7,010	0	0
Wood	6,996	0	0
Hawley & Son	6,886	0	0
Jameson	6,726	0	0
Bradley	6,724	0	0
Clarke & Son	6,703	0	0
Lane Bros.	6,679	0	0
Rayner	6,673	0	0
Kerry	6,647	0	0
Belshaw & Son	6,500	0	0
Doleman	6,445	0	0
Thraves	6,384	0	0
Bower Bros.	6,241	0	0
Cox & Co.	6,139	0	0
Barry	6,000	0	0

CARLTON—continued.

Brigg	£5,790	0	0
Harper	5,699	0	0
Christie	5,586	0	0
Warner	5,448	0	0
J. H. Wood, Leeds (accepted)	5,325	5	0

CONVOY.

For alterations and additions to premises at Donegal, for the Convooy Woollen Co. Mr. M. A. ROBINSON, architect, Londonderry.

Sweeney	£11,466	11	9
McNally	11,242	15	0
Smyth Bros.	11,061	8	10
Courtney & Co.	9,879	0	0
Collen Bros.	9,763	0	0
Colhoun	8,406	15	0
H. LAVERTY & SONS, Ltd., Belfast (accepted)	8,108	0	0

DEVONPORT.

For rebuilding the Stoke inn and adjoining premises. Mr. E. M. LEEST, architect. Quantities by Messrs. LEEST & ADAMS.

Pile & Son	£2,209	10	0
Smith & Son	1,965	15	0
Littleton & Son	1,886	0	0
PEARCE BROS. (accepted)	1,658	0	0

EVESHAM.

For carrying-out the work of water supply at Weston-sub-Edge.

W. H. READING, Wolverhampton (accepted)	£143	15	8
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GREAT BADDOW.

For erection of seven cottages. Mr. R. MAWHOOD, architect, Chelmsford.

Baker & Sons	£1,898	0	0
Rayner	1,695	0	0
Govers	1,575	0	0
F. CRACKNELL, Great Baddow (accepted)	1,565	0	0

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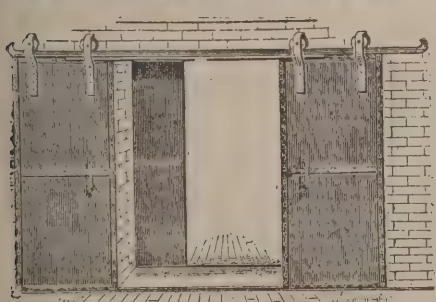
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For Index of Advertisers, see page x.

LEEDS.

For works in connection with the Quarry Hill improvement, including some 50,000 cubic yards of excavation, formation of a 75-foot street, construction of subways under same, making two secondary roads, including the erection of retaining walls, steps and railings, for the unhealthy areas committee.

Hayes	£21,716	12	4
Pullan	20,500	0	0
Baker & Sons	19,522	11	9
Starkey	19,015	13	4
Brunton	18,907	2	6
Watt Bros.	18,252	15	0
Whitaker Bros.	18,202	9	8
Holme & King	18,038	12	5
Otley	17,792	0	0
Lant	17,388	9	7
Myers & Sons	17,226	0	0
Hannam & Son	16,960	4	2
Graham & Sons, Ltd.	16,577	0	0
Greaves & Wheeler	16,396	0	0
Schofield, Sons & Co., Ltd.	16,363	16	1
Wright	16,148	18	6
Speight & Sons	16,142	18	8
Parker & Sharp	16,045	16	7
Bentley	15,766	0	0
Braithwaite & Co.	15,652	9	4
Pickthall & Son	15,650	0	0
Irwin & Co., Ltd.	14,878	0	0
Graham & Sons	14,665	15	3
Worthington	13,292	17	0
H. ARNOLD & SONS, Leeds and Doncaster (accepted)	12,723	10	0

LONDON.

For the erection of new farm buildings required at Horton asylum, for the London County Council.

Foster & Dicksee	£8,563	0	0
Batchelor	4,700	0	0
Bulled & Co.	4,323	0	0
Roll & Taylor	4,250	0	0
Enness Bros.	3,828	0	0
W. POTTER, Horsham (accepted)	3,700	0	0

LONDON—continued.

For the erection of disinfecting station, excluding machinery and apparatus, for the Kensington Borough Council, Mr. W.M. WEAVER, borough engineer.

	With Glazed Bricks Externally.	With Red Pressed Bricks Externally.
Cunningham, Forbes & Co.	£7,131 15 6	£7,707 19 2
Barker & Co., Ltd.	6,002 0 0	5,566 0 0
Haynes	5,995 1 9	5,544 7 4
Wright	5,450 10 0	5,000 0 0
Patman & Fotheringham, Ltd.	5,223 0 0	4,773 0 0
King & Son	5,135 0 0	4,863 0 0
Wallis	5,105 0 0	4,802 0 0
Higgs & Hill, Ltd.	4,994 0 0	4,594 0 0
Wollisten	4,993 13 8	4,698 7 9
Mattock & Parsons	4,992 0 0	4,583 0 0
Kirk & Randall	4,987 0 0	4,627 0 0
Mowlem & Co., Ltd.	4,980 0 0	4,640 0 0
Dean & Co.	4,900 0 0	4,526 0 0
Lamplough	4,872 0 0	4,449 0 0
Dearing & Son	4,822 15 1	4,545 5 6
Martin, Wells & Co.	4,865 0 0	4,550 0 0
Bendon	4,775 0 0	4,445 0 0
Lawrence & Son	4,773 0 0	4,354 0 0
A. HUDSON & Co., Westminster (accepted)	4,727 0 0	4,456 0 0
For laying about 3,000 super yards of tar-paving in the playground, Morton Road, and in St. Mary's Church Gardens, for the Islington Borough Council. Mr. J. PATTEN BARBER, borough engineer.		
Northern Quarries Company, Ltd.	£468 0 0	
Public Works Company	418 0 5	
Carr & Co.	411 8 9	
Fry Bros.	359 15 0	
Pearce	342 4 5	
Chittenden & Simmons	340 15 5	
D. Daniels, Ltd.	328 0 10	
Deeley & Co.	303 3 4	
Sheppard & Co.	296 18 6	
J. Wainwright & Co., Ltd.	279 5 0	
Constable & Co., Ltd.	277 5 4	
J. SMART & SON, Westminster (accepted)	270 8	

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HARDENS.**

**RED LABEL FOR OUT-
SIDE, DRIES IN ABOUT
15 HOURS ACCORDING TO
WEATHER.**

LONDON—continued.

For the erection of new police station at Notting Hill. Mr. J. DIXON BUTLER, architect. Quantities by Messrs. THURGOOD, SON & CHIDGEY.

Lole & Lightfoot	£12,849	0	0
Lascelles & Co.	12,700	0	0
Holloway Bros.	12,676	0	0
Lathey Bros.	12,549	0	0
Lovatt, Ltd.	12,330	0	0
Harris & Wardrop	12,246	0	0
F. & H. F. Higgs	12,160	0	0
Minter	11,997	0	0
Aldin Bros.	11,973	0	0
Spencer & Co.	11,947	0	0
Mowlem & Co.	11,936	0	0
Ashby & Horner	11,850	0	0
Grover & Son	11,784	0	0
Lawrance & Son	11,675	0	0
Leslie & Co.	11,305	0	0

For providing covered sheds and seats in the boys and girls' playgrounds of the school for mentally defective children on the Riley Street site, Bermondsey.

Iles, Ltd.	£80	10	8
Rice & Son	67	0	0
Maxwell Bros., Ltd.	61	0	0
Whitehead & Co., Ltd.	57	0	0
Marsland & Sons	55	0	0
Goad.	48	0	0
Line.	45	0	0

For alterations and additions at the Custom House hotel, Custom House, E., for Mr. H. E. Elliston. Mr. J. M. H. GLADWELL, architect, Essex House, High Street, Stratford, E. Quantities by Mr. LEWIS E. G. COLLINS, 31 Great St. Helens, E.C.

Newman & Todd	£7,396	0	0
Harris & Wardrop	7,200	0	0
Pringle	7,050	0	0
Harper	6,853	0	0
Sheffield Bros.	6,795	0	0
Hibberd Bros.	6,781	0	0
Maddison	6,598	0	0

LONDON—continued.

For providing covered sheds and seats in the boys and girls' playgrounds of the Hugh Myddelton school for mentally defective children, Finsbury.

Irwin	£75	0	0
Green	75	0	0
Peattie	73	0	0
Stevens Bros.	72	0	0
Williams & Son	70	0	0
General Builders, Ltd.	67	0	0
STAINES & SON, Great Eastern Street (accepted)	66	0	0

For cleaning interior of the Drury Lane Day Industrial school, Holborn.

Foxley	£340	0	0
Appleby & Sons	298	0	0
Barrett & Power	295	10	0
Holloway Bros., Ltd.	286	0	0
Hornett	260	0	0
Sims	228	0	0
T. L. GREEN, Eagle Street, Holborn (accepted)	197	0	0

For the erection of farm buildings at the Epileptic colony, for the London County Council.

Foster & Dicksee	£2,595	0	0
Batchelor	2,400	0	0
Bulled & Co.	2,377	0	0
Enness Bros.	2,102	0	0
Roll & Taylor	2,047	0	0
W. POTTER, Horsham (accepted)	2,007	0	0

NOTTINGHAM.

For the erection of stabling, Popham Street, Nottingham. Mr. HARRY ALLCOCK, architect.

F. MESSOM (accepted)	£135	14	0
Crane & Co.	134	17	0
Wright	133	0	0
Kerry	130	0	0
Short	129	10	0
J. & H. Vickers	129	0	0
Richardson & Hewerdine	128	0	0
T. & W. Lee	127	0	0
Inger	125	10	0
Clarke	120	0	0

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MANCHESTER
TRAFFORD PARK.

NOTTINGHAM—continued.

For the erection of four houses in Meadow and Colwick Road. Mr. HARRY ALLCOCK, architect.

Messom	£1,825	0	0
Vickers & Son	1,793	0	0
Whittaker	1,750	0	0
Wright	1,725	0	0
Clarke	1,720	0	0
Booth	1,714	0	0
Short	1,697	0	0
Pillatt	1,661	0	0
Barlow	1,660	0	0
H. & J. Simons	1,655	0	0
Sadler	1,650	0	0
Lovett	1,650	0	0
Richardson & Hewerdine	1,629	0	0
FISH & SON (accepted)	1,615	0	0
Crane & Co.	1,598	0	0
Wright	1,595	0	0

For the erection of four houses in Meadow Lane. Mr. HARRY ALLCOCK, architect.

FISH & SON (as per above schedule) £1,186 6 0

For the erection of a building for the Nottingham Master Butchers' Products and Casings Co., Ltd. Mr. HARRY ALLCOCK, architect.

Whittaker	£649	0	0
William Crane, Ltd.	625	0	0
Inger	616	16	0
Dennett & Ingle	612	0	0
Wright	605	0	0
Vickers & Son	595	0	0
Short	595	0	0
Messom	588	0	0
Booth	587	14	0
Hutchinson	585	0	0
FISH & SON (accepted)	582	0	0
Clarke	575	0	0
Kerry	556	11	1
Vickers	520	0	0

NEWBURY.

For the erection of the Carnegie library from plans by the borough surveyor.

HOSKINGS BROS. (accepted) £1,920 0 0

ROYDON.

For the erection of an eight-roomed house near Roydon, Essex, for Mr. C. F. Steel. Messrs. BARRETT & DRIVER, architects, 23 Ycrk Place, W.

Foster & Son	£420	0	0
Archer	395	0	0
King	360	0	0
Byott	337	7	0
Charter	310	0	0
W. E. CLARKE, Hoddesdon (accepted)	298	10	0

REDRUTH.

For additions and improvements to the Druids' hall. Mr. H. W. COLLINS, architect, Redruth.

Hodge & Opie £1,596 0 0
A. CARKEEK, Redruth (accepted) 1,580 0 0

REIGATE.

For the erection of a residence. Mr. C. E. SALMON, architect, Bell Street, Reigate.

Bagaley & Son	£6,490	0	0
Killick	6,315	13	6
King & Son	6,080	0	0
W. WICKMAN (accepted)	5,595	0	0

SPRINGFIELD.

For two shops at Springfield. Mr. R. MAWHOOD, architect, Chelmsford.

Cracknell	£800	0	0
Fincham	785	0	0
Gowers	765	0	0
Beckett Bros.	753	0	0
Sarums	750	0	0
Baker & Sons	735	0	0
WEIGHT, Springfield (accepted)	735	0	0

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Matthews	539	14	0
Williams & Co.	430	0	0
Kyle	427	15	0
Tilley & Sons	396	10	0
Potter & Co.	372	5	0
Ockenden	368	0	0
Duke & Ockenden	364	5	0
Isler & Co.	352	15	0
Le Grand & Sutcliff	351	9	8
Brown & Co.	342	5	0
Cheeld & Co.	328	7	6
Noble	326	14	0
Bennett	324	5	0
J. THOM, Patricroft (accepted)	313	12	6

SOUTHEND-ON-SEA.

For the erection of a public library in Victoria Avenue, Southend-on-Sea, for the Corporation.

F. & E. DAVEY, LTD., Southend-on-Sea (accepted) £7,576 0 0

SWANLEY JUNCTION.

For an addition to the Kent Jam Company's (Ltd.) Factory. Mr. W. S. SKINNER, architect, Bristol.

Holloway	£3,282	0	0
F. & H. F. Higgs	3,225	0	0
Johnson & Co.	3,095	0	0
Blay	2,846	0	0
J. LONSDALE, Swanley Junction (accepted)	2,748	0	0

SOUTHAMPTON.

For converting Nos. 102, 104, 106 and 108 Above Bar into business premises, for Messrs. Smith, Bradbeer & Co., Ltd. Mr. WILLIAM BURROUGH HILL, architect and surveyor, Southampton.

Udale & Co.	£3,305	16	0
Dyer & Sons	3,070	0	0
Drake	2,875	0	0
Jenkins & Sons	2,764	0	0
Playfair & Toole	2,727	0	0
Stevens & Co.	2,544	0	0
Wright & Son	2,495	0	0
H. CAWTE (accepted)	2,431	0	0

For converting No. 100 Above Bar into business premises, for Mr. William Dale. Mr. WILLIAM BURROUGH HILL, architect and surveyor, Southampton.

H. STEVENS & Co., Southampton (accepted) £354 0 0

For converting No. 98 Above Bar into business premises. Mr. WILLIAM BURROUGH HILL, architect and surveyor, Southampton.

H. STEVENS & Co., Southampton (accepted) £400 0 0

WELWYN.

For supply and delivery of cast-iron delivery mains for the Rural District Council. Messrs. HERBERT WALKER & Son, engineers, Nottingham.

Birtley Iron Co.	£340	10	6
Yarrow & Co.	330	18	0
Cochrane & Co.	320	3	2
Sheepbridge Coal and Iron Co.	316	12	11
Cloake	315	18	8
Stanton Ironworks Co.	311	12	0
Cochrane & Co.	306	15	8
Staveley Coal and Iron Co.	306	4	11
Oakes & Co.	300	0	0
Clay Cross Co.	293	12	11
Butterley Co.	291	0	3
HOLWELL IRON CO. (accepted)	284	6	1

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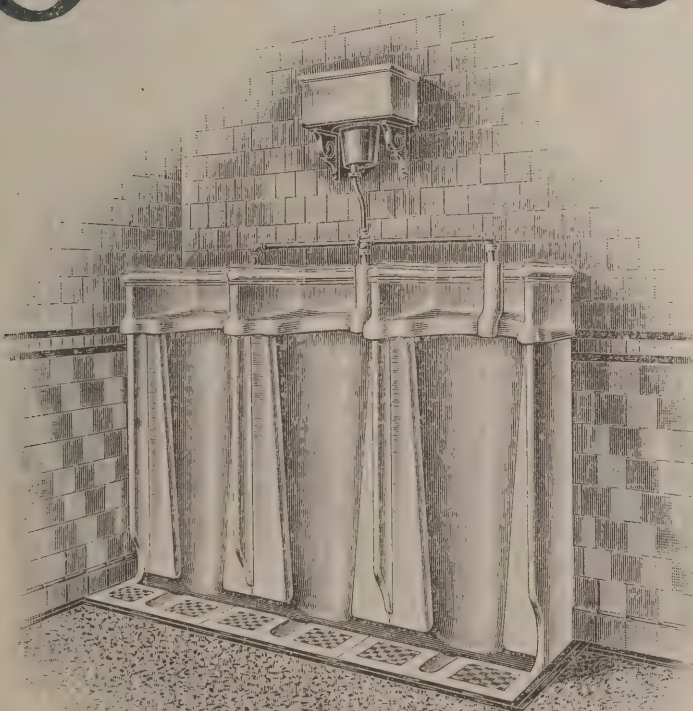
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2 & 3 NORFOLK ST STRAND LONDON W.C.



WHITEHAVEN.

For replacing the old dock gates, for the Harbour Commissioners.

CALEDONIAN SHIPBUILDING Co., Preston (accepted) . . . £2,475 0 0

WHITLEY.

For the erection of new Wesleyan hall at Whitley, with schools and classrooms. Messrs. COOPER & HOWELL, architects, Reading.

Hoskings	£5,320	0	0
Spear	5,170	0	0
Norris & Sons	5,096	0	0
Searle	4,960	0	0
Collier & Catley	4,699	0	0
Margetts & Son	4,475	0	0
Hughes	4,446	15	11
Davis & Son	4,438	0	0
Lewis Bros.	4,412	0	0
McCarthy Fitt	4,343	0	0
R. CURTIS (accepted)	4,342	0	0

WORTLEY.

For the erection of a caretaker's cottage at Pilley, for the Wortley District Council.

R. ARMITAGE, Ecclesfield (accepted) . . . £305 10 0

For road works at Coit Lane.

S. GREAVES, Grenoside (accepted) . . . £260 10 0

Received too late for classification.

CUXTON.

For the erection of a County Council school at Cuxton, near Dartford. Mr. G. E. BOND, architect, Rochester.

Gregory	£4,650	0	0
Pattenden & Son	3,455	0	0
Philips	3,293	0	0
Southerd	3,250	0	0
Avard	3,239	0	0
Davison	3,100	0	0
Elmore & Son	3,088	0	0
Langridge	2,999	0	0

CUXTON—continued.

Clark & Epps	£2,994	0	0
Skinner	2,982	0	0
Lonsdale	2,962	0	0
Browning	2,896	0	0
Friday & Son	2,872	0	0
Wilford	2,850	0	0
Wallis & Son	2,838	0	0
West	2,828	0	0
Webb	2,810	0	0
Kemp Bros.	2,735	0	0
Patrick & Co.	2,700	0	0
Browning	2,700	0	0
Lawrence & Seager	2,699	0	0
West Bros.	2,543	0	0
GATES (accepted)	2,500	0	0

KIRRIEMUIR.

For the erection of a new church hall in connection with the parish church. Messrs. GAVIN & SOUTAR, architects.

Accepted tenders.

Watson & Sons, mason.

Ogilvy, joiner.

Milne & Sons, plumber.

Stewart & Sons, slater.

Mills, plasterer.

LONDON.

For erecting stores, offices, &c., on the site of Nos. 47 to 51 Hatfield Street, Southwark, S.E. Mr. ALFRED CONDER, architect, Palace Chambers, Westminster.

Trollope & Colls, Ltd.	£9,545	0	0
Rider & Sons	9,456	0	0
McCormick & Sons	9,409	0	0
L. H. & R. Roberts	9,368	0	0
Mowlem & Co.	9,163	0	0
Lawrance & Son	9,025	0	0
Higgs & Hill, Ltd.	8,994	0	0
Cubitt & Co.	8,991	0	0
Young	8,973	0	0
Holland & Hannan	8,875	0	0
J. GROVER & SON (accepted)	8,633	0	0

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TRADE NOTES.

MESSRS. A. W. PENROSE & Co. have obtained the entire contract from Messrs. A. W. Gamage & Co., Ltd., for the five electric lifts required in the new and old buildings. Many of the company's lifts are serving for passengers and goods in the Metropolis as in other places.

MESSRS. E. H. SHORLAND & BROTHER, of Manchester, have just supplied their patent exhaust roof ventilators and inlet ventilators to St. Luke's Church, Crosby, Liverpool.

MESSRS. HICKIE, BORMAN & WOODS, LTD., of 4 Lloyd's Avenue, London, E.C., have been appointed sole agents in the United Kingdom for the "Anduro" roofing and damp-course. It is claimed for "Anduro" that it is waterproof, airtight and light in weight, and that as no tar is used in its manufacture it is absolutely odourless.

THE Simplex Steel Conduit Company, Ltd., have, in consequence of the increase of their business, been compelled to build new works, which are situated at Garrison Lane and Maxstoke Street, Birmingham. The new works are equipped with the most up-to-date and labour-saving appliances. The firm will thus be enabled to guarantee quick delivery of all orders entrusted to them.

MESSRS. SISSONS BROTHERS & Co., LTD., have issued a handy guide on the applications of the universally known Hall's distemper. Sketches are given in colour which will suggest pleasing combinations of several of the seventy-three colours in which the material is prepared, and are adapted for walls and ceilings. "Sisco" enamel can be advantageously used for the woodwork. Copies can be obtained on application to the Hull or London office.

THE finance committee of the Holborn Borough Council reported at the last fortnightly meeting that they had had several applications for the return of money deposited with tenders. Upon consideration of the circumstances it appeared to them that they ought to return the amounts. Accordingly they had ordered that the sums should be returned. The total amount was 170*l.*, some of which was received as far back as the year 1900. The proposition was adopted.

BUILDING AND BUILDERS.

THE Lancashire education committee have decided to build an elementary school to accommodate 300 children at Cleveleys, near Blackpool.

PLANS for the extension of the St. John's Road work-house by the addition of two blocks of four floors each have been submitted by the Islington Board of Guardians to the Local Government Board for approval. The estimated cost is 12,000*l.*

THE erection of the South Bank, Yorkshire, Baptist church is about to be commenced. The contract amount is 3,234*l.* for the church, church parlour, vestries, &c., the seating accommodation being about 630 persons. Future schools are arranged for at the back of site. The architects are Messrs. George Baines & R. Palmer Baines.

THE Chief Secretary for Ireland has stated in a printed answer that Mr. J. F. Fuller, Great Brunswick Street, Dublin, the architect of the Commissioners of National Education, in connection with the erection of buildings at Glasnevin, will be instructed to allow any contractor who so desires to submit an alternative tender for the supply of Irish slates.

THE wages dispute between the operative masons and builders of Dunfermline and their employers has been settled. The men accepted the masters' terms of a reduction of one penny per hour, with an allowance of one halfpenny to hewers for whom no shed accommodation is provided. Under the agreement for this year the wages will accordingly be 8*d.* and 8½*d.* per hour.

THE foundation-stone laying ceremony of the Sutton-in-Ashfield Congregational church took place on May 24. The church occupies a prominent corner site, a bold tower being a bold feature at the corner. The contract is let to Mr. John Greenwood, of Mansfield, the amount being 3,982*l.* 15*s.* 4*d.* The church will accommodate 850 persons. The architects are Messrs. George Baines & Son, 5 Clement's Inn, Strand, W.C.

THE London and North-Western Railway Company recently made application to the Local Government Board for their approval of a scheme for providing housing accommodation for 840 persons of the working classes near Gloucester Gate, Regent's Park. The Board was to hold

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an inquiry with regard to it on the 30th ult. at the town hall, St. Pancras, but the railway company withdrew the scheme at the last moment.

ALL SAINTS, Burton-on-Trent, which has been erected at a cost of 30,000*l.*, was consecrated on Saturday. The church has occupied three and a half years in the building. The plan includes a nave, with north and south aisles, and a narthex at the west end, with a porch on the south side and an entrance under the tower on the north. The roofs are mainly of oak, and the materials used for the exterior are Coxbench and Weldon stone, while the internal dressings are of red Hollington. The fittings are all of oak fumed to a dark colour, and the seating accommodation is for 800 persons. The architects of the new church were Messrs. Naylor & Sale, of Derby, and the contractors were Messrs. Thomas Lowe & Sons, of Burton.

ELECTRIC NOTES.

THE electricity committee of the Bradford Town Council have approved the report of Mr. A. S. Blackman, the electrical engineer, which recommends the extension of the mains at a cost of 37,500*l.* It is suggested that a loan of 60,000*l.* be obtained to provide for future requirements.

THE North British Railway Company recently applied electricity to the lighting of the signals on a portion of its system. Owing to the success of the experiment there will very shortly be an extension of the use of it, commencing with the Waverley Station, Edinburgh, where two lights have been installed for some time.

THE New York Central Railroad Company recently made comparative tests between steam and electric locomotives of the latest pattern on a track six miles in length, which resulted in demonstrating beyond dispute the superiority of the electric locomotive. In every test the two trains started from rest, and careful records were made of the speed, distance, time and power consumption.

A SCHEME is proposed for carrying out a South Manchester electric railway for goods and passenger traffic, which would connect the various main lines from London

to Manchester. The proposed new railway will be an express suburban cross country "belt line" of standard gauge and constructed as a light railway, the main line being about 16½ miles long, and the branches bringing the total mileage up to about 26 miles.

Mr. V. M'COWEN, the Belfast city electrical engineer, recommends that from July 1 next certain reductions and alternative prices for electricity be adopted. The proposals, if carried out, will mean a reduction of the year's profits by about 1,500*l.* The revenue from the electric-light department for the year ended March 31 last was as follows:—Gross revenue, 28,141*l.* 3*s.* 5*d.*; gross expenditure, 11,156*l.* 13*s.* 6*d.*; revenue, 16,984*l.* 9*s.* 11*d.*; less interest and sinking fund, 12,627*l.* 2*s.* 7*d.*; leaving the net revenue 4,357*l.* 7*s.* 4*d.*

An inquiry was held at the Guildhall, Gloucester, on Tuesday, by Mr. H. Ross Hooper, Local Government Board inspector, into an application made by the Town Council for power to borrow a further 12,100*l.* for the extension of their electricity undertaking. The extensions at the electricity works include the installation of three new boilers and other plant. The inspector commented on the lowness of the cost—1½*d.* a unit—out of total works charges, and said it did not seem to him that the Corporation were charging what the public lighting was costing them, which should be based on candle-power of the lamps. The engineer said they had not based the cost on the candle-power of the lamps as suggested.

THE electric-supply committee of the Birmingham City Council in their annual report state that 4,645,027 units were sold during the year at a money value of 71,195*l.*, compared with 4,367,164 and 69,421*l.* respectively in the previous year. The revenue account showed a credit balance of 39,573*l.*, compared with 36,939*l.* in the preceding year. The total cost of production worked out at 1.584*d.* per unit, against 1.742*d.* previously. The net result of the year's working, after paying interest and sinking fund charges, amounted to 28,784*l.*, with a surplus of 10,789*l.* This amount has been carried to the statutory reserve fund.

THE following tenders were accepted for the erection of an electrical station in Summer Lane, Birmingham, for the Corporation:—Sapcote & Sons, foundations 15,777*l.*, build-

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Deposit Bank. Deposits received at 2½ per cent. compound interest.

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ings, 88,689*l.*; Belliss & Morcom, engines 52,589*l.* 17*s.*, extension of galleries, &c., 478*l.*; Dick, Kerr & Co., direct current generators, 6,685*l.*; British Westinghouse Co., alternating current generators, 3,765*l.*; Jessop & Appleby, cranes, 1,770*l.*; New Conveyor Company, coal and ash conveying plant, 5,840*l.*; British Thomson-Houston Company, direct current switchboard, 13,685*l.* 10*s.*; Babcock & Wilcox, boilers, 15,638*l.*; F. Green & Son, fuel economisers and flue damper, 2,294*l.*; Stewarts & Lloyds, Ltd., pipework, 4,751*l.* 16*s.*; W. H. Allen, Son & Co., Ltd., circulating water pumps, 1,430*l.*

THE Institute of Electrical Engineers, at their general meeting on Friday, held at Westminster, elected Mr. John Gavey, C.B., Engineer-in-Chief to the Post Office, president for the ensuing year. Dr. R. T. Glazebrook, F.R.S., Director of the National Physical Laboratory, Mr. J. E. Kingsbury, of the Western Electric Company, Mr. W. M. Mordey and Mr. W. H. Patchell were chosen for the office of vice-presidents. It was announced that three Salomons scholarships for 1905 of the value of 50*l.* each had been awarded respectively to A. E. Clayton, of King's College; E. A. F. Goodfellow, of the Central Technical College, South Kensington; and F. C. Prentice, of University College. Two David Hughes scholarships of the value of 50*l.* each were also awarded to E. A. Biedermann and J. B. Sparks, of Finsbury Technical College.

VARIETIES.

APPLICATION is to be made to the Local Government Board for permission to borrow 15,000*l.* for the erection of new municipal offices for Smethwick.

THE Coventry and Warwickshire Hospital is to be extended at a cost of about 35,000*l.*, according to plans by Messrs. Tiltman & Chataway.

THE church of St. Nathaniel, Liverpool, was opened yesterday. It is basilican in plan, and was designed by Messrs. George Bradbury & Sons.

WE have been requested to announce that the forty-fifth annual dinner of King's College, London, will be held at the

Hôtel Cecil on Monday, June 26. Colonel Richard H. Jelf, C.M.G., will be in the chair.

ACCORDING to Mr. John Burns, M.P., London stands alone in not having had one fire or lost one life in a theatre or music-hall in seventeen years, there being 360 such houses and a nightly attendance at them of 400,000.

THE fund raised in Stockholm for a wedding gift to Prince Gustavus Adolphus on behalf of that city amounts to 3,300*l.* The fund committee have decided to purchase a suite of dining-room furniture made in Stockholm.

THE Newcastle-upon-Tyne Corporation have been recommended to carry out works estimated to cost 89,000*l.*, which include partly rebuilding the quay wall and the construction of railway sidings.

THE bridges committee of the London County Council propose to recommend the temporary employment in the engineer's department of a resident medical officer at a salary of 400*l.* a year in connection with the construction work under compressed air at Rotherhithe tunnel.

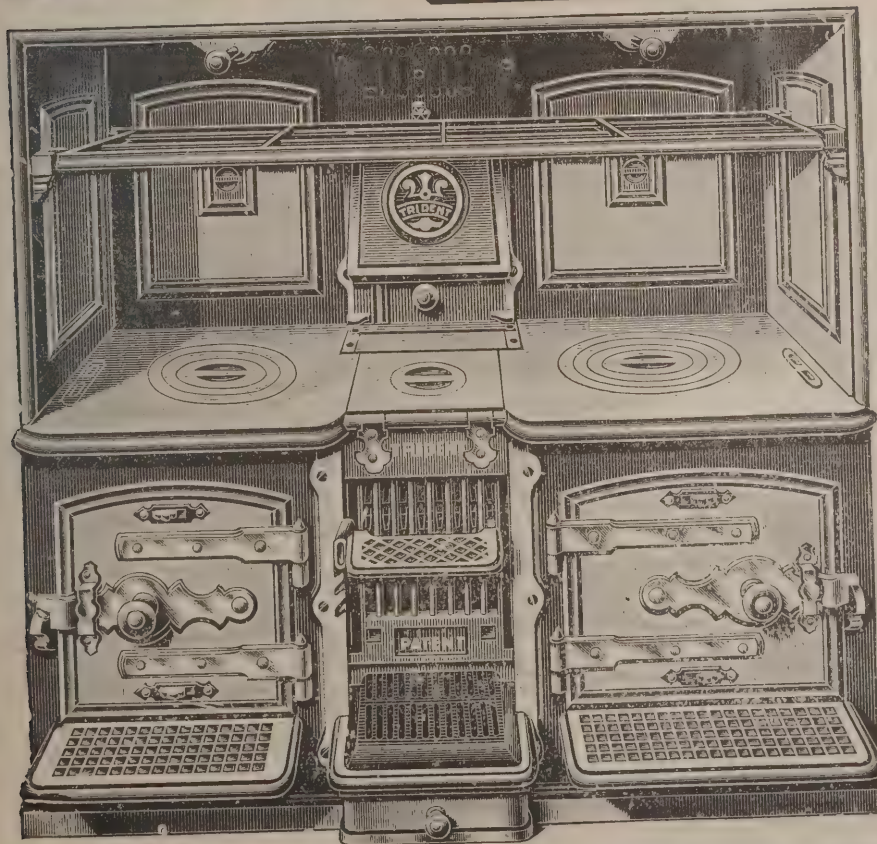
THE Middlewich District Council, in order to obtain a water supply sufficient to free the district from the shortage which has occurred in times of drought for a considerable number of years, has put in the hands of a contractor the work of boring for water at Delamere.

THE sewage purification works at Penicuik, N.B., have been formally opened. Commenced eighteen months ago, and completed at a cost of over 4,000*l.*, the works were designed by Messrs. Middleton, Hunter & Duff, M.M.Inst.C.E., Westminster and Edinburgh, and carried out by Messrs. Stirling & Kinniburgh, Glasgow.

THE new Busbie Muir reservoir, constructed to provide an additional supply of water for the burgh of Ardrossan, was formally opened on the 26th ult. The reservoir, which cost upwards of 15,000*l.*, is calculated to hold between 70 and 80 million gallons of water. The engineer was Mr. W. R. Copland, Glasgow.

MR. HILL, consulting engineer to the Talla Waterworks, has reported to the Edinburgh and District Water Trustees that the construction of a breakwater at the Talla reservoir was unnecessary. The estimated expenditure was 5,000*l.* The object of the breakwater was to secure one end of the

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embankment against the wash of the water in times of storm.

For the annual outing of the members of the National Association of Plumbers (Birmingham District) Rhayader was selected. About 120 ladies and gentlemen attended, including Mr. W. Cowen, president, and Mr. Whittington, secretary. The reservoirs for the Birmingham water-supply were described by Mr. Lee. Luncheon was served at the Lion Royal hotel.

THE Halifax Corporation have obtained powers to construct tramways to Wainstalls, four miles from the centre of the town. They decided, however, to run motor buses for the present on that route, and applied to the Board of Trade for permission. A reply from the Board has been received stating that the Board are not empowered to give the authority desired.

THE Metropolitan Asylums Board opened last year a home for children in Rustington, near Littlehampton. A report has since been obtained from Sir W. Broadbent as to alterations necessary to render the buildings suitable for tuberculous cases. Messrs. Rowland Plumbe & Harvey, the architects of the home, have prepared plans in accordance with the suggestions. The cost is estimated at 3,000l.

SIR W. E. M. TOMLINSON, M.P., and Mr. Rowland Barran, M.P., who had charge of the Canal Bill, which could not reach a second reading last week in the House of Commons, state that a meeting of members of Parliament representing the principal trade organisations has resolved to organise a strong deputation to wait upon the Board of Trade to press upon the Government the urgent need of taking steps to improve the inland waterways of the country.

THE George N. Pierce Company, Buffalo, U.S.A., have arranged a prize competition with a view to developing the æsthetic side of motor-car construction. The prizes offered are as follows:—(1) For the best design of a body for an enclosed car. First prize, 250 dols.; second, 100 dols. (2) For the best design of a body for a touring car. First prize, 250 dols.; second, 100 dols. (3) For the best colour scheme for any motor-car. First prize, 200 dols.; second, 100 dols.

THE annual meeting of the Sun Insurance Office will be held on the 17th at 63 Threadneedle Street. The report which will be read is satisfactory. The investments of the company amount to 2,343,521l. The income from investments during the year has amounted to 91,444l. 11s. 8d. After providing for the usual reserve of 40 per cent. of the premiums to cover liabilities under current policies, a balance of 117,909l. 5s. 3d. remains, which has been transferred to the credit of the profit and loss account.

THE Simplon Tunnel, although longer than the St. Gothard, has cost less. According to the *St. Galler Tageblatt*, the Simplon cost, up to December 31, 1904, the sum of 2,689,000l., which will be raised by outlays during the current year to 3,020,000l. This represents the entire cost of construction. At present, however, the Simplon is a single-track tunnel, with a parallel boring which the engineers—Messrs. Brandt, Brandau & Co.—have contracted to convert into a second tunnel whenever desired for a sum of 780,000l.

THE Phoenix Bridge Company of Phoenixville, Pennsylvania, is now completing, says the *Glasgow Herald*, the plans for the construction of the largest steel span bridge in the world, which is to be erected over the St. Lawrence river, near Quebec. The cost of the structure will be 3,800,000 dols. The actual work of construction will be commenced this summer, and the bridge is to be open for traffic the first day of 1909. The bridge will be 2,800 feet long between centres of anchorage piers, and its superstructure will weigh 40,000 tons. There are two 500-foot anchor arm spans and one 1,800-foot cantilever span over the channel.

For the second time in two years a poll was taken last week on the question of the erection of the new municipal offices and town hall at Hamilton, N.B. Along with the public library recently started, the offices and hall form part of a design for the whole scheme of buildings on the site in Cadzow Street. The cost of the library is 15,000l., while that for the offices and hall is estimated at 38,000l. The following questions had to be answered:—(1) Are you in favour of the new town hall and municipal buildings being erected; and (2) are you in favour of the site in Cadzow Street? The result showed a majority of "Noes" on each question.

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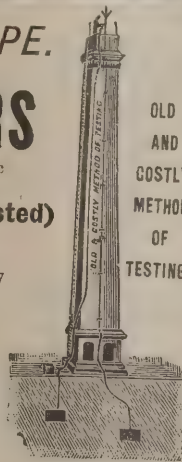
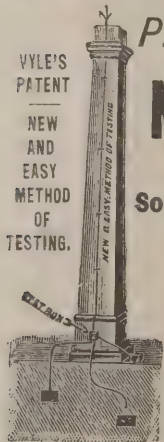
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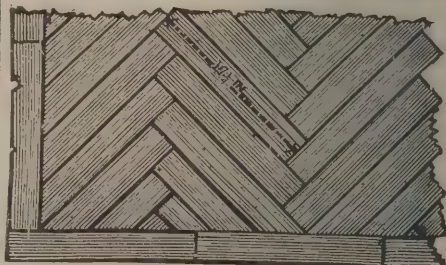
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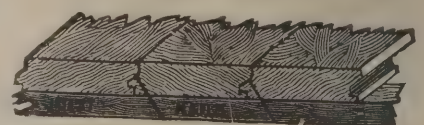
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1 1/2 x 4"	56s. 9d.	27s. 0d. per square.
1 x 4"	45s. 0d.	22s. 9d. "

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A LIST of ART PLATES published in "THE ARCHITECT" will be forwarded on application to GILBERT WOOD & CO. Ltd., Publishers, Imperial Buildings, Ludgate Circus, E.C.

THE Aberdeen Town Council last week inspected the tunnel in course of construction under the Dee in connection with the Girdleness outfall sewage scheme for the city, which is estimated when finished to cost about 200,000*l.* This important engineering work, of which we gave an account in our issue of the 19th ult., is progressing rapidly and satisfactorily, and a week or two now ought to see the completion of the tunnel proper. The party were accompanied by the engineer, Mr. Dyack, C.E., and the resident engineer, Mr. Conway, C.E., who described the operations.

THE new Birkenhead Corporation depôt and stables, occupying about three and a half acres in Cleveland Street, have been opened. The Corporation will engage its own men, and the team labour required will be provided from the municipal stables. The main depôt is for the storage of materials used in road improvements and works of a similar nature. According to the official estimate, the total cost of the land, buildings, machinery, horses and gears is a little under 33,000*l.* The work was carried out according to the direction of Mr. C. Brownridge, borough surveyor.

THE late Mrs. Sarah Charlotte Elizabeth Egginton Ernle-Drax, of Charborough Park, Wareham, Dorset, made the following clause in her will:—"It is my desire that a circular mausoleum shall be built on the slope of the hill, on the north-west side on the Cannon Clump in the park at Charborough, for the reception of the coffin. The dimensions of the mausoleum shall be 60 feet in circumference, with a dome arising 9 feet above the side walls, which are to be 10 feet high. Windows are to be placed in the dome only, and to have stained glass placed in such windows of such a colour that the light passing into the interior may look as much like sunlight as possible. A door is to be placed in the wall."

THE works committee of the Metropolitan Asylums Board presented a report on Saturday recommending the following increase of salaries, subject in every case to the sanction of the Local Government Board:—Mr. T. Cooper, first assistant engineer, 300*l.* to 400*l.* a year, rising by 25*l.* yearly to a maximum of 500*l.* a year; Mr. T. J. Codd, second assistant engineer, 250*l.* to 260*l.*, rising by 10*l.* yearly to 350*l.*; Mr. R. T. Miller, assistant surveyor, 250*l.* to 260*l.*, rising by 10*l.* yearly to 350*l.*; Mr. J. W. Fyfe, third assistant

engineer, 220*l.* to 225*l.*, rising by 5*l.* yearly to 250*l.* The recommendations were adopted by an overwhelming majority.

A NEW County Council school, accommodating about 1,000 children, has been erected in Grove Lane, Camberwell, and was formally opened by Sir William Collins, chairman of the education committee. The school buildings are two in number, one being for junior mixed children on the ground floor and for senior on the first floor. The other is a one-storey building for infants, whilst a separate block is provided for a drawing classroom and a room for practical science on the playground level. The buildings were designed by Mr. Thomas J. Bailey, the architect to the education committee. Sir W. Collins, in declaring the school open, remarked that the buildings bore evidence to the enormous experience in regard to school construction which the architect, Mr. Bailey, had accumulated during his long years of service. The value of Mr. Bailey's services to the School Board, and now to the Council, could not, he declared, be over-estimated.

WHITSUNTIDE ON THE CONTINENT.—Cheap tickets, available for eight days, will be issued by the Great Eastern Railway Company to Brussels June 7 to 10 inclusive, and June 12. Seven-day tickets will be also issued to Liège for its exhibition, *via* Harwich and Antwerp. Passengers leaving London in the evening reach Brussels next morning and Liège at noon. For visiting The Hague, the Rhine, North and South Germany, and Bâle for Switzerland, special facilities are offered. A corridor train with vestibuled carriages, dining and breakfast cars, is run on the Hook of Holland service between London and Harwich. From the Hook of Holland through carriages and restaurant cars are run in the North and South German express trains to Cologne, Bâle and Berlin, reaching Cologne at noon, Bâle and Berlin in the evening. For the convenience of passengers tickets dated in advance can be obtained at the Liverpool Street station Continental inquiry office. The Royal Danish Mail steamers of Det forenede Dampskib Selskab of Copenhagen will leave Harwich for Esbjerg (on the west coast of Denmark) on June 8 and June 10, returning June 13 and June 14. The General Steam Navigation Company's steamers will leave Harwich on June 7 and 10 for Hamburg, returning on the 11th and 14th.

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BATH-ROOM OPEN.

Awarded Royal Sanitary Institute's Medal, Exhibition, London University, Feb. 1905.

FAIRBURN WATER SUPPLY.

THE new water supply for the village of Fairburn, near Pontefract, which has been carried out at a cost of 3,000*l.* from plans prepared by Mr. J. Waugh, C.E., of Bradford, was formally turned on by Mr. J. T. Addy, the representative of the parish on the Pontefract Rural District Council, who received from Mr. Waugh, as a souvenir of the occasion, a pretty silver flask suitably inscribed. The party afterwards sat down to luncheon at the Three Horse Shoes, Fairburn, at the engineer's invitation. The supply is obtained from what are known as the Gadmire springs, which are leased at a nominal rent from the Wesley trustees, the flow from which varies from 150,000 gallons to a million gallons per day, and as Fairburn's population is only 800, the quantity required will absorb only a small proportion of the minimum. The works have been carried out by Mr. J. W. Broadhead, the contractor, and consist of a reservoir of 100,000 gallons, a pumping-station, oil-engine and pumps, and about two miles of mains.

WHITSUNTIDE EXCURSIONS.

WE notice that an A B C programme issued by the Great Central Railway Company contains ample and admirable facilities for those desirous of spending the holiday at places reached by their picturesque and convenient route. Excursions are announced from London (Marylebone), Woolwich, Greenwich and Metropolitan stations to all the principal towns in the Midlands, North of England, north-east and north-west coast watering-places, and Scotland. Special fast trains will leave Marylebone at 12.5 midnight on Friday and Saturday, June 9 and 10, and several additional expresses will be run at convenient times on Saturday, June 10. The information has been concisely tabulated in the form of an A B C programme giving the times of starting, fares, dates and times of return, &c., for any stations, alphabetically arranged, which can be seen at a glance. Copies of this guide can be obtained free at Marylebone Station, or at any of the company's town offices and agencies.

LONDON IN 1905.

It would be difficult to find a single volume which affords so accurate a picture of London life as the "City of London Directory," published by Messrs. W. H. & L. Collingridge. The large map which precedes it is one of the best in existence, for it shows the boundaries of the wards and all the means of communication which exist above or below ground. Boundaries are difficult to ascertain, and it must have taken a long time to lay down those which are shown. The list of the institutions of the City contains not only the corporate and other bodies, but the whole of the City companies. Biographies and portraits are given of many of the civic notabilities. For business purposes the streets directory is the most important. The names of residents are not only given, but where, as in the majority of cases, only a part of a house is occupied, the floor is indicated. Time is wasted every day by people endeavouring to decipher names on notice-boards, which could easily be saved by consulting this Directory. The pages are so complete, it would be difficult to make suggestions for their improvement. The varieties of types employed remove the monotony of appearance which is generally considered unavoidable.

THE METAL TRADES.

ACCORDING to the tenth edition of Kelly's "Directory of the Engineers and Iron and Metal Trades and Colliery Proprietors," the exports of the principal descriptions of iron and steel amounted in 1903 to 61,639,378*l.*, which was nearly a million in excess of 1902, and more than two millions beyond 1901. The imports of iron and steel in 1903 amounted to 8,662,400*l.* These figures are enough to indicate the importance of the various industries which are dependent mainly upon iron and steel. The representatives of the trades in all the towns, however small, in England, Scotland and Wales, are given in the Directory, as well as those of the principal towns of Ireland, the Channel Islands and the Isle of Man. It is a difficult task to discover the smiths' or the general shops in which ironmongery is sold in a little village which may not have more than a hundred inhabitants. But all are to be found in this comprehensive work. How it is accomplished is explained

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n the preface as follows:—"Of the time and labour consumed, and the expense incurred in compiling this work, some idea may be formed from the fact that all the places in the list immediately following have been visited, and particulars relating to each firm been personally taken by agents selected for the purpose, and the information thus collected has been subsequently compiled and arranged in the various forms in which it appears, so as to enable every person to find without difficulty or delay any matter to which he wishes to refer." The company endeavour to make each year's Directory thoroughly representative. It is not only indispensable for all engaged in the various trades into which metals enter, but it can be used with confidence in the accuracy of every one of the pages.

METROPOLITAN COTTAGE BUILDING.

THE London County Council have found that the cottages on the White Hart Lane estate, Wood Green, are slow letting. One of the causes is supposed to be the erection of other buildings in the neighbourhood. Another difficulty is the absence of shops, which the Council will, however, shortly provide. The housing of the working classes committee of the Council in their last report say that arrangements have recently been made for letting part of the unoccupied land in allotments. Thirty-seven plots have been staked out for this purpose, and of them twenty-nine have already been let. It is gratifying to know that the letting of the cottages is proceeding more rapidly, and that tenants remain longer in occupation.

With regard to the cottages themselves, we have considered whether it is not possible to reduce the cost of construction so as to let cottages on the estate at a lower rental. To this end we instructed the architect to modify the plans of the dwellings, to simplify the specification, and to obtain tenders, without bills of quantities, from builders accustomed to erect houses of a similar class. The result has been eminently satisfactory, and we are able to report that prices have been obtained which are much lower than any before presented to the Council, and will enable the houses to be let at lower rentals.

The tenders received are for twenty-eight first-class or

five-roomed cottages, eight second-class or four-roomed cottages, and twenty-four third-class or three-roomed cottages, each cottage being also provided with a scullery and the usual conveniences. The lowest tender is that of Mr. G. E. Pulford, and the prices he has quoted for each type of cottage are as follows:—

First-class cottage 228*l.*, or 235*l.* for each corner cottage.

Second-class cottage 183*l.*, or 188*l.* for each corner cottage.

Third-class cottage 153*l.* 10*s.*, or 158*l.* for each corner cottage.

Mr. Pulford stipulates that payments shall be made to him every fortnight to the extent of 80 per cent. of the value of the work done, that 15 per cent. shall be paid on the completion of each house, and that the remaining 5 per cent. shall be paid within one month after the completion thereof. We may remind the Council that the adoption of such scale of payments would not comply with the standing orders of the Council relating to retention moneys under contracts, but having regard to the special circumstances in this instance, we are strongly of opinion that the conditions of contract should in this respect be varied, and we have accordingly asked the finance committee to make the necessary arrangements.

On the lines now suggested, we feel sure that the Council will be safe in proceeding with further blocks of cottages, whereas to allow the estate to remain undeveloped because of a few initial difficulties would be impolitic, and would delay the return for the capital outlay incurred, which can only be realised by proceeding with reasonable care to carry out a well-matured scheme of development.

The question of delaying building operations for a time was considered by us, but this course was thought inadvisable. The difficulties encountered are none of them insurmountable, and it is believed that they can and will be overcome, many of them as the result of further development, and others by the action we are taking to that end.

We have forwarded to the finance committee an estimate of 13,919*l.* in respect of the cost of the erection of the cottages, together with the cost of articles to be bought direct and professional charges, and we recommend—(a) That Standing Order No. 217, relative to retention moneys

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under contracts, be suspended in so far as may be necessary to enable the Council to consider the subjoined recommendations. (b) That the estimate (No. 4,499) of expenditure on capital account of 13,919*l.*, submitted by the finance committee be approved, in respect of the erection of sixty cottages on section B of the White Hart Lane estate. (c) That expenditure not exceeding 13,919*l.* be sanctioned in respect of the erection of twenty-eight first-class, eight second-class and twenty-four third-class cottages on a part of section B of the White Hart Lane estate; that the tender of Mr. G. E. Pulford be accepted for the erection of the cottages by day work at the rates of 228*l.*, 183*l.* and 153*l.* 10*s.* for each first-class, second-class and third-class cottage respectively, with additional allowances of 7*l.*, 5*l.* and 4*s.* 10*s.* respectively for certain corner cottages; that payments to the extent of 80 per cent. of the value of the work done be paid, upon the architect's certificate, to Mr. Pulford in fortnightly instalments; that a further 15 per cent. of the value be paid on the completion of each cottage, and that the remaining 5 per cent. be paid within one month after the completion of each cottage; that the solicitor do prepare and obtain the execution of a contract to give effect to the tender; and that the seal of the Council be affixed to the contract when ready.

NEW FURNACES AT PARKGATE.

The new blast furnace plant of the Parkgate Iron and Steel Company, Ltd., Rotherham, was successfully started last week, and marks a further important development in connection with this old-established and widely known undertaking. The plant, which consists of two blast furnaces, with the necessary Cowper stoves, with a Gjers & Harrison equaliser between the furnaces and stoves, is of the most modern type, and, says the *Sheffield Telegraph*, embodies all that is known of the best practice of this country, America and the Continent. In addition there are many novel features, which it is believed are improvements on existing methods. The stoves are, of course, heated by the waste gases of the furnaces, and these waste gases are also employed for driving the blowing engines—gas-engines of the

Körting principle. Material is fed into the furnace automatically, the coke, ore, &c., being shot into a skip at the bottom of an inclined hoist. The skips are elevated by electric winding engine, automatically stopped at the proper place at the top of the furnace, and tipped into the distributing hopper. This hopper drops the charge on any part of the bell that may be desired. When fully charged the bell, which is also operated electrically, is lowered, and after discharging its load, rises automatically to its place again, remaining in position until it is necessary to lower another charge into the furnace. Sounding rods are provided on the furnace top, by lowering which the depth at which the metal stands below the bell can be readily ascertained. All these operations—hoisting, tipping, distributing, lowering the bell and sounding for the depth of the charge—are performed by one man stationed in the weigh-house near the foot of the incline. He has placed convenient to him a series of electric switches, and in front of him in a glass case there is a miniature presentment of the top of the blast furnace, so that when he actuates a switch, say, for the purpose of lowering the bell he sees the metal bell in front of him fall and rise in the same way and at the same time as the tune bell does at the top of the furnace. Similarly, when he turns the switch lowering the sounding rods the miniature sounding rods before him are also lowered, and indicate on a scale the number of feet at which the charge stands below the bell. In fact, except for the necessary operations of bringing forward raw material and tapping the molten iron, the furnaces are practically automatic. The gas and chimney valves are of the new type, and have been arranged not only for facility of operations, but to prevent leakage. The dust catchers are specially designed to give very complete dust separation. The gas mains also contain further dust separators and scrapers, which continually remove the dust while the furnace is in operation. A further cleansing of the proportion of gas which goes to the gas-engine is effected by washing and scrubbing, until it contains rather less gas in suspension than the atmosphere we breathe. It is early yet to speak of production, but there is no doubt that these furnaces will add largely to the output of pig-iron at the Parkgate works. It is ultimately intended to take the molten metal direct to the steel furnaces, and preparations are being made with this object in view.

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NOTICE TO ADVERTISERS.

Under no circumstances whatever can the proprietors of this Journal guarantee alteration of copy if received after the first post on Tuesday mornings, and no proofs can be submitted if copy arrives later than first post on Saturday mornings.

EDITORIAL NOTICES.

In view of the many difficulties which are certain to arise in connection with the law, practice rules and procedure under the Workmen's Compensation Act, we have added to our staff A VERY EMINENT BARRISTER, who has made the subject a special study, and will be glad to answer in the columns of this paper any questions relating to the complicated matters arising from the provisions of this difficult Act. Our LEGAL ADVISER will further answer any legal question that may be of interest to our readers. All letters must be addressed "LEGAL ADVISER," Office of "The Architect," Imperial Buildings, Ludgate Circus, London, E.C.

The Editor will be glad to receive from Architects in London and the Provinces results of Competitions and Tenders and other particulars of Works in progress in which they may be interested.

The authors of signed articles and papers read in public must necessarily be held responsible for their contents.

No communication can be inserted unless authenticated by the name and address of the writer—not in every case for publication, but as a guarantee of good faith.

Correspondents are requested to make their communications as brief as possible. The space we can devote to Correspondence will not usually permit our inserting lengthy communications.

TENDERS, ETC.

*** As great disappointment is frequently expressed at the non-appearance of Contracts Open, Tenders, &c., it is particularly requested that information of this description be forwarded to the Office, Imperial Buildings, Ludgate Circus, London, E.C., not later than 2 P.M. on Thursdays.*

COMPETITIONS OPEN.

HOVE.—Aug. 1.—Designs for new free library, not to exceed 10,000*l.* (exclusive of furniture). Premiums of 50*l.*, 30*l.* and 20*l.* Further particulars, Mr. H. Endacott, town clerk, Town Hall, Hove.

PERTH.—Aug. 1.—Plans for (1) reconstruction of the existing city hall at a cost not exceeding 6,000*l.*, and (2) erection of a new hall at a cost not exceeding 15,000*l.* Premiums will be awarded authors of plans placed first, second and third in order of merit as follows:—(1) For reconstruction, 30, 20 and 10 guineas respectively; (2) for a new hall, 50, 30 and 20 guineas respectively. Instructions, general conditions and plan of site from Mr. John Begg, town clerk.

CONTRACTS OPEN.

ANCROFT.—June 13.—For the improvements, comprising new windows, clock-room, conveniences, drainage and road-making, &c., at the Ancroft, Scremerston Council school, Northumberland. Mr. J. A. Bean, county surveyor, Moot-hall, Newcastle-on-Tyne.

ASHTON-UNDER-LYNE.—June 10.—For the erection of a detached house, Mellor Road, Ashton-under-Lyne. Messrs. Thos. George & Son, architects, 7 Warrington Street, Ashton-under-Lyne.

ASHTON-UNDER-LYNE.—June 21.—For proposed alterations to the out-patient department and the erection of a new mortuary at the district infirmary, Ashton-under-Lyne. The Infirmary.

BARBON.—June 15.—For proposed alterations and additions to Barbon village school, near Kendal. Mr. J. F. Curwen, architect and sanitary engineer, 26 Highgate, Kendal.

BARNSELY.—June 15.—For the erection of new business premises in Back Regent Street, Barnsley. Messrs. Senior & Clegg, architects, 15 Regent Street, Barnsley.

BATLEY.—June 19.—For the mason, joiner, plumber, plasterer, slater, painter, heating and electrical engineer's work respectively in the erection and completion of additions to technical school, Batley. Messrs. Hanstock & Son, architects, Branch Road, Batley.

BILLERICAY.—June 24.—For the construction of pumping-stations, sewers and filtration-beds in the district of Shenfield, near Brentwood, Essex. Messrs. Jones, engineers, Parliament Mansions, Victoria Street, Westminster.

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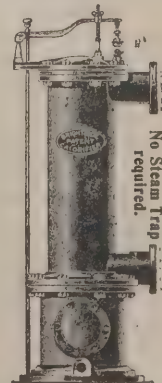
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BICKINGTON.—June 10.—For the partial rebuilding and repair of a stable and cowhouse, with loft over, at Love Lane farm, Bickington, near Newton Abbot. Mr. Colman, tenant.

BRIDLINGTON.—June 13.—For the erection of a Congregational church and schoolroom in St. John Street, Bridlington. Mr. J. Shepherdson, architect, 15 Manor Street, Bridlington.

BRISTOL.—June 22.—For the erection of a laundry and wash-house at the day industrial school, Temple Backs. Mr. P. Addie, Council House.

BROCKHILLS.—June 10.—For erection of farm buildings at Brockhills, near Totnes. Messrs. Bourne & Son, surveyors, Totnes.

BROMLEY.—June 27.—For proposed works to the operating-room at the district sick asylum, Devon's Road, Bromley, E. Messrs. J. & W. Clarkson, architects, 136 High Street, Poplar, E.

BUCKLEY.—June 19.—For alterations and extensions to the Bistre National school, Bistre, Buckley, near Chester. The Vicarage, Bistre, Buckley, Chester.

BURSLER.—June 13.—For the erection of a new school of art in Queen Street, for the Town Council. Messrs. A. R. Wood & Son, architects, Queen Street, Burslem.

CANTERBURY.—June 19.—For renewing the slating of the roof and pointing the walls of the wards on either side of the central block of the workhouse. Mr. H. Doré, architect, High Street, Canterbury.

CARDIFF.—June 14.—For the erection of about 80 lineal yards of masonry dwarf wall and wrought-iron railing at the north-western corner of Cathays Park. Mr. W. Harpur, borough engineer, Town Hall, Cardiff.

COLCHESTER.—June 13.—For the construction of an engine-house, boiler-house, coal-store, reconstruction of reservoirs, retaining walls and other works in connection therewith, for the Colchester Corporation. Mr. C. E. Bland, waterworks superintendent, Town Hall, Colchester.

CRICKLEWOOD.—June 22.—For the construction of covered reservoirs, the laying of pipes, the formation of roads, culverts, &c., at Cricklewood, in the county of Middlesex, for

the Metropolitan Water Board. The District Secretary at the New River District Office, 173 Rosebery Avenue, E.C.

CROMER.—June 19.—For the following works, for the Cromer Urban District Council, viz. erection of storeyard buildings, Central Road; erection of fire station, Canada Road. Mr. A. F. Scott, surveyor, West Street, Cromer.

CROYDON.—June 12.—For the erection of cottage homes on the workhouse premises, Croydon. Mr. J. Hatchard Smith, architect, 41 Moorgate Station Buildings, London, E.C.

DARTFORD.—June 19.—For the construction and erection complete of car sheds adjacent to the electricity works, Priory Road, Dartford. Mr. T. E. Tiffin, surveyor, Council Offices, Dartford.

DEVIZES.—June 19.—For the erection of a secondary school at Devizes, Wilts. Mr. R. E. Brinkworth, architect, 16 Old Bond Street, Bath.

DINNINGTON.—June 14.—For the erection of new stores and cottage adjoining at Dinnington, near Rotherham. Mr. H. L. Tacon, architect, 11 Westgate, Rotherham.

DORCHESTER.—June 14.—For the re-erection of premises, 13 South Street, Dorchester. Mr. F. T. Maltby, architect and surveyor, Dorchester.

DORCHESTER.—June 24.—For repairing and painting, &c., at the headquarters police-station, Dorchester, where specifications may be seen.

DUNDALK.—June 12.—For the erection of municipal technical school. Mr. Maurice Sellars, engineer and surveyor, Town Hall, Dundalk.

FARNHAM.—June 14.—For the erection of almshouses at Farnham, Surrey. Mr. Arthur J. Stedman, architect, South Street Chambers, Farnham, Surrey.

GLOUCESTER.—June 14.—For the enlargement of the George Street post office, Gloucester. H.M. Office of Works, &c., Storey's Gate, S.W.

HADFIELD.—June 22.—For the erection of a bakery in Wesley Street, Hadfield. The Office, Wesley Street.

HALIFAX.—June 19.—For the erection of new entrance lodge, gates and approaches to the workhouse, Gibbet Street, Halifax. Mr. W. Clement Williams, architect, 29 Southgate, Halifax.

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HALIFAX.—June 14.—For building a fireplace in the committee-room at the technical school. Mr. James Lord, borough engineer, Town Hall, Halifax.

HIGH HESKET.—For the alterations and additions to High Hesketh Church of England school. Messrs. Oliver & Dogshun, architects, Carlisle.

HOVLAND NETHER.—June 21.—For the reconstruction and alteration of the settling tanks at the sewage farm. Mr. Horace G. Keywood, engineer and surveyor, Town Hall, Hoyland Nether, near Barnsley.

ILFORD.—June 15.—For the erection of a dust destructor of six cells, viz. cells, flues, dust chamber and boilers. Mr. H. Shaw, borough engineer, Town Hall, Ilford, Essex.

IRELAND.—June 14.—For building proposed shop and dwelling-house at Spencer Road, Londonderry. Mr. D. Conroy, architect, 21 Shipquay Street.

IRELAND.—June 17.—For the erection of a house and stables at Fermoy. Mr. C. H. Ashworth, architect, 42 Dame Street, Dublin.

LANCASTER.—June 23.—For the erection of a large ornamental masonry structure in the Williamson Park, Lancaster. Mr. John Belcher, architect, 20 Hanover Square, London, W.

LIGHTCLIFFE.—June 22.—For the erection of a pair of bungalows on the Leeds and Whitehall Road, Lightcliffe. Mr. R. Berry, architect, Commercial Street, Halifax.

LONDON.—For the erection of a parish hall, classrooms, &c., in Braemar Road, Stamford Hill. Mr. Spencer W. Grant, architect, 63 Finsbury Pavement, E.C.

LONDON.—June 12.—For the erection of the proposed new public offices and town hall at Acton. Mr. William G. Hunt, architect, 17A Vicarage Gate, London, W.

LONDON.—June 14.—For erecting an additional storey on the imbecile wards at the workhouse, Upper Edmonton. Mr. T. E. Knightley, 105 Cannon Street, E.C.

LONDON.—June 19.—For the laying of tar-paving to playgrounds at three schools during the summer vacation, for the West Ham education committee. Mr. William Jacques, architect, Fen Court, E.C.

MIDDLESBROUGH.—June 24.—For the erection of Crescent Road schools. Messrs. R. Lofthouse & Sons, architects, 62 Albert Road, Middlesbrough.

NEWCASTLE-UPON-TYNE.—June 10.—For erecting boiler-house and laundry at the workhouse, Westgate Road, Newcastle-upon-Tyne. Messrs. Newcombe & Newcombe, architects, 89 Pilgrim Street.

NEWCASTLE-UPON-TYNE.—June 15.—For building thirteen houses and three shops in Helmsley Road, Sandyford estate, Newcastle-upon-Tyne. 10, Trafalgar Street, Newcastle-upon-Tyne.

NOTTINGHAM.—June 16.—For the erection of entrance lodge and public conveniences at the Lenton recreation ground. Mr. F. B. Lewis, city architect, Guildhall, Nottingham.

OUGHTIBRIDGE.—June 15.—For the erection of a cemetery chapel, &c., Burton Road, Oughtibridge, near Sheffield. Messrs. Ellis Bros., architects, 37 Orchard Street, Sheffield.

OXFORD.—June 14.—For additions to the infirmary buildings at the Poor Law schools, Cowley, Oxon, for the Oxford Incorporation. Mr. Adolphus Bullard, 5 and 6 Magdalen Street, Oxford.

PERSHORE.—June 17.—For the erection of walls, iron fencing and construction of drains at the Pershore cemetery. Mr. Lionel E. Clayton, clerk to the committee, Bridge Street, Pershore.

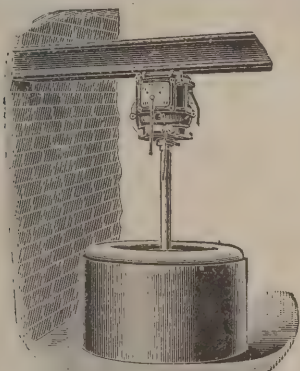
PETWORTH.—June 14.—For pulling-down the existing wooden bridge at Drungewick, near Loxwood, Sussex, and building a steel girder bridge and other works. The Council Offices, Petworth.

PORTSMOUTH.—June 14.—For the construction of dining-rooms, dormitories, hall and other works, for the committee of the Royal Sailors' Home, Portsmouth. Mr. G. C. Vernon-Inkpen, architect, 40 Commercial Road, Portsmouth.

RHYL.—June 24.—For taking-down the old police station buildings and for the erection on the site of a public free library and extension to the town hall. Mr. Arthur A. Goodall, town surveyor, Council Offices, Clwyd Street.

ST. ALBANS.—June 14.—For the conversion of woodshed at the workhouse into cells for tramp labour and for erection of new cells and of a new woodshed, for the

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SALTERHEBBLE.—June 19.—For the execution of works required in erection of schools at Salterhebble, near Halifax. Mr. James Lord, borough engineer, Town Hall, Halifax.

SCALEBY.—June 14.—For the reroofing of Scaleby Church, near Carlisle. Mr. J. H. Martindale, architect, Viaduct Chambers, Carlisle.

SCOTLAND.—June 12.—For construction of enclosure walls, gateways and keeper's lodge and laying-out grounds of new cemetery at New Dykes, Prestwick. Messrs. J. & H. V. Eaglesham, architects, 24 Wellington Square, Ayr.

SCOTLAND.—June 14.—For the construction of a storage reservoir on the line of the Bannockburn, near North Thord. Messrs. Warren & Stuart, civil engineers, 94 Hope Street, Glasgow.

SCOTLAND.—June 16.—For mason, carpenter, plumber, plasterer, slater, painter and glazier's work of parish hall to be erected at Nigg. Messrs. Brown & Watt, architects, Aberdeen.

SCOTLAND.—June 16.—For the construction of sewage disposal works, comprising the laying of cast-iron and fire-clay pipes, the building of manholes, culvert, septic tanks, bacteria filter beds, and other relative works at Cupar, Fifeshire. Drawings may be seen and copy of specification, schedule of quantities and form of tender obtained after Monday, June 5, from Mr. Henry Bruce, civil engineer, 67 Crossgate, Cupar Fife.

SCOTLAND.—June 16.—For providing and laying of concrete paving on playgrounds of East Bank, Shettleston, Tollcross and East Muir public schools. Work comprises about 6,000 square yards. Clerk to the Board, 24 Saint Vincent Place, Glasgow.

SEELY OAK.—June 20.—For works of alteration at the union workhouse, Selly Oak, near Birmingham. Messrs. C. Whitwell & Son, architects, 23 Temple Row, Birmingham.

STOKE-ON-TRENT.—June 15.—For extension of the church of St. Barnabas, Stoke-on-Trent. Messrs. Lynam, Beckett & Lynam, architects, Stoke-on-Trent.

SWANSEA.—For the erection of ten pairs of semi-detached villa residences on the Coedsaeson estate, Sketty, Swansea. Mr. Harold Kennard, architect, 13 Railway Approach, London Bridge, London, S.E.

TIPTON.—July 3.—For alterations and provision of partitions at Tipton Green and Great Bridge Council schools. Mr. Long, architect, 21 New Street, West Bromwich.

TRURO.—June 19.—For repairs and alterations to the St. Ewe and Lower Sticker Council schools, Cornwall. Mr. B. C. Andrew, architect, Biddick's Court, St. Austell.

TWICKENHAM.—June 12.—For the erection of Trafalgar schools, Third Cross Road. Mr. H. A. Cheers, architect, 35 Waldegrave Park, Twickenham.

WAKEFIELD.—June 15.—For the erection of parochial hall buildings, residence, boundary walling, &c., in connection with the parish of St. Andrew's. Mr. Simpson, Southgate Chambers.

WALES.—For the erection of a residence at Llanwrtyd Wells. Messrs. Swash & Bain, architects, Midland Bank Chambers, Newport, Mon.

WALES.—June 10.—For the erection of sixteen or more houses at the Bryn, between Maesycwimmer and Pontllanfraith. Mr. W. A. Griffiths, architect and surveyor, Pontllanfraith, Mon.

WALES.—June 10.—For the erection of a C.M. chapel at Penygroes, near Llandebie, and schoolroom at Cross Hands. Mr. W. Wilkins, architect, Llanelly.

WALES.—June 14.—For the electric lighting of the new Cardiff Corporation asylum at Whitchurch. Mr. A. Ellis, borough electrical engineer, The Hayes, Cardiff.

WALES.—June 14.—For the erection of large swimming-baths, &c., at Llwynpia. Mr. W. Beddoe Rees, architect, 3 Dumfries Place, Cardiff.

WALES.—June 14.—For rebuilding of Newport (Mon) head post office. H.M. Office of Works, &c., Storey's Gate.

WALES.—June 14.—For the erection of twenty or more cottages at Tir Phil. Mr. P. Vivian Jones, architect and surveyor, Pengoed.

WALES.—June 16.—For alterations to George inn, Brithdir. Mr. G. Kenshole, architect and surveyor, Station Road, Bargoed.

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WALES.—June 19.—For the erection of a Welsh Calvinistic Methodist chapel in Knight Street, Mountain Ash. Messrs. Morgan & Elford, architects, 1 Jeffrey Street, Mountain Ash, and 42 Canon Street, Aberdare.

WALES.—June 23.—For additions to the Llansantffraid Glyn Ceriog Council school, Denbighshire. The Headmaster, Council School, Llansantffraid Glyn Ceriog.

WALES.—June 26.—For the erection of proposed Masonic hall, Barry. Mr. J. A. Owen, architect, Main Street, Cadoston-Barry.

WALES.—June 27.—For the erection of isolation hospital, for the Caerphilly Urban District Council. Mr. John H. Phillips, architect, Clive Chambers, Windsor Place, Cardiff.

WARMINSTER.—June 14.—For the erection of a fire station in the Close Road, Warminster. Mr. Chas. H. Lawton, surveyor, Warminster.

WOKING.—June 20.—For alterations and additions to the infants' department of the Council schools at Westfield, Woking, Surrey. Messrs. Jarvis & Richards, architects, 36 Victoria Street, Westminster, S.W.

A LARGE block of business premises, consisting of ten shops and upper parts, is being erected with a frontage of 203 feet to Uxbridge Road, and return frontages to Bloemfontein and Ormiston Roads. Owing to differences with the County Council as to the frontage line the work had to be suspended for some time, but is now being rapidly pushed forward. Messrs. L. Whitehead & Co., Ltd., are the contractors for Mr. Ralph le Butt. Messrs. Palgrave & Co. are the architects.

AN imposing building consisting of a block of offices and business premises to be called Parliament Chambers, and facing the Church House, Great Smith Street, Westminster, is now being completed for Mr. E. J. Read, of the London Banking Corporation. The property consists of over one hundred offices and is handsomely fitted. The entrance halls are panelled with Irish green and black Devonshire marble, and the steps are of white Sicilian marble. The elevation is carried out in red bricks with carved gauged work and tawny terra-cotta dressings. Messrs. L. Whitehead & Co. are the builders, Messrs. Palgrave & Co., architects, and Mr. Farrell the clerk of works.

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Fraser, Kirkcaldy, mason	849	8	8
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Binning, Cowdenbeath, plumber	50	2	8
Paul & Sons, Cowdenbeath, slater	45	4	0
Paul & Sons, plasterer	24	0	0

Total £2,236 15 1

BARKING.

For the erection of three flats at Kennedy Road. Mr. J. M. H. GLADWELL, architect, Stratford, E.

Jones	£1,133	0	0
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North	1,095	0	0
Bull	1,080	0	0
Groome	1,050	0	0

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For the erection of a fire station at Bordesley Green. Mr. J. PRICE, city engineer.

T. ELVINS (accepted)	£9,350	0	0
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Hipwell & Co.	1,755	10	0
Scotney & Co.	1,715	0	0
Johnson	1,700	0	0
Cave, Scotney & Co.	1,680	0	0
Gelthorpe & Sons	1,540	0	0
ROBERTS BROS., Peterborough (accepted)	1,410	9	9

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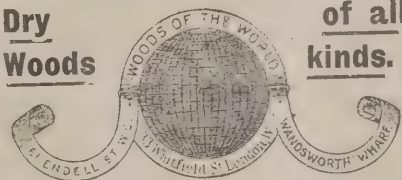


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Darnton, carpenter and joiner	414	0	0
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Flower	670	0 0
James & Sons	650	0 0
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		427 5 0

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Parsons	2,149	0	0
ALDRIDGE & SON (accepted)	2,115	0	0
Dymock	1,961	15	0

HOVE.

For erection of a house in Bigwood Villas. Messrs. OVERTON & SCOTT, architects, Brighton.

Field & Co.	£886	0	0
Holloway Bros.	826	17	6
Brown & Sons	826	0	0
A. Chilton	753	0	0
G. P. KERRIDGE, Brighton (accepted)	750	0	0

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O'Connor	5,326	0	0
Baird	4,620	5	6
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Kelly	4,297	0	0
J. FITZPATRICK, Kanturk (accepted)	4,288	15	10

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For the erection of Tiverton Road (Bournbrook) Council school.

H. GIBBS, Bournbrook (*accepted*) . . . £6,626 0 0

LIVERPOOL.

For the erection of homœopathic dispensary, Roscommon Street. Mr. F. U. HOLME, architect, Liverpool.

Jones & Sons . . . £2,500 0 0
Wearing & Sons . . . 2,010 0 0
Holme & Green . . . 1,984 0 0
Webster . . . 1,945 0 0
Greene . . . 1,935 0 0
Hughes & Stirling . . . 1,865 0 0
Hall & Son . . . 1,798 0 0
J. & E. Rimmer . . . 1,760 0 0

LONDON.

For the erection of stores, offices, &c., Hatfield Street, Southwark, S.E. Mr. A. CONDER, architect, Westminster.

Trollope & Colls, Ltd. . . . £9,545 0 0
Rider & Son . . . 9,456 0 0
McCormick & Son . . . 9,409 0 0
L. H. & R. Roberts . . . 9,368 0 0
Mowlem & Co. . . . 9,163 0 0
Lawrance & Son . . . 9,025 0 0
Higgs & Hill, Ltd. . . . 8,994 0 0
Cubitt & Co. . . . 8,991 0 0
Young . . . 8,973 0 0
Holland & Hannen . . . 8,875 0 0
GROVER & SON (*accepted*) . . . 8,663 0 0

For the necessary wiring and fittings for an electric-light installation in the new fire-brigade station in course of erection in Red Lion Street, Wapping.

Clark & Co. . . . £150 0 0
National Electric Construction Co., Ltd. . . . 145 0 0
Coleby & Co. . . . 137 10 0
Johnson . . . 136 0 0
Roger Dawson, Ltd. . . . 132 12 0
Durell & Co. . . . 130 10 0
Barlow & Young . . . 130 0 0
Marshall . . . 125 0 0
Tamplin & Makovski . . . 115 0 0

LONDON—continued.

For laundry and housewifery accommodation in connection with the Manchester Street school, St. Pancras.

Staines & Son . . . £2,789 0 0
Green . . . 2,787 0 0
Peattie . . . 2,754 11 0
Shurmur & Sons, Ltd. . . . 2,745 0 0
Williams & Son . . . 2,727 0 0
General Builders, Ltd. . . . 2,678 0 0
Appleby & Sons . . . 2,658 0 0
Stevens Bros. . . . 2,656 0 0
Marchant & Hirst . . . 2,638 0 0
Grover & Son . . . 2,638 0 0
L. H. & R. Roberts . . . 2,625 0 0
Willmott & Sons . . . 2,600 0 0
Lawrance & Sons . . . 2,503 0 0
Neal . . . 2,465 0 0

For the construction or reconstruction and the equipment for the underground conduit system of electrical traction of the following tramways:—(1) From Camberwell Green *via* Denmark Hill and Lordship Lane to the Crystal Palace Road; (2) from the terminus of the authorised tramways in Lordship Lane *via* London Road to Dartmouth Road, Forest Hill; (3) from Grove Vale *via* Goose Green and Peckham Rye to Stuart Road, Peckham; (4) from the existing tramways in New Cross Road *via* Lewisham High Road, Loampit Vale, to Rushey Green; (5) from the terminus of the existing tramways in Trafalgar Road, Greenwich, *via* Blackwall Lane to Blackwall Tunnel.

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Hay & Co. (<i>incomplete</i>) . . .						
Pearson & Co., Ltd. . . .	£112,598	10	0	£6,014	17	6
Griffiths & Co., Ltd. . . .	109,675	18	8	4,856	1	1
Nuttall & Co. . . .	105,617	15	7	5,345	11	3
Mowlem & Co., Ltd. . . .	104,334	3	7	4,925	18	7
Blackwell & Co., Ltd. . . .	103,282	7	2	5,277	12	9
White & Co., Ltd. . . .	101,764	0	3	5,882	18	1
Krauss & Son . . .	101,507	5	7	4,532	2	10
Dick, Kerr & Co., Ltd. . . .	98,870	5	1	4,558	10	6

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LONDON—continued.

For improvements at the South Lambeth school, for County Council.

Grover & Son	£15,984	0	0
Downs	15,944	0	0
F. & H. Higgs	15,882	0	0
Patman & Fotheringham, Ltd.	15,723	0	0
Lathey Brothers.	15,483	0	0
Killby & Gayford	15,359	0	0
Clarke & Bracey.	15,118	0	0
Greenwood, Ltd.	14,959	0	0
King & Son	14,773	0	0
J. & C. Bowyer	14,587	0	0
Holloway	14,546	0	0
Lawrance & Sons	14,404	0	0
Treasure & Son.	14,383	0	0
J. & M. Patrick	14,270	0	0
Johnson & Co., Ltd.	14,151	0	0
Appleby & Sons	14,089	0	0
Smith & Son	14,088	0	0
Marsland & Sons	13,855	0	0
Garrett & Son	13,773	0	0
Triggs	13,386	0	0
Architect's estimate	14,284	0	0

For removing two iron buildings from the Broadwater Road site, Wandsworth, and one iron building from the Vestry Road site, Dulwich, and for re-erecting these buildings on the Broomwood Road site, including provision of the necessary foundations, drainage, &c.

Mitson & Harrison	£1,800	0	0
Hawkins & Co.	1,789	10	0
Cruwys	1,784	0	0
Iles, Ltd.	1,775	0	0
Humphreys, Ltd.	1,620	0	0
Leather	1,570	0	0
Harbrow	1,559	0	0
McManus	1,405	0	0

For work to shop premises, Lower Clapton, N.E. Mr. HERBERT RICHES, architect, 3 Crooked Lane, King William Street, London, E.C.

J. T. ROBEY (accepted)	£99	10	0
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LONDON—continued.

For main pump renewals at the Western pumping station, for the London County Council.

Fullerton, Rodgart & Barclay, Ltd.	£5,260	0	0
Galloways, Ltd.	4,217	0	0
Clayton, Goodfellow & Co., Ltd.	3,995	0	0
Richardsons, Westgarth & Co., Ltd.	3,597	10	0
Musgrave & Sons, Ltd.	3,503	0	0
Simpson & Co., Ltd.	3,500	0	0
Glenfield & Kennedy, Ltd.	3,448	0	0
Cochrane	3,350	0	0
The Thames Iron Works, Shipbuilding and Engineering Co., Ltd.	3,320	0	0
Fleming & Ferguson, Ltd.	3,320	0	0
Hathorn, Davey & Co., Ltd., Leeds	2,534	0	0

For new penstock gearing and tide flaps for the Northumberland Street and Regent Street sewers, Victoria Embankment.

John Stewart & Sons, Ltd.	£600	0	0
Yates & Thom	497	0	0
Arnold Goodwin & Son, Ltd.	485	0	0
John Cochrane	430	0	0
Glenfield & Kennedy, Ltd.	395	0	0
Flavell & Churchill	376	0	0
Hunter & English	349	0	0
J. Blakeborough & Sons, Brighouse	313	0	0

For repairs and decorations to the Hulse Arms, Ilford, London, E. Mr. HERBERT RICHES, architect, 3 Crooked Lane, King William Street, London, E.C.

Derby	£178	0	0
Sheffield Bros.	160	0	0
Willmott	146	0	0
CLEMENS BROS. (accepted)	145	10	0

For alteration to saloon bar of the Bow Bells, Bow, E. Mr. HERBERT RICHES, architect, 3 Crooked Lane, King William Street, London, E.C.

Osborn & Sons	£217	0	0
J. T. Robey*	200	0	0

* Accepted with small modification.

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For work at the Sebright Music Hall, Bethnal Green, N.E.
Mr. HERBERT RICHES, architect, 3 Crooked Lane, King
William Street, London, E.C.
Kirk & Kirk, builders' work £290 0 0
Merryweather & Sons, Ltd., fire mains, &c. 59 18 0

MIDSOMER NORTON.

For the erection of a villa residence at Norton Hill. Mr.
WILLIAM F. BIRD, architect.
Long & Sons £1,985 0 0
Wills & Sons 1,725 0 0
Webb 1,717 0 0
Amery 1,650 0 0
Foster 1,547 9 3
Bird 1,400 0 0
Tovey 1,365 8 0

NEWCASTLE-UNDER-LYME.

For the erection of the King's Memorial Baths, Brunswick
Street. Mr. J. B. LANGLEY, architect, 49 Deansgate,
Manchester.
S. WILTON, Newcastle-under-Lyme (ac-
cepted) £10,400 0 0

OLDBURY

For the erection of a Council school at Rood End.
M. ROUND (accepted) £5,750 0 0

REIGATE.

For constructing arch at Pym's siding and other works in
Wray Common Road. Mr. FRED T. CLAYTON, borough
surveyor.
Hewett & Sons, Ltd. £1,292 2 3
Jeal 1,196 0 0
Faulkner 1,173 1 7
Pink 1,139 0 0
Nightingale & Sons 1,088 0 0
E. WORSSELL, Redhill (accepted) 1,040 0 0

SALISBURY.

For carrying-out improvements in Fair View Terrace.
Harris £447 10 0
WORT & WAY, Salisbury (accepted) 320 0 0
Tryhorn 309 0 0

For the city drainage and sewage-disposal works. Sir
ALEXANDER BINNIE, engineer.

Kellett, Ltd., London.
Steer & Pearce, Plymouth (tendered only for new sewers).
Riley, Cheltenham.
Bell, Tottenham.
J. & T. Binns, Croydon.
Neal, Ltd., Plymouth.
Dean, Ltd., London.
Tryhorn & Son, Salisbury.
Osenton, Walmer (tendered only for new sewers).
Osman, Southampton.
WORT & WAY, Castle Street, Salisbury (accepted).
Trimm, Dorking.

Muirhead, Greg & Matthews, London.
Harrison & Co., Birmingham.
Johnson & Langley, Leicester.
Wilson, Border & Co., Romford.

Bird & Pippard, Yeovil (tendered only for additional sewage-
disposal works).

Accepted tenders.

(a) For the construction of new sewers.
Wort & Way £24,165 3 1
(b) For the additional disposal works.
Wort & Way 14,963 11 11

SOUTHAMPTON.

For carrying-out private street works, Howard Road.
Hood £1,969 12 10
Butt 1,640 11 11
Lawrence 1,625 0 0
Douglas & Richards 1,501 12 0
Osman 1,303 0 0
Borough engineer's estimate 1,912 0 0
Owing to an error in the lowest tender, the contract
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SUTTON.

For proposed telephone exchange at Sutton, for H.M. Office of Works, &c.

Ansell	£1,387	0	0
Streather	1,354	0	0
Banyard & Son	1,300	0	0
Smith & Sons, Ltd.	1,298	0	0
Enness Bros.	1,292	0	0
Lawrence	1,288	0	0
Shopland	1,277	0	0
Potter	1,275	0	0
Higgs & Outhwaite	1,275	0	0
Bulled & Co.	1,273	0	0
Dean & Co.	1,260	0	0
Lorden	1,259	0	0
Smith & Sons	1,238	0	0
Martin, Wells & Co., Ltd.	1,220	0	0
Patrick	1,207	0	0
Gathercole Bros.	1,200	0	0
Coles	1,155	0	0

STAFFORD.

For additions to Stafford Grammar school. Mr. HENRY T. SANDY, architect, Stafford.

Dyke	£1,718	9	0
Marshall	1,631	0	0
Espley & Sons	1,598	0	0
Hodges	1,598	0	0
Lowe & Sons	1,590	0	0
Moss	1,547	0	0
Nevitt	1,539	9	8
Jervis Bros.	1,490	0	0
ADAMS & PEMBERTON, Stafford (accepted)	1,489	0	0

WALES.

For the erection of a new chapel and schoolroom, for the trustees of Nebo Baptist church, Ebbw Vale. Mr. H. WATERS, architect, Beaufort.

Morgan	£2,934	0	0
ROWLANDS & DAVIES, Waunlwyd, Mon (accepted)	2,732	10	0
Evans	2,721	18	2
James	2,670	10	0

WALES—continued.

For pulling-down and rebuilding the King's Head hotel, Pontnewydd, and forming roads and sewers upon lands adjacent. Messrs. SWALWELL & HAVARD, architects, Newport, Mon.

Poulton & Whiting	£4,155	0	0
Pugh & Co.	4,001	6	6
Linton & Co., Ltd.	3,900	0	0
Jones & Son, Ltd.	3,817	0	0
Jenkins & Co.	3,804	0	0
Richards & Co., Ltd.	3,798	0	0
Lock & Co., Ltd.	3,785	0	0
Powles & Co.	3,777	0	0
Clements & Co., Ltd.	3,732	0	0
Reed & Co.	3,500	0	0
Jordan & Co.	3,487	0	0
Dean & Co., Ltd.	3,407	0	0

A. S. MORGAN & Co., LTD., Newport, Mon (accepted)

3,374 5 11

For alterations at Brynglas. Mr. C. M. DAVIES, architect, Merthyr.

Lloyd	£1,053	17	6
Warlow	769	0	0
J. JENKINS, Merthyr (accepted)	779	17	0

For the erection of 135 dwelling-houses, together with streets, sewers and surface-water drains, Mountain Ash, for the Napier's Building Club. Messrs. MORGAN & ELFORD, architects, Mountain Ash. Per house, including roads, &c.

Davies & Co.	£303	9	0
Thomas & Sons	281	10	0
Jones Bros.	260	0	0
Price Bros.	258	10	0
JONES BROS., Treharris (accepted)	258	0	0
Osborne & Co.	239	7	0

For the erection of shop and rebuilding the Ivor Arms, Dowlais. Mr. C. M. DAVIES, architect, Merthyr.

E. Jones	£1,777	0	0
W. Williams	1,731	10	6
Davies	1,635	0	0
D. Jones	1,573	0	0
T. E. JONES, Dowlais (accepted)	1,363	10	0



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TRADE NOTES.

MESSRS. McDOWALL, STEVEN & Co., LTD., of London, Glasgow and Falkirk, have secured the contract for a large portion of the sanitary fittings for the Carlton Hotel, Johannesburg. Their cast-iron vitreous enamelled baths and lavatories are being supplied for the bath-rooms throughout this hotel.

The isolation hospital, Selby, is being warmed and ventilated by means of Shorland's patent Manchester stoves with descending smoke flues, Manchester grates and special ventilators.

R. J. NICHOLSON & Co., 26 Cannon Street, Manchester, have been appointed sole agents in Manchester and district for Messrs. Joseph Richmond & Co.'s lifts and cranes.

A NEW material for flooring called "Torgament" has been introduced in London. The works are in Leipzig, Dresden, Berlin; and in Germany it is used for public and private buildings. The advantages claimed for it are numerous. The flooring is jointless, durable and dry. It can be laid on wood, bricks or concrete. The appearance is pleasing. It also takes a high polish.

THE Furnishers' Chamber of Trade has been organised to protect and promote the interest of those engaged in the furnishing trades by forming a centre for combined action and a furnishing trade parliament. The names of several well-known gentlemen appear on the committee, and a prospectus has been issued stating in full the objects of the Chamber. The subscription is fixed at 10s. per annum, and the secretaries are Messrs. A. H. Botwright and H. E. Binstead. The offices are 14 City Road, E.C.

NEW CATALOGUE.

ANYONE who is not acquainted with the "Kinnear Patent Steel Rolling Shutters" or with the uses to which they can be applied need only glance at the illustrations which are in Messrs. A. L. Gibson & Co.'s catalogue. All are from buildings in which the invention is employed. The Corporations who own tramways have shown common sense by employing the shutters in their depôts and in that way saving space as well as money. There is no need of wasting time in opening and closing gates or risk of accident. The shutter can be raised or lowered, and when down there is absolute security within the enclosure. It can also be used with advantage in large warehouses or other premises where there are openings to be protected. At the Brighton electricity station there is a single curtain measuring 22 feet by 33 feet 4 inches, or 733 superficial feet, which one man can easily raise or lower. The hoisting machinery is simple and not liable to get out of order. The catalogue also describes the B. and S. folding gates, by which also space is economised; the elegant art-metal lift cars, special power lifts and the interlocking rubber tiling, which is a boon to all who suffer from noisy steps.

A BILL has been introduced in the Cape Parliament to provide for the raising of a loan of 144,300*l.* for the purpose of harbour works at Port Elizabeth, East London and Mossel Bay. Of this sum 104,100*l.* is proposed to be spent at Port Elizabeth, including 50,100*l.* for tugs and lighters, 9,500*l.* for warehouses and sheds, and 2,800*l.* for patent slip (additional). The intended expenditure at Mossel Bay includes 5,400*l.* for a new iron jetty.

WE are requested to announce that the Commissioners of H.M. Works intend, with the assistance of the Coal Smoke Abatement Society, to carry out during next autumn a series of tests of open domestic fire-grates. Manufacturers who may be desirous of having stoves tried should send full particulars thereof addressed to the Secretary, H.M. Office of Works, London, S.W., on receipt of which the Commissioners will determine whether such stoves shall be submitted to tests. Conditions will thereafter be furnished. Applications must be received not later than July 7 next.



MAIN CAR DEPOT, LEICESTER.—31 KINNEAR STEEL ROLLING SHUTTERS.

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PATENT INTERLOCKING RUBBER TILING.

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VARIETIES.

THE first fire tests at the British Fire Prevention Committee's new testing-station will be conducted on Wednesday, June 28, and there will probably be a private view of the testing-station prior to the tests.

AN international exhibition of domestic art, with a section for hygiene, will be held at Brussels from September 2 to 20. The profits will be devoted to charity. Count P. de Smet de Naeyer is to be honorary president.

THE Eastbourne Town Council have been informed that the municipal motor omnibus service was run at a loss of 1,000*l.* during the past year. Many of the 'buses will be converted into water-vans and dust-carts.

THE Liverpool Corporation on the 2nd inst. paid to the solicitors of Mr. W. H. Lever a cheque for 138,449*l.*, this being the sum awarded by the umpire in respect of the acquisition by the Corporation of Mr. W. H. Lever's Rivington Hall estate.

THE Sheffield city surveyor recently invited designs for the erection of arches, which must be accompanied by a specification stating the materials to be used and method of construction, and an estimate of the cost. The occasion is the visit of their Majesties the King and Queen.

It is hoped within the next month or two to complete the arrangements for the erection of the bridge across the Ribble, which will provide direct communication between Southport and Lytham. Most of the land has already been acquired. The span of the bridge will be 600 feet.

THE Hammersmith Borough Council have approved a scheme for the widening of King Street, from the Broadway to Waterloo Street, at an estimated cost of 337,000*l.* This is part of the main thoroughfare leading from Piccadilly to the western districts which has been considerably widened near Kensington Church.

THE Tower Building, 50 Broadway, the first steel skeleton structure ever built in New York, has been recently sold to a syndicate which has purchased also the adjoining parcels, 46 and 48 Broadway. It is reported that on the combined plots a twenty-storey office structure to cost 1,500,000 *dols.* will be erected. The building was erected in 1888 according to the designs of Mr. Bradford L. Gibert.

THE Wolverhampton Board of Guardians are about to ask the consent of the Local Government Board to the borrowing of 4,020*l.* from the Ecclesiastical Commissioners to complete the payments on account of the erection of the new workhouse. The total expenditure on the workhouse is 195,647*l.*

MR. COWAN, Local Government Board Inspector, has fixed June 16, at the City Hall, Dublin, to hold an inquiry into the application of the Corporation for further loans amounting to about 30,000*l.* for a new scheme for the disposal of the city refuse, and in connection with the conversion of the Fairview slob into a park.

THE Barrow Town Council have received seventeen tenders for the construction of the bridge across Walney Channel to connect Vickerstown with the mainland. These were referred to Sir Benjamin Baker for report. The estimates range from 80,000*l.* to 100,000*l.*, exclusive of the approaches.

THE Lancashire Asylums Board have agreed to a recommendation that a further sum not exceeding 30,000*l.* for extras, and to complete the asylum buildings at Winwick asylum, be granted out of the asylum's fund. The Board are considering the advisability of erecting an asylum of cheap construction at Whalley.

THE Inverness Town Council on Monday resolved not to adopt electricity for street lighting or for the lighting of the town hall buildings on the score of expense and the effective nature of the incandescent light. Electric works are in course of being carried out in the burgh at a cost of over 20,000*l.*

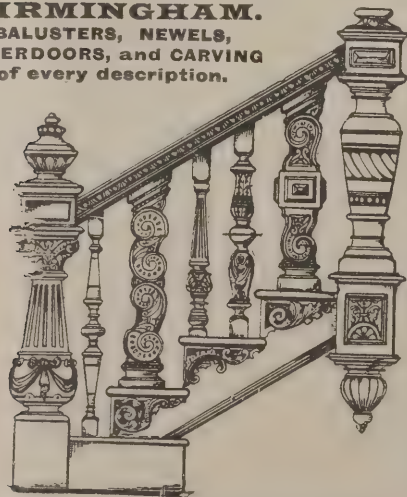
THE Smethwick Town Council have decided to forward a memorial to the Local Government Board asking their sanction to a loan of 15,000*l.* to erect the new municipal offices upon land adjoining the Victoria Park at Bearwood Hill. The Local Government Board have just sanctioned the raising of a loan of 27,000*l.* for street paving and other purposes.

At the last meeting of the Saddleworth Rural District Council the medical officer of health called attention to the unusual number of cases of pneumonia which had occurred in the district. They were due, he said, to the sudden climatic changes and the resulting amount of dust. The

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Name withheld by request, Glasgow	... No claim.
(Signalled and fire put out; sprinkler did not act)	

Shaw, Walker & Co., Glasgow	... Loss £225.
Aberdeen University Press	... No claim.
Clark & Co. (Ltd.), Anchor Mills	... Under £50.
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A. VIAN, Secretary.

For Index of Advertisers, see page x.

dust of the roads, he added, was dangerous to both man and beast, and he recommended the use of some kind of oil which would bind the particles together.

THE Cheap Cottages Exhibition has received from the Board of Trade a certificate as an Industrial and International Exhibition. If therefore exhibitors give notice to the Comptroller they can avail themselves of the protection afforded by the Patents, Designs and Trade Marks Act, 1883, for any inventions, designs, &c., which they may exhibit.

BIRKENHEAD recently received an offer of a free library from Mr. Carnegie, but so much difficulty arose over the question of site that the project almost fell through. Mr. Lever has offered a splendid site in the heart of the town, and it has been accepted by the library committee. Mr. Lever insists that the plans must be submitted to him and altered as he desires; also that the whole of the 15,000l. promised by Mr. Carnegie shall be spent on books alone.

At the last monthly meeting of the Dundee Town Council a recommendation of the public health committee to send Convener High and Dr. Templeman to London to attend the Royal Institute of Public Health was discussed. It was moved that no deputation be sent, on the ground that such a deputation was illegal, and that it was not worth the expenditure. By fourteen votes to seven it was agreed that the deputation should be sent.

A SCHEME for the supply of water to the village of Gowober has been submitted to the Oswestry Rural District Council by Messrs. Berrington, engineers, Wolverhampton. They recommend that water should be obtained from the Liverpool Corporation mains at an estimated cost of 6,475l. The present water supply is very bad, and two Local Government Board inquiries have already been held on the subject.

THE Gare bridge across the Eden at Guardbridge, Fifeshire, is being renovated. The northern parapet on the east side has been rebuilt from the arch, and operations on the western side are being actively pushed on. The Gare bridge, as it is called, was constructed in the beginning of the fifteenth century by Bishop Henry Wardlaw, the founder of the University of St. Andrews, and was declared

by Dean Stanley in one of his visits as great an engineering feat for the fifteenth century as the Tay bridge was for the nineteenth.

AN housing conference for Lancashire and Cheshire will be held on the 24th inst. at the hall of the Co-operative Wholesale Society, Liverpool. It is said that new and special features of the housing problem as affecting the two counties, as well as from the national aspect, will be discussed. Permission to view the Manchester Corporation housing estates has been granted, and the members of Parliament for the two counties are being invited to the conference.

MR. S. F. EDGE has made arrangements for a series of tests designed to show the comparative control of motor and horse-drawn vehicles. The following vehicles will be opposed to each other for the purpose of the competition:—Two-ton lorry *v.* two-ton horse-drawn railway van, 30-h.p. landaulette *v.* horse-drawn carriage, 15-h.p. touring car *v.* butcher's cart, 90-h.p. racing car *v.* trotting sulky. Each couple will be tested three times and be required to stop in the minimum possible distance when travelling at identical speeds.

THE Commercial Intelligence branch of the Board of Trade have been notified by H.M. Consul-General at Antwerp (Mr. E. C. Hertslet) that the municipal authorities of that city are calling for tenders for the supply of a heating apparatus in a school in the Rue Louise, Antwerp. The adjudication will take place on June 20, and a deposit of 500 francs (20l.) will be required to qualify any tender. The conditions of the contracts may be obtained from the Hotel de Ville, Antwerp.

THE opening service of the Breachwood Green Baptist church, Welwyn, Herts, took place on Wednesday, June 7. The building, which is of late Gothic in design, faced externally in red bricks, will accommodate about 420 persons, has two vestries and two classrooms in connection therewith, and has been erected under contract for 1,513l. inclusive of seating, heating, lighting and everything complete. Messrs. George & R. Palmer Baines, 5 Clement's Inn, Strand, London, W.C., are the architects, and Messrs. Frederick Wood & Co., builders, Luton, were the contractors.

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THE foundation-stone laying ceremony of the new buildings for the Long Eaton Primitive Methodist church and schools took place on June 6. The church (which is the portion of the scheme at present in course of erection) is designed in a late period of Gothic. A bold tower is a feature at one corner. The building will seat 500 persons. The architects are Messrs. George Baines, F.R.I.B.A., and R. Palmer Baines, 5 Clement's Inn, Strand, W.C. The contract amount is 2,544*l.* and is let to Mr. John Bull, of Long Eaton.

ONE of the many actions arising out of the heavy rains of June 1903, which overflowed the river Lea, and inundated various parts of Essex, came before Mr. Justice Kennedy on the 5th inst., when a firm of linoleum makers sued the Metropolitan Water Board for damage caused to their premises by flooding. The plaintiffs claimed that the damage was due to the way in which the Board had constructed a large reservoir, but his Lordship held that the extraordinarily heavy rains were the cause of what had happened, and entered judgment for the defendants.

A PUBLIC meeting of Scotch fishermen, held on Saturday at Stornoway, passed the following resolution:—"That this meeting of fishermen from all parts of Scotland approves of the report issued by Mr. G. Woolfe Brenan, civil engineer, Oban, for the proposed harbour at Portnaguran, as recommended by the Walpole Royal Commission of 1889, and petitions the Government in favour of the construction of the harbour for the preservation of life and property, as the erection of small piers and boatslips is a mere waste of public money."

In deference to a superstition which has prevailed for many years, there was on Thursday of last week a complete cessation of work at Lord Penrhyn's quarries at Bethesda, where 4,000 men are employed. The superstition owes its origin to a succession of fatal accidents on Ascension Day. Some years ago the management succeeded in inducing the employés to remain at their posts, but, strange to relate, a fatal accident occurred, and now not a single quarryman will venture into the workings on what is locally known as Holy Thursday.

THE property surveyor to the Newcastle Corporation, reporting upon the receipts from the workmen's dwellings in Walker Road and Albion Row, states that the gross rent of the Albion Row property is 262*l.* 12*s.*; the actual rent received for the year ending May 1 was 199*l.* 18*s.* 3*d.*, and the disbursements were 125*l.* 16*s.* 11*d.* The gross rent at Walker Road is 610*l.* 2*s.* 8*d.*; actual rent received for the year ending May 1 was 539*l.* 10*s.* 4*d.*, and the disbursements were 210*l.* 9*s.* 10*d.* The total gross rental was therefore 872*l.* 14*s.* 8*d.*; the outgoings for the year were 336*l.* 6*s.* 9*d.*, the interest and redemption charges 667*l.*, a total of 1,003*l.* 6*s.* 9*d.*, giving a loss of 136*l.* 12*s.* 1*d.*

THE Birmingham housing committee have decided to send a deputation to Germany to study the town extension schemes which have been adopted by several of the large cities in that country. The itinerary has not yet been definitely fixed, but the German capital will be visited, and it is not unlikely that Stuttgart, Frankfort and Düsseldorf will be included in the tour. In these and other towns the German system of dealing with the housing problem has been very extensively adopted, and the committee hopes that the deputation will be able to acquire information which will be of service when the committee comes to deal with the Bordesley Green site.

THE district committee of the Lower Ward of Lanarkshire reported on the 5th inst. that one of the members, when recently in London, had got Dr. Douglas, M.P., to bring before the Postmaster-General the objections of the committee to the continuance of telegraph poles and wires on the main roads in the district. The Postmaster-General had replied that if the district committee were prepared to bear the expense, amounting to about 2,000*l.*, of removing the wires from the roads to the railway line, he might arrange to have the work done. It was pointed out, however, that the committee had no power to spend public money on such work, and it was agreed to continue the pressure on the Postmaster-General to have the poles and wires removed from the public roads.

THE Watford Town Council have made a special arrangement in connection with the construction of the

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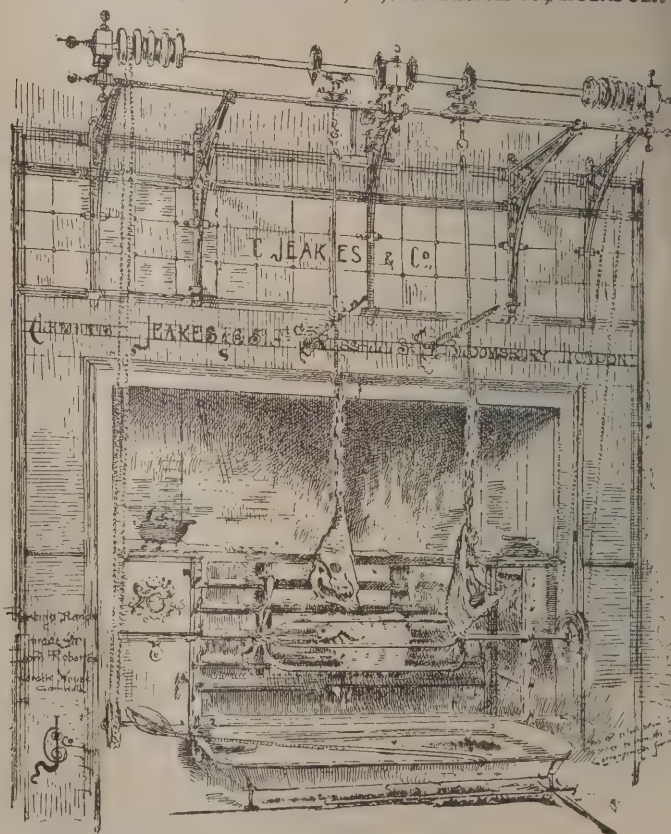
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tramways which is about to commence. The consulting engineers are to reduce their fee from 5 per cent. to 4 per cent. in consideration of the town surveyor supervising the laying of the track. The Council have voted 200*l.* to the surveyor as extra remuneration. It was said at the last meeting that the surveyor would attend to his ordinary duties during the day, and would be astir at six o'clock in the morning looking after the tramway, and would again be inspecting in the evening. The undertaking will cost between 90,000*l.* and 100,000*l.*, and a "construction-lease" arrangement has been made, the contractors agreeing to operate the tramways and pay the capital charges and 20 per cent. of the surplus profits. At the end of five, ten or fifteen years there is an option in favour of the Council only of determining the lease.

It has been resolved to make a grant-in-aid of the funds of all district and local boards throughout India equal approximately to one-fourth of their income from rates or cesses imposed upon the land. It is estimated that this will cost 56½ lacs per annum, and the amount will grow as the income from cesses increases. It is a general complaint that the resources of the boards are incommensurate with the duties imposed upon them, and throughout a great part of India, from sheer want of funds, it is impossible to make adequate provision for their roads and bridges, for their hospitals and dispensaries, for their schools, for water-supply and sanitation and for veterinary aid for cattle. The Government hope that the substantial assistance now given to the boards will afford them the means of effecting material improvements in all these branches of their administration.

The chief surveyor of main roads to the Staffordshire County Council states in his report that the development of tramways in rural roads has compelled the Council to strengthen the macadamised parts on either side of them. In the surveyor's opinion the Heavy Motor-car Order will increase and develop heavy motor traffic, and it will enable these vehicles to travel at an increased speed. Heavy traction engines and heavy motors travelling at their present slow pace do incalculable damage even to the strongest and best-constructed roads. With the quickening of the speed, however, the wear on the surface will be very

much increased, as the impact of the wheels against the surface of the roads will not only fracture but disturb the metal crust and thereby loosen the surface, making it less impervious to wet and less able to bear succeeding traffic.

BUILDING AND BUILDERS.

MESSRS. PATMAN & FOTHERINGHAM, Limited (James F. Parker managing director), of Theobald's Road, W.C., and Park Street, Islington, N., are making progress with the officers' quarters, &c., at Whale Island, Portsmouth, for the Admiralty.

THE Hereford Town Council on Tuesday agreed to spend 1,000*l.* in making alterations to St. Peter's school, also to erect an infant school to accommodate 200 children on the site adjoining the present school at Holmer.

THE Board of Education have written to the Stoke education committee approving of the plans proposed for the erection of a new department for 390 boys at Harpfield. Messrs. Lynam, Beckett & Lynam have been instructed to prepare quantities and advertise for tenders for the erection of the school.

SIR JAMES STEEL, first bart., of Murieston, Edinburgh, and of Torpichen Street, Edinburgh, builder, ex-Provost of Edinburgh, bequeathed one-twelfth of his estate for employes and servants and the Trinity Hospital. The amount available for these bequests probably exceeds 80,000*l.* The total value of the estate has not yet been ascertained; it probably exceeds 500,000*l.*

At the Highgate Police Court recently a builder was summoned by the Hornsey Town Council for rates for an advertisement hoarding. The hoarding was a board announcing houses to be let or sold, and was rated 10*l.* gross and 9*l.* rateable. The defendant contended that it was not a hoarding within the meaning of the Act. Mr. Burt upheld that contention and dismissed the summons, saying the overseers knew what to do if they were not satisfied.

THE foundation-stone of the new town hall, with fire station, at Sutton Coldfield has been laid. The town hall

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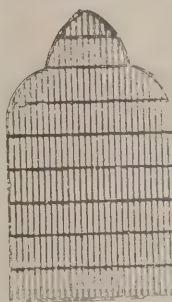
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will comprise an assembly-room which will give accommodation for some 650 people, a supper-room, cloak-rooms and other offices. The whole of this accommodation, with the exception of the platform retiring-room, has been provided on the ground floor; thus dispensing with staircases. The fire-brigade buildings include a fire-engine room, 36 feet by 30 feet, giving accommodation for three engines, with recreation-room and stabling. Between these buildings there will be a tower 60 feet high. The redsand bricks used in the construction of the building were made in Sutton, and the facings are of Bath stone. The buildings are from plans prepared by Mr. Arthur R. Mayston, of London, and are being executed by Mr. T. Elvins, of Birmingham, at an estimated cost of 10,100*l*.

ELECTRIC NOTES.

THE Eccles electrical engineer has been instructed to obtain from the Salford Tramways manager definite information as to the quantity of electrical energy required for working the tramways within the borough of Eccles.

THE Walthamstow electric tramways, which were inaugurated on Saturday, open up direct communication with Epping Forest, into which the route penetrates as far as the Woodford boundary. The system has been built at a cost of over 100,000*l* by the District Council, which will work the tramways.

THE North-Eastern Railway Company have just completed the installation on eleven miles stretch of the main line extending from Thirsk to Alne—about ten miles north of York—of electro-automatic signalling. The contract was awarded to the Hall Signal Company, of New York. The "Hall" signals are designed to enable the services of signalmen except at junctions to be entirely dispensed with, and are purely automatic, the connections being set up by the trains themselves.

In a paper dealing with the manufactures of India recently read before the Society of Arts, Mr. H. J. Tozer, M.A., stated that electric power is now being employed, and there has recently been a brisk demand for installations in the Bombay cotton mills. Calcutta and Bombay have

electric-power stations, and a large scheme is on foot for supplying it to the Punjab. The transmission of electric power from the Cauvery Falls to the Kolar goldfields for various mining and metallurgical works is an admirable illustration of what may be done elsewhere.

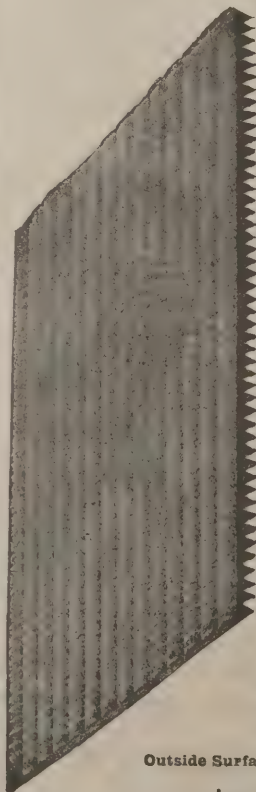
THE Grimsby highway committee on the 5th inst. considered a series of extensions to the present tramway system suggested by the Provincial Tramway Company. The extensions are in the Welholme and Heneage Roads districts. The company offered to carry out the improvements providing no extra rent is charged, and if the Corporation exercised their right of purchase in 1921 they should do so as a going concern, and subject to the provisions of the Land-Clauses Act. The proposals were accepted on the condition that the Corporation purchase the extensions at a valuation upon the expiration of the company's lease.

THE London County Council on Tuesday decided by a large majority that tenders be invited for the construction, or reconstruction, for electrical traction on the conduit system, of about seventeen miles (single line) of tramways in South London, at a total estimated capital cost to the tramways account of £403,876. The lines, the construction of which has been authorised from time to time, are from Camberwell Green to Lordship Lane, from Lordship Lane to Forest Hill, from Grove Vale to Stuart Road, Peckham, from New Cross Road to Catford *via* Lewisham High Road, and from Trafalgar Road, Greenwich, to a point near the Blackwall Tunnel.

THE Institution of Mining Engineers held their annual two days' session on the 1st and 2nd inst. Three out of the seven papers dealt with winding engines and gears, and a long discussion took place on the relative merits of steam and electric winding. Several speakers favoured the electric system in use in Germany and the North of France, but the majority of those present seemed to think that the economies to be effected by electricity scarcely justified the large outlay on new electric plant. Electric winding too was accounted all very well for the small and slow systems of the Continent, but the initial outlay would be enormous if electricity were applied to the deep shafts and rapid working in this country.

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BUILDERS' EXCHANGE AND EXHIBITION.

WORK in connection with the Builders' Exchange and Exhibition, Birmingham, is progressing favourably. The opening day is fixed for June 29, and should find all in readiness for the display of nearly every conceivable material and appliance required in the building of houses and factories. The motto of the Exchange is "A house is not finished until it is furnished," and in furtherance of this view complete schemes of furnishing houses and offices will be shown. Such important matters as sanitation, hygiene, heating and lighting may be studied in the light of the most advanced scientific productions. A most complete system has been inaugurated and is being installed, whereby immediate reference may be made to the most important catalogues of the leading firms concerned in the erection and equipment of buildings, and a plan has been adopted to keep the library of catalogues replete with all the newest publications. In a city so closely connected with the manufacture of building materials and appliances, such a centre as the Exchange offers should prove of immeasurable benefit to its members and their clients, who will thus have a central place of meeting, with an opportunity of examining appliances and viewing materials, and generally conducting their business without the loss of time necessarily expended in visiting factories and offices situated at more or less distance apart.

The following are among the firms who are exhibiting:—Messrs. Mellowes & Co., Sheffield; the Wood Carving Co., Ltd., Birmingham; Hamblett's Blue Brick Co., Ltd., West Bromwich; Phillips & Sons, Birmingham; The Cannon Iron Co., Deepfields; The Perfection Window Co., Ltd., Nottingham; English Bros., Ltd., Wisbech; The Haunchwood Brick and Tile Co., Ltd., Nuneaton; Yarrow & Co., Ltd., Bolton; Albert J. Shingleton, London; The Fire Resisting Corporation, Ltd., London; Kenrick & Jefferson, Ltd., West Bromwich; Kodak, Ltd., London; Maw & Co., Ltd., Jackfield; Kaye & Co., Ltd., Rugby; The Cloisonné Glass Co., Ltd., London; Samuel Platt, Ltd., Wednesbury; Geo. Farmiloe, Ltd., London.

A most encouraging feature is the numerous applications for membership, which evinces a desire on the part of architects, builders and manufacturers to avail themselves

of the facilities which such an institution offers for co-operation. The building is centrally situated, well-lighted and adapted to its purpose.

ALL SAINTS, FISHPONDS.

THE first section of All Saints, Fishponds, was opened by the Bishop of Bristol on the 26th ult., his Lordship remarking in his address that his Church Extension Commission had provided 1,000*l.* out of the 3,200*l.* cost, but that a further sum of 3,500*l.* was required to complete a structure that, judging by the portion opened and dedicated that day, bid fair to result in one of the most beautiful of the modern churches, and one in which the parishioners would be able to feel a pardonable pride, in which Churchmen generally could join. His Lordship also drew attention to the application and suitability of natural foliage, fruit and flowers for internal adornment as well as of angel-roof corbels above the choir. The style is that of the fourteenth century, and the portion so far constructed embraces a chancel 36 feet by 24 feet, morning chapel, two vestries, organ-chamber, south-east porch and the first of six bays of nave and aisles, the whole of which will ultimately seat 700 people. The walls are of rock-faced and level bedded local stone lined with Adamant plaster, with windows and dressings generally of the Hastham Park stone, with polished Belgian marble and blue Pennant shafts for the various internal columns, with profuse natural foliage carving in their caps and elsewhere. The roofs are of open-timber description, boarded, felted and covered with brown and red mixed Broseley tiles. The floors of chancel and porch are laid with terrazzo marble mosaic, and the gangways with oak wood blocks. The nave has a lofty clerestory, and the chancel is of considerable height, and as everything connected with the warming and lighting of the whole church has been supplied, the cost of 9*l.* per sitting is a small one. The contractors were Messrs. Clark & Sons, of Fishponds, and the architects Messrs. E. H. Lingen Barker & Son, of London, Bristol and Hereford.

THE Hanley Town Council are to apply for sanction to borrow 11,000*l.* on mains, tools and meters.

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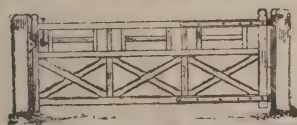
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A FRAIL SUSPENSION BRIDGE.

A LIGHT suspension bridge for passenger traffic having been erected over the Kilmarnock Water, the opening took place on Saturday. Immediately after the ceremony there was a rush on the part of many present to be among the first to cross the bridge, and people got on to it from both sides, with the result that there was a block, and while something like 200 people were upon it the bridge collapsed and was precipitated into the bed of the water, which, fortunately, was of no great depth. At first it was feared that there would be considerable loss of life, but, happily, there was not a single fatality, and, while eight or nine persons were injured, in no case were the injuries of a serious nature. The bridge was 70 feet long by $3\frac{1}{2}$ feet wide. The cost of its erection was about 150*l*. The suspenders were of wire ropes, with iron columns set on concrete piers and anchored to a block of concrete at either end, and was supposed to be capable of bearing an ordinary strain of about 20 tons. It is alleged that a link of one of the anchor chains had a latent defect and gave way, causing the whole strain to be thrown on one side, and thereby pulled a wire rope through the socket of the fastening block.

SOCIETY OF ENGINEERS.

At the meeting of the Society of Engineers held on Monday, Mr. N. J. West, president, in the chair, a paper was read on "The Improvement of London Traffic," by Mr. Charles Scott Meik, M.Inst.C.E., and Mr. Walter Beer, Assoc.M.Inst.C.E., of which the following is an abstract:—

The authors first refer to the exhaustive evidence collected by the Royal Commission on London Traffic and to the appointment of an Advisory Board of Engineers to assist the Commissioners, which they suggest warrant the expectation that the forthcoming report will deal with the needs of London in a comprehensive manner. This evidence shows that the traffic conditions of London are unsatisfactory, and will become worse if means are not taken for their improvement.

After remarking that considerable amelioration of existing conditions will, or can, undoubtedly be effected by an extension of the powers of the police in connection with the regulation of traffic and by the construction of local widenings, the electrification of suburban railways and the completion of the tube lines already authorised, the authors point out that more drastic measures are required to adequately relieve the present congestion of traffic and to provide for future expansion. They suggest that new main avenues should be made through London and point out that they are supported in their views by the weight of evidence given before the Royal Commission on London Traffic.

Discussing the conditions to be fulfilled by new thoroughfares or main avenues, the authors show that they must tap existing centres of traffic and extend to the more distant suburbs. To be effective they must pass over or under all important cross streets within the central area, and should provide a special track for motor vehicles. Railways and tramways must be constructed along such main avenues, not only to assist in defraying their cost, but to enable the working-class population disturbed to be economically rehoused on the outskirts of London and to assist in providing for the ever-increasing demand for rapid passenger transport to and from the central area of the Metropolis.

Realising that no useful discussion on these broad suggestions could take place without reference to concrete proposals, since the kernel of the whole matter lies in the practicability of the proposed works in regard to cost and in their effect upon business, the authors describe the scheme laid by them before the Royal Commission on London Traffic last year and offer it as a basis for the discussion of the general principles involved. Their chief proposals are for two main avenues through London from north to south and from west to east respectively. The north to south main avenue is designed to commence near Enfield and to extend through Tottenham, South Hornsey and Highbury, past the Parcels Post Office and Mount Pleasant, through Hatton Garden, across Holborn, the Strand and the river Thames to St. George's Circus. Thence through Camberwell, Lambeth and West Dulwich to the neighbourhood of Croydon.

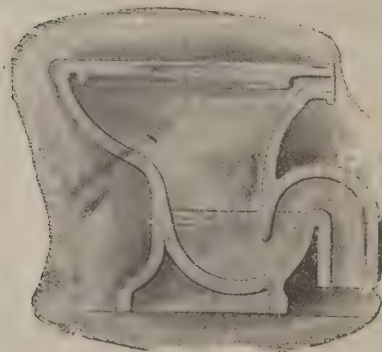
The west and east main avenue is intended to commence

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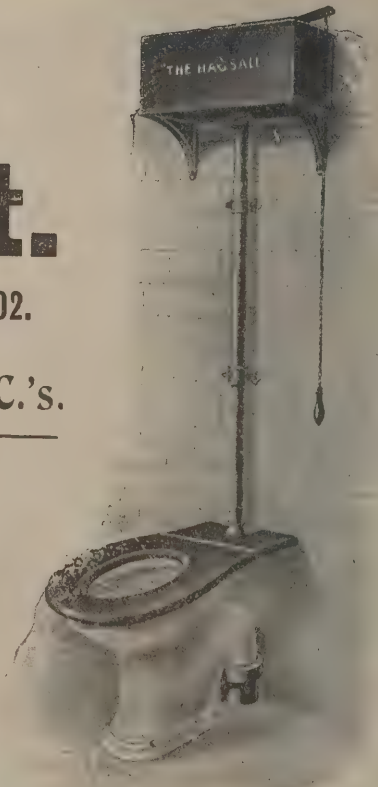
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near Hounslow and to pass through Ealing, Acton and Notting Hill, Paddington and Marylebone, to a junction with the north and south main avenue at Mount Pleasant. From Mount Pleasant this avenue would continue eastwards *via* Liverpool Street, through Stepney, Bow Common and East Ham to the neighbourhood of Dagenham. These main avenues would together be forty-eight miles long, and the authors propose that for rather more than half their length they should be constructed with upper and lower roadways, the former passing over all cross traffic, and the whole design constituting a doubled-decked street. Each avenue would be 160 feet wide, would provide a special road for fast motor traffic, a double line of tramway and a double line of railway, the latter being situated either overhead, as in the case of the suspended railway at Elberfeld in Germany, in shallow subway immediately below the main avenues, or in tube at a greater depth.

The authors go very carefully into the important question of cost, and show that the expenditure on land could be almost entirely recouped by purchasing on both sides of the avenues land in excess of that required for the roads, and selling the surplus at its improved value. The earnings of the railways and tramways, calculated on the basis of zone fares varying from 1-12th to 1-8th of a penny per mile, would, the authors say, be sufficient to defray the expenditure on their construction as well as on that of the main avenues. Apart from the railways and tramways the total cost of the 48 miles of main avenues suggested is placed at 21,311,000*l.*, which, it is estimated, could be repaid with interest from the surplus earnings of the railways and tramways within a period of forty years and upwards from the completion of the works, dependent upon the type of railway adopted.

PROTECTION AGAINST FIRE.

A FEATURE of the Bath and West and Southern Counties Agricultural Show, held last week at Nottingham, was the very complete arrangement carried out by Messrs. Merryweather & Sons, of London, for the fire protection of the show ground.

A detachment of the Merryweather fire brigade were on duty at the fire station, which was fully equipped with the very latest in fire extinguishing appliances. Amongst the apparatus worthy of special attention may be mentioned the motor "Fire King" steam fire-engine. This engine is capable of delivering 400 gallons per minute, and of travelling at the rate of 30 miles per hour. The boiler is fitted with an improved form of liquid-fuel burner, recently patented by Messrs. Merryweather, the great advantage being that only one burner is employed, and, moreover, should occasion arise, when it is impossible or inconvenient to obtain a supply of oil, coal or wood can be burnt, and in this case no alteration of any kind is required to the burner or fire-box. We believe this feature is obtained in no other type of burner.

A petrol motor chemical fire-engine was also at the fire station ready for turning out immediately on an alarm being received.

A "Valiant" steam pump, fire escape, hose cart and a large number of smaller appliances were provided available for instant use. Amongst these might be mentioned Murphy's patent nozzle; by means of this a fireman is enabled to drive a volume of smoke out of his way and thus obtain entrance to a building which otherwise he would not be able to enter. A patent nozzle—an invention of the chief of the Edinburgh Fire Brigade—was also exhibited. By this apparatus jets of various sizes can be thrown from a branch without changing the nozzle.

Messrs. Merryweather also had an interesting exhibition of water-supply, irrigating, spraying and general pumping machinery. These included a patent portable steam spraying plant, capable of playing as many as twenty-four very fine spray jets at a time. Moreover, by means of the special spray pipes the jets can be directed on any spot and in any direction.

Another novelty in spraying apparatus was shown in a little petrol-driven machine, the motor employed being an ordinary bicycle engine.

A very useful machine exhibited was the Merryweather patent portable "Hatfield" pump and oil-engine. This can be used as a fire-engine, water-supply pump, as well as for driving light machinery.

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Messrs. Hartley & Sugden, of Halifax, display the merits of their heating apparatus boilers, including specimens of cast-iron "White Rose" and wrought-welded boilers of the "Savile," "Climax," "Handy" and "Stanley" types, which are suitable for heating and hot-water supply in hotels, mansions, public buildings, &c., as well as greenhouses, vineries, &c. Radiators and valves are also shown by this firm.

We may also mention that Messrs. Doulton & Co., Ltd., are among the list of exhibitors, with specimens of Doulton and terra-cotta ware in the shape of ornamental vases, pedestals, garden pots and other articles of that class which prove so attractive.

THE NEW SHOW-ROOMS OF THE LEEDS FIRECLAY COMPANY, LTD.

THE Leeds Fireclay Company, Ltd., is the trading name of an association of several old-established and well-reputed firms in each branch of manufacture, consisting of Messrs. Joseph Cliff & Sons, the Burmantofts Co., Messrs. Edward Brooke & Sons, Messrs. W. Ingham & Sons, the Wortley Fireclay Company, Messrs. Joseph Brooke & Sons and Messrs. Oates & Green, Ltd.

The head offices of the company are at Leeds, but it has long been felt desirable that the company should have some central show-room in London where architects, surveyors and the trade as well as the public generally might view the various specialties. Advantage has, therefore, been taken in fitting up the new premises at 2 and 3 Norfolk Street, Strand, W.C., so that the application of the various descriptions of terra-cotta and faience may be displayed, and where also the many sanitary specialties of the firm may be seen in actual operation.

Upon entering the spacious show-rooms on the ground floor we noticed the excellent way in which the fittings of their various kinds are grouped together with their necessary accessories. The several types of Imperial porcelain

baths are shown, fitted to suit the varying tastes of intending purchasers or the requirements of the different water companies. Fittings are also on view for public baths and hospital fittings of the very latest design and finish. Lavatories in one slab of glazed-ware with glazed-ware legs and accessible fittings of the latest type are likewise shown.

In the lower ground-floor there are examples of the company's manufacture in closets, urinals, lavatories, wash-tubs, &c. These are all shown fitted for actual use with the water-supply laid on, thereby enabling architects and intending purchasers to thoroughly test the capabilities and efficiency of the various articles they might require. Glazed-ware mangers for loose-boxes and for stalls are also to be seen, together with patent cattle-troughs and other goods of a similar type, which tend to render stables, cow-byres and piggeries as sanitary as possible.

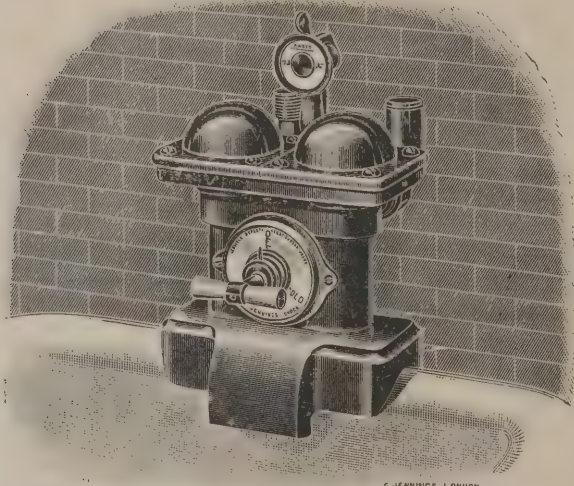
Various specimens, representing materials supplied and works executed by the Burmantofts branch of the Leeds Fireclay Company, are in addition displayed. Examples of constructional faiencework and fireplaces are also shown, as well as examples of their tile walling and ceiling decoration.

The manufacture of glazed and enamelled bricks in all colours is a very prominent department of the Leeds Fireclay Company, and examples of every kind may be seen in the show-rooms, to celebrate the opening of which a luncheon was given at the New Gaiety Restaurant on Monday last, at which Mr. B. J. W. Lone presided, and the toast of success to the Leeds Fireclay Company, Ltd., was enthusiastically responded to.

PLANS for the completion of the Edinburgh University Union buildings were passed at the Dean of Guild Court on the 1st inst. The original buildings were erected in 1888 and enlarged in 1902. The remaining portion of the addition about to be erected contains a library on the ground floor, a reading and writing-room over the library. The new structure as a whole will form a handsome addition to the buildings of the locality. The cost of the buildings now to be erected will be about 8,500*l.*, and tenders for that amount are about to be accepted. The plans have been prepared by Messrs. Sydney Mitchell & Wilson, architects.

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NOTICE TO ADVERTISERS.

Under no circumstances whatever can the proprietors of this Journal guarantee alteration of copy if received after the first post on Tuesday mornings, and no proofs can be submitted if copy arrives later than first post on Saturday mornings.

EDITORIAL NOTICES.

In view of the many difficulties which are certain to arise in connection with the law, practice rules and procedure under the Workmen's Compensation Act, we have added to our staff A VERY EMINENT BARRISTER, who has made the subject a special study, and will be glad to answer in the columns of this paper any questions relating to the complicated matters arising from the provisions of this difficult Act. Our LEGAL ADVISER will further answer any legal question that may be of interest to our readers. All letters must be addressed "LEGAL ADVISER," Office of "The Architect," Imperial Buildings, Ludgate Circus, London, E.C.

The Editor will be glad to receive from Architects in London and the Provinces results of Competitions and Tenders and other particulars of Works in progress in which they may be interested.

The authors of signed articles and papers read in public must necessarily be held responsible for their contents.

No communication can be inserted unless authenticated by the name and address of the writer—not in every case for publication, but as a guarantee of good faith.

Correspondents are requested to make their communications as brief as possible. The space we can devote to Correspondence will not usually permit our inserting lengthy communications.

TENDERS, ETC.

* * As great disappointment is frequently expressed at the non-appearance of Contracts Open, Tenders, &c., it is particularly requested that information of this description be forwarded to the Office, Imperial Buildings, Ludgate Circus, London, E.C., not later than 2 P.M. on Thursdays.

COMPETITIONS OPEN.

HOVE.—Aug. 1.—Designs for new free library, not to exceed 10,000*l.* (exclusive of furniture). Premiums of 50*l.*, 30*l.* and 20*l.* Further particulars, Mr. H. Endacott, town clerk, Town Hall, Hove.

PERTH.—Aug. 1.—Plans for (1) reconstruction of the existing city hall at a cost not exceeding 6,000*l.*, and (2) erection of a new hall at a cost not exceeding 15,000*l.* Premiums will be awarded authors of plans placed first, second and third in order of merit as follows:—(1) For reconstruction, 30, 20 and 10 guineas respectively; (2) for a new hall, 50, 30 and 20 guineas respectively. Instructions, general conditions and plan of site from Mr. John Begg, town clerk.

CONTRACTS OPEN

ABINGDON.—June 24.—For the erection of a new ward block (sixteen beds). Mr. J. G. T. West, architect, The Knowl, Abingdon.

ASHBY WOULDs.—July 1.—For the construction of sedimentation tanks, detritus chamber, percolating filter and about 1,700 lineal yards of 8-inch stoneware-pipe sewers, with manholes, &c. Messrs. Herbert Walker & Son, engineers, Albion Chambers, Nottingham.

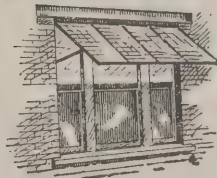
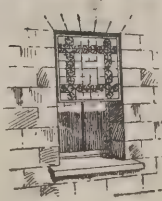
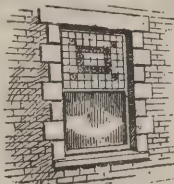
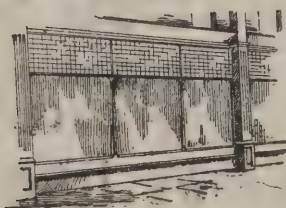
ASHTON-UNDER-LYNE.—June 21.—For proposed alterations to the out-patient department and the erection of a new mortuary at the district infirmary, Ashton-under-Lyne. The Infirmary.

BATLEY.—June 19.—For the mason, joiner, plumber, plasterer, slater, painter, heating and electrical engineer's work respectively in the erection and completion of additions to technical school, Batley. Messrs. Hanstock & Son, architects, Branch Road, Batley.

BILLERICAY.—June 24.—For the construction of pumping-stations, sewers and filtration-beds in the district of Shenfield, near Brentwood, Essex. Messrs. Jones, engineers, Parliament Mansions, Victoria Street, Westminster.

BINBROOK.—June 22.—For repairs to the roofs of Binbrook Church, Lincolnshire. Mr. C. Hodgson Fowler, architect, The College, Durham.

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BIRDWELL.—June 19.—For the erection of a house at Birdwell, Yorks. Mr. Arthur Whitaker, architect, Worsborough Bridge, Barnsley.

BOLTON.—June 17.—For the erection of a grand stand at Burnden Park, Bolton. Messrs. Morris & Profit, architects, 16 Nelson Square, Bolton.

BRISTOL.—June 22.—For the erection of a laundry and wash-house at the day industrial school, Temple Backs. Mr. P. Addie, Council House.

BROMLEY.—June 27.—For proposed works to the operating-room at the district sick asylum, Devon's Road, Bromley, E. Messrs. J. & W. Clarkson, architects, 136 High Street, Poplar, E.

BUCKLEY.—June 19.—For alterations and extensions to the Bistre National school, Bistre, Buckley, near Chester. The Vicarage, Bistre, Buckley, Chester.

CANTERBURY.—June 19.—For renewing the slating of the roof and pointing the walls of the wards on either side of the central block of the workhouse. Mr. H. Doré, architect, High Street, Canterbury.

CARLISLE.—June 21.—For alterations and additions, for the Carlisle Steam Laundry. Messrs. Johnstone Bros., architects and surveyors, 39 Lowther Street, Carlisle.

CHESHUNT.—June 26.—For the erection and completion of a new petty sessional court and technical school, Cheshunt, Hertfordshire. Mr. Urban A. Smith, county surveyor, Hatfield.

CHESTER.—June 24.—For the erection of shedding, canvas and other works in connection with the annual exhibition, August 30. Mr. T. A. Beckett, secretary, St. Werburgh Chambers, Chester.

CRICKLEWOOD.—June 22.—For the construction of covered reservoirs, the laying of pipes, the formation of roads, culverts, &c., at Cricklewood, in the county of Middlesex, for the Metropolitan Water Board. The District Secretary at the New River District Office, 173 Rosebery Avenue, E.C.

CROMER.—June 19.—For the following works, for the Cromer Urban District Council, viz. erection of storeyard buildings, Central Road; erection of fire station, Canada Road. Mr. A. F. Scott, surveyor, West Street, Cromer.

DARLINGTON.—June 26.—For taking-out the decayed stone in the town hall, clock tower and market buildings, and inserting about 1,300 cubic feet of new stone. Mr. George Winter, borough surveyor.

DARTFORD.—June 19.—For the construction and erection complete of car sheds adjacent to the electricity works, Priory Road, Dartford. Mr. T. E. Tiffin, surveyor, Council Offices, Dartford.

DEVIZES.—June 19.—For the erection of a secondary school at Devizes, Wilts. Mr. R. E. Brinkworth, architect, 16 Old Bond Street, Bath.

DORCHESTER.—June 24.—For repairing and painting, &c., at the headquarters police-station, Dorchester, where specifications may be seen.

DUNDALK.—June 22.—For the erection of a gymnasium, lavatories, bath-rooms and general structural and drainage alterations to the Educational Institution, Dundalk. Mr. W. S. Barber, architect, Francis Street, Dundalk.

DURHAM.—June 20.—For store-room racks, for the County Council. The County Education Office, Durham.

GRAYINGHAM.—June 20.—For alterations to Grayingham Church, Lincolnshire. Mr. C. Hodgson Fowler, architect, The College, Durham.

GUILDFORD.—June 27.—(a) For the erection of brick and concrete piers to carry a girder bridge across the river Wey at Newark, (b) for the supply of the iron and steelwork and fixing of same in connection therewith. The Engineer, District Council Offices, Commercial Road, Guildford.

HADFIELD.—June 22.—For the erection of a bakery in Wesley Street, Hadfield. The Office, Wesley Street.

HALIFAX.—June 19.—For the erection of new entrance lodge, gates and approaches to the workhouse, Gibbet Street, Halifax. Mr. W. Clement Williams, architect, 29 Southgate, Halifax.

HANLEY.—June 17.—For erection of Wesleyan church, Botteslow Street, Hanley, Staffs. Mr. Wm. Campbell, architect, Hanley.

HENLEY-IN-ARDEEN.—June 23.—For a small public mortuary. Mr. John Brook, district surveyor, College Street, Stratford-on-Avon.

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HIPPERHOLME.—June 20.—For the erection of four rough houses and appurtenances at Wood Bottom, Sunnydale, Hipperholme, Yorks. Messrs. Longbottom & Culpin, architects and surveyors, George Street, Halifax.

HOPKINSTOWN.—June 23.—For the erection of Welsh Calvinistic Methodist chapel and caretaker's house at Hopkinstown, Pontypridd. Mr. Thomas Rosser, Oakfield Villa, Pwllgwaun, Pontypridd.

HORSHAM.—For the erection of a detached house at Depot Road, Horsham. Mr. William Buck, architect, North Street, Horsham.

HOYLAND NETHER.—June 21.—For the reconstruction and alteration of the settling tanks at the sewage farm. Mr. Horace G. Keywood, engineer and surveyor, Town Hall, Hoyland Nether, near Barnsley.

ILFORD.—June 26.—For the erection of a cottage at the outfall works. Mr. Herbert Shaw, engineer and surveyor, Town Hall, Ilford.

ILFORD.—June 27.—For the erection of a corrugated iron temporary school building for about 500 children, with temporary latrines, drains, &c., at Uphall Road, Ilford, Essex. Mr. C. J. Dawson, architect, 11 Cranbrook Road, Ilford.

IRELAND.—June 17.—For the erection of a house and stables at Fermoy. Mr. C. H. Ashworth, architect, 42 Dame Street, Dublin.

IVYBRIDGE.—June 17.—For the erection of a mill, about 50 feet by 30 feet, at Ivybridge, Devon. Mr. H. J. Lee, Union Mills, Ivybridge.

LANCASTER.—June 23.—For the erection of a large ornamental masonry structure in the Williamson Park, Lancaster. Mr. John Belcher, architect, 20 Hanover Square, London, W.

LEEDS.—June 21.—For all trades (excepting ironwork) in the superstructure for a bridge over the Hol Beck at the junction of Water Lane with Globe Road. The City Engineer's Office, Leeds.

LEEDS.—June 21.—For alterations to caretaker's house, Brudenell Council school, Headingley. Mr. W. S. Braithwaite, architect, Education Offices, Leeds.

LEEK.—June 26.—For extensions to the sewage-disposal works in the South District, comprising alterations to

present works, the laying-down of sedimentation-tanks, percolating filters and other appurtenant works. Mr. W. E. Beacham, engineer and surveyor, Town Hall, Leek.

LEYTON.—June 27.—For the cleansing, painting, repairs and improvements to schools to be executed during the summer vacation, for the Leyton Urban District Council. Mr. William Jacques, architect, 2 Fen Court, Fenchurch Street, E.C.

LIGHTCLIFFE.—June 22.—For the erection of a pair of bungalows on the Leeds and Whitehall Road, Lightcliffe. Mr. R. Berry, architect, Commercial Street, Halifax.

LONDON.—June 19.—For the laying of tar-paving to playgrounds at three schools during the summer vacation, for the West Ham education committee. Mr. William Jacques, architect, Fen Court, E.C.

LONDON.—June 24.—For alterations to the premises lately occupied as the St. John's Girls' school and 1 Potter's Fields, Tooley Street, S.E. Mr. R. J. Angel, borough surveyor, Town Hall, Spa Road.

LONDON.—June 27.—For the erection of the Patents Office extension, Fumival Street. H.M. Office of Works, &c., Storey's Gate, S.W.

LONDON.—June 27.—For laying of about 600 superficial yards of mastic asphalt on the footway on the south side of Newington Green. Mr. J. Patten Barber, borough engineer, Town Hall, Upper Street, N.

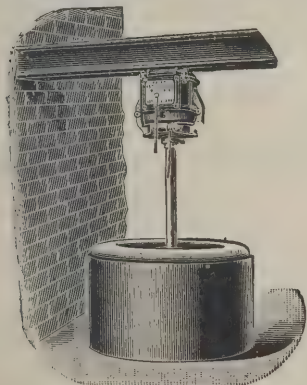
LONDON.—June 29.—For repairing, painting and cleansing the Tate central library, Brixton Oval, for the Lambeth Borough Council. Mr. Henry Edwards, borough engineer, 346 Kennington Road.

LONDON.—July 1.—For alterations to engineering arrangements, &c., in laundry at the South-Eastern hospital, New Cross, S.E. Mr. W. T. Hatch, engineer-in-chief, Office of the Metropolitan Asylums Board, Embankment, E.C.

LUTON.—June 23.—For the erection of a bandstand at Wardown Park. Borough Engineer, Town Hall, Luton.

MANCHESTER.—June 24.—For the iron and steelwork required for supporting an existing retort-house floor at Rochdale Road gas station. Mr. C. Nickson, superintendent, Gas Department, Town Hall, Manchester.

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MANGOTSFIELD.—June 17.—For erecting composite wood and iron school buildings at Mangotsfield, Gloucestershire. Mr. R. S. Phillips, surveyor, Shirehall, Gloucester.

MIDDLESBROUGH.—June 24.—For the erection of Crescent Road schools. Messrs. R. Lofthouse & Sons, architects, 62 Albert Road, Middlesbrough.

NELSON.—July 3.—For the erection of a ferro-concrete bridge over the canal in Scotland Road. Mr. B. Ball, borough engineer, Town Hall, Nelson.

NOTTINGHAM.—June 20.—For additions to chemical laboratory and the engineering department, University College. Mr. Frank B. Lewis, city architect, Guildhall.

PERSHORE.—June 17.—For the erection of walls, iron fencing and construction of drains at the Pershore cemetery. Mr. Lionel E. Clayton, clerk to the committee, Bridge Street, Pershore.

PORTSCATHO.—June 22.—For additions and alterations to the Gerrans school, Portscatho, Cornwall. Mr. Horace W. Collins, architect, Clinton Road, Redruth.

RAMSBOTTOM.—June 22.—For improvements at St. Paul's school, Ramsbottom. The Rev. J. J. Lewis, The Vicarage, Ramsbottom.

RHYL.—June 24.—For taking-down the old police station buildings and for the erection on the site of a public free library and extension to the town hall. Mr. Arthur A. Goodall, town surveyor, Council Offices, Clwyd Street.

ROTHERHAM.—June 28.—For the erection of new shops, offices, &c., for the Corporation. Mr. J. Platts, architect, High Street, Rotherham.

SALTERHEBBLE.—June 19.—For the execution of works required in erection of schools at Salterhebble, near Halifax. Mr. James Lord, borough engineer, Town Hall, Halifax.

SCOTLAND.—June 21.—For providing and erecting wrought-iron bar and stob and wire fencing at Talla reservoir and at various places on the line of the aqueduct between Talla reservoir and Edinburgh. Mr. W. A. Tait, engineer, 72A George Street, Edinburgh.

SCOTLAND.—June 28.—For the reconstruction of old quay wall at Lower Harbour, Perth. Mr. Robert M'Killop, borough surveyor, 12 Tay Street, Perth.

SELLY OAK.—June 20.—For works of alteration at the union workhouse, Selly Oak, near Birmingham. Messrs. C. Whitwell & Son, architects, 23 Temple Row, Birmingham.

SOUTH TWERTON.—June 21.—For erection of five additional classrooms at the South Twerton Council schools, Bath. Mr. William F. Bird, architect, Midsomer Norton.

STOKE-UPON-TRENT.—June 21.—For erection of school buildings at Harpfield, Stoke-upon-Trent. Messrs. Lynam, Beckett & Lynam, architects, Stoke-upon-Trent.

SUDBURY.—July 10.—For new sanitary annexes and drainage, for the Sudbury (Suffolk) Board of Guardians. Messrs. Clare & Ross, architects, 1 West Street, Finsbury Circus, London, E.C.

TAUNTON.—June 24.—For the erection and completion of a new school of art. Messrs. Sampson & Cottam, architects, 1 Hammet Street, Taunton, and 43 High Street, Bridgwater.

TIPTON.—July 3.—For alterations and provision of partitions at Tipton Green and Great Bridge Council schools. Mr. Long, architect, 21 New Street, West Bromwich.

TRURO.—June 19.—For repairs and alterations to the St. Ewe and Lower Sticker Council schools, Cornwall. Mr. B. C. Andrew, architect, Biddick's Court, St. Austell.

ULVERSTON.—June 28.—For alterations to Fountain Street House, Ulverston. Messrs. Settle & Brundrit, architects, Ulverston.

WALES.—June 19.—For proposed organ chamber, additions and renovations to the Tabernacle chapel, The Hayes, Cardiff. Messrs. R. & S. Williams, architects, Borough Chambers, Wharton Street, Cardiff.

WALES.—June 19.—For the erection of a Welsh Calvinistic Methodist chapel in Knight Street, Mountain Ash. Messrs. Morgan & Elford, architects, 1 Jeffrey Street, Mountain Ash, and 42 Canon Street, Aberdare.

WALES.—June 20.—For a shop at Penyard. Mr. E. A. Johnson, architect, Merthyr.

WALES.—June 21.—For alterations and renovation to the Calvinistic Methodist chapel, Bryncethin. Mr. P. J. Thomas, architect, Bridgend.

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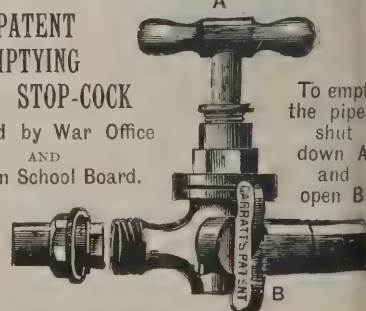
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WALES.—June 21.—For the erection of new mission hall, with vestries and classrooms, at the Heath, Cardiff. Messrs. Veall & Sant, architects, Cardiff.

WALES.—June 22.—For repairing and renovating Bethania Congregational chapel, Dinas. Mr. J. Rees, 51 Dinas Road, Dinas, Rhondda.

WALES.—June 23.—For improvements and general renovation of Ebenezer C. M. chapel, Nelson. Mr. R. S. Griffiths, architect and surveyor, Tonypandy.

WALES.—June 23.—For additions to the Llansantffraid Glyn Ceriog Council school, Denbighshire. The Headmaster, Council School, Llansantffraid Glyn Ceriog.

WALES.—June 24.—For alterations and additions to Zion English Baptist chapel, Ynysybwll. Messrs. Morgan & Elford, architects, 1 Jeffrey Street, Mountain Ash, or 42 Canon Street, Aberdeen.

WALES.—June 26.—For extensions and renovations at Trerhondha chapel, Ferndale. Mr. Lewis, jeweller, Duffryn Street, Ferndale.

WALES.—June 26.—For the erection of proposed Masonic hall, Barry. Mr. J. A. Owen, architect, Main Street, Cadoxton-Barry.

WALES.—June 27.—For the erection of isolation hospital, for the Caerphilly Urban District Council. Mr. John H. Phillips, architect, Clive Chambers, Windsor Place, Cardiff.

WALES.—June 27.—For alterations and additions at Zion chapel, Pentre, Rhondda. Mr. Price, 74 Llewellyn Street, Pentre.

WALES.—July 3.—For the construction of a service reservoir, filter beds and other works at Frampton, near Llantwit Major, with cast-iron supply, compensation and distribution mains, &c., for the supply of water to Llantwit Major. Messrs. Kirby, Son & Brown, water engineers, Stow Chambers, Newport, Mon.

WOKING.—June 20.—For alterations and additions to the infants' department of the Council schools at Westfield, Woking, Surrey. Messrs. Jarvis & Richards, architects, 36 Victoria Street, Westminster, S.W.

WREAY.—June 23.—For extensions to school at Wreay, Cumberland. Mr. Jos. Graham, architect, Bank Street, Carlisle.

TENDERS.

ALFRETON.

For alterations and additions to the Wycliffe Congregational church and school. Mr. F. S. ANTLIFF, architect, Derby.

Brown	£1,700	0	0
Harris & Hunt	1,684	10	0
Wagg	1,674	19	0
LEE & KIRK, Alferton (accepted)	1,660	0	0

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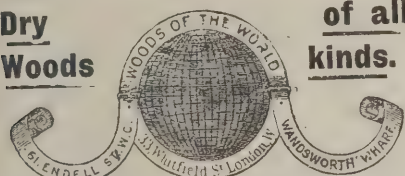
For erection of a synagogue in Spring Gardens, Manningham Lane. Mr. B. S. JACOBS, architect, Hull.

Totty	£3,408	0	0
Briggs Bros.	2,750	0	0
Obank & Son	2,726	0	0
Murgatroyd & Son	2,725	0	0
Hobroyd	2,671	0	0
Demain & Son	2,628	0	0
Toothill & Balmforth	2,603	10	0
Fearnley & Son	2,526	0	0
Good & Sons, Ltd.	2,526	0	0
Stead & Sons	2,522	0	0
Taylor & Sons	2,510	0	0
Farnish	2,500	0	0
Hargreaves	2,485	0	0
Newell	2,471	0	0
Wray & Co.	2,465	0	0
Shackleton	2,428	0	0
J. MOULSON & SONS, Bradford (accepted)	2,425	0	0

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For the erection of a caretaker's cottage, for the Town Council, in connection with the Gt. Leeds water scheme. Messrs. MANSEERGH, engineers. LAING & SONS, Carlisle (accepted) £995 11 9

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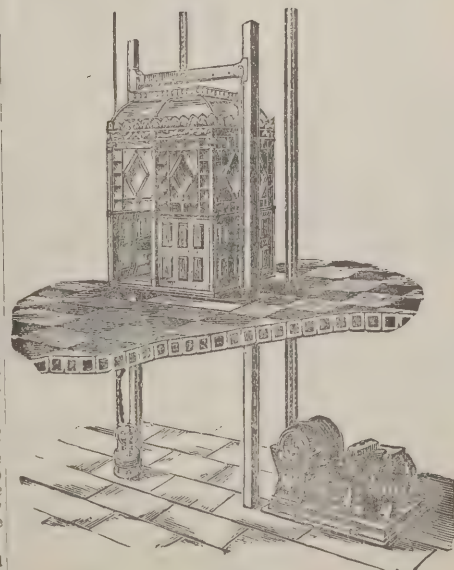
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Forse & Sons	3,595	0	0
Poole	3,590	0	0
Wilkins & Sons	3,589	0	0
Flint	3,567	0	0
Gleed Bros.	3,526	0	0
Pittard & Sons	3,524	0	0
Donby & Co.	3,459	0	0
Collins & Godfrey	3,437	0	0
Love	3,353	0	0
Stockham	3,321	0	0
Spiller & Son	3,250	0	0
Pollard & Co.	3,217	12	8
Fursland	3,175	0	0
Taylor	3,100	0	0
C. BRYER, JUN., Bridgwater (accepted)	2,800	0	0

CORBY.

For the erection of a pair of cottages at Corby, for the Kettering Industrial Co-operative Society. Messrs. BIRD & BATLEY, architects.

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Hardy & Atkinson	5,161	16	9
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Nunn	4,525	5	4
Annakin	3,993	14	11
Kaye Bros.	3,896	3	11
Westminster Construction Co.	3,871	9	4
Brunton	3,828	9	5
Bushby & Son	3,849	0	0
Arnold & Son	3,840	0	0
Mackay	3,788	3	6
Sangwin	3,689	8	4
Buckley	3,681	0	6
Simpson	3,604	9	6
Hall	3,512	10	0
Jowett Bros.	3,454	19	8
Brebner & Co.	3,379	12	6
Watson	3,329	7	6
Egan & Son	3,292	5	5
T. YOUNG & SON, Wakefield (accepted)	3,249	19	8
Parsons	3,220	11	4
Carr	3,199	5	7
Wood	2,993	0	0
Barker	2,844	1	3

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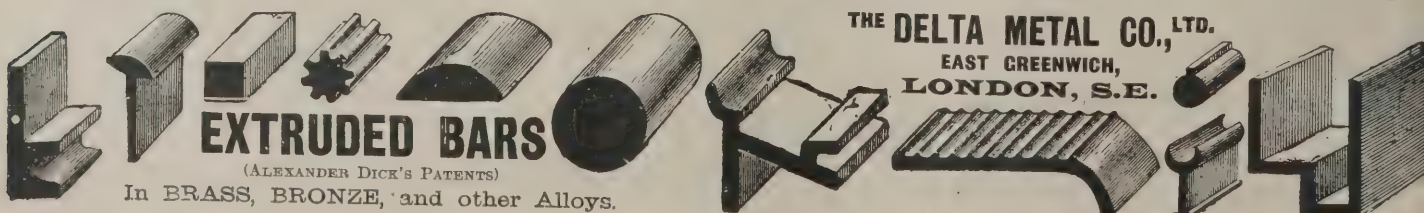
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Berrill & Green	789	0	0
Capps, Rowley & Keach	768	0	0
A. Lewis	765	0	0
Lewis & Son	763	0	0
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C. & F. Henson	756	0	0
Ball	754	0	0
C. Lewis	750	0	0
Kettering Co-operative Builders	744	0	0

LEYTON.

For erection of free library in Lea Bridge Road. Messrs. NEWMAN & JACQUES, architects.

Thomas	£4,595	0	0
Woollaston & Co.	4,575	0	0
Ferguson & Co.	4,272	0	0
Moss & Co.	4,250	0	0
Harris	4,200	0	0
Mattock & Parsons	4,189	0	0
Robey	4,159	0	0
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Shurmur & Sons	3,933	0	0
Sims & Woods	3,907	0	0
Gregar & Son	3,889	0	0
Hyde	3,871	0	0
Groves & Sons	3,819	0	0
Faulks	3,754	7	3
Sands & Burley	3,700	0	0
Maddison	3,698	0	0
Horswill	3,660	0	0
Nightingale	3,617	0	0
Coxhead	3,616	0	0
Symes	3,562	0	0
Manders	3,549	16	4
A. G. CRISP (accepted)	3,370	0	0

KENSWORTH.

For the erection of an infectious diseases hospital for twenty beds, for the Dunstable and District hospital joint committee. Mr. GEORGE SIMCOX, architect, Dunstable.

Saunders & Son	£4,865	0	0
Yirrell	4,775	0	0
Salisbury & Son	4,680	0	0
Dunham	4,640	0	0
Pitkin & Son	4,293	0	0
Goodman	4,180	0	0
Robinson	4,176	0	0
Higgs	4,100	0	0
Wright	3,888	0	0
A. W. NASH, Dunstable (accepted)	3,685	0	0

LONDON.

For the making-up, channelling, kerbing, paving, &c., a portion of Pigwell Path, for the Hackney Borough Council. Mr. NORMAN SCORGIE, borough engineer.

Adams	£281	16	0
Anderson	266	19	3
Porter	252	7	9
Catley	249	18	5
Grounds & Newton	246	10	1
W. GRIFFITHS & Co., LTD. (accepted)	240	12	0

For the erection of laundry, Strand-on-the-Green, Chiswick, for Messrs. Camille Simon, Ltd. Mr. WALTER HEARN, architect. Quantities by Mr. C. E. PEASE.

Thompson & Co.	£7,309	0	0
A. & B. Hanson	6,955	0	0
Andrews & Co.	6,943	0	0
Minter	6,891	0	0
Adamson & Sons	6,875	0	0
Dorey & Co., Ltd.	6,699	0	0
Courtney & Fairbairn	6,403	0	0
Soole & Sons	6,400	0	0
MATTOCK & PARSONS (accepted)	6,337	0	0

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FULL LIST, and dates when they appeared, of THE CATHEDRALS which have been published on Application to The Publisher.

MOXLEY.

For electric wiring and lighting at the small-pox hospital, for the South Staffordshire Joint Small-pox Hospital Board. Mr. GEO. GREEN, engineer, Wolverhampton.

Jackson & Co.	£350	0	0
Dudley Electrical Co.	300	0	0
Egginton & Co.	276	0	0
District Electric Co.	268	0	0
Cave & Son	262	8	6
Skelding & Co.	255	15	6
National Electric Construction Co.	230	13	6
Firth & Son	218	0	0
Cross & Cross	211	9	0
WHITTAKER BROS., Dudley (accepted)	193	0	0

ROTHWELL.

For pumping and screening machinery for sewage-disposal works at Stourton. Mr. E. J. SILCOCK, engineer, Leeds.

Whitehead & Poole	£1,088	0	0
Hathorn, Davey & Co.	1,075	0	0
Teasdale Bros.	1,053	0	0
Worthington Pump Co.	814	0	0
J. WATTS & Co., Birmingham (accepted)	697	0	0

For the construction of new sewerage and sewage-disposal works at Stourton. Mr. E. J. SILCOCK, engineer, Leeds.

Lant	£12,539	0	0
Pickthall & Son	11,540	0	0
Braithwaite & Co.	11,025	0	0
Wood	10,936	0	0
Barker Bros.	10,881	0	0
Egan & Son	10,817	0	0
Arundel	10,519	0	0
Bentley	10,293	0	0
Graham & Sons	10,280	0	0
Brigg	10,269	0	0
Parkins & Co.	10,262	0	0
Wilson Bros.	9,922	0	0
Firth & Co.	9,844	0	0
Worthington	9,821	0	0
Greaves & Wheeler	9,629	0	0
ARNOLD & SON, Doncaster (accepted)	9,059	0	0
Sutcliffe Bros.	8,938	0	0

SHENFIELD.

For the erection of a house in Worrin Road. Mr. H. R. BIRD, architect.

Claydon	£694	10	0
Jarvis	693	0	0
Dix	685	0	0
F. W. BURTWELL (accepted)	675	0	0

SKETTY.

For the erection of seventeen houses in Town Hill Road, for the Sketty Co-operative Building Club. Mr. C. T. RUTHEN, architect, Swansea.

Bennett Bros.	£9,000	0	0
Richards	7,762	0	0
Lloyd Bros.	7,613	9	11
Billings	6,630	0	0
J. & D. Jones	6,650	0	0
Jenkins	6,500	0	0
Marles & Sons	5,567	10	0
Evans	5,525	0	0
Jones	5,457	10	0
C. MARLES, Swansea (accepted)	5,355	0	0

For erecting ten pairs of villas for the Trustees of the Coedaeon Building Club. Mr. B. C. DEACON, architect, Swansea. Quantities by Mr. W. P. HORSBURGH, Liverpool.

Fuge & Rosser	£15,926	0	0
Brown & Backhouse	15,790	0	0
Richards	15,465	10	11
White & Sons	15,127	0	0
Jenkins	13,995	0	0
Lloyd Bros.	13,887	5	7
Billings	13,800	0	0
Marles & Sons	13,500	0	0
J. & F. Weaver	13,449	0	0
Jones	13,316	0	0
Hughes & Stirling	13,215	0	0
Fowler	12,600	0	0
Griffiths & Sons	12,500	0	0
J. PYE & Co., Morecambe (accepted)	12,399	0	0

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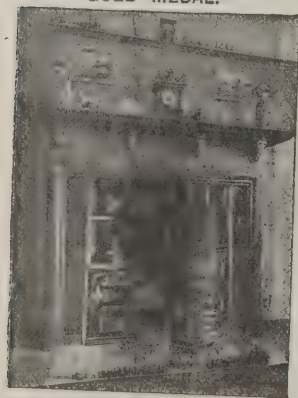
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STANFORD-LE-HOPE.

For the construction of stoneware pipe sewers, manholes, ventilators, &c., for the Orsett Rural District Council. Mr. S. A. HILL-WILLIS, surveyor.

Pavitt & Sons.	£299	9	0
Marsh	248	19	0
Wisbey & Co.	202	15	10
Jackson	194	1	7
James	169	2	8
Wisby	169	0	0
H. BUTCHER, Stanford (accepted)	156	10	11

SWANSEA.

For the erection of five pairs of semi-detached houses in Dillwyn Road, Sketty, for the Second Sketty Co-operative Building Club. Mr. C. T. RUTHEN, architect, Swansea.

Jenkins	£4,800	0	0
Fuge & Rosser	4,750	0	0
Richards	4,693	0	0
J. MARLES & SONS, Swansea (accepted)	4,075	0	0
Jones	3,999	15	0

For the erection of a villa residence in London Road, Gorseinon. Mr. C. T. RUTHEN, architect, Swansea.

Jenkins	£1,150	0	0
Marles & Sons	875	0	0
Billings	840	0	0
FUGE & ROSSER, Swansea (accepted)	752	11	6

WALES.

For the erection of nineteen houses at Ynismeudw, Swansea Valley, for the Swansea Valley Building Club. Mr. CHARLES T. RUTHEN, architect, Swansea.

Thomas Bros.	£5,662	0	0
Owen & Co.	5,605	0	0
Morgan	5,510	0	0
Mills & Powell	4,940	0	0
Griffiths	4,769	0	0
J. R. WILLIAMS, Ystalyfera (accepted)	4,712	0	0

WALES—continued.

For the rebuilding of shop and premises at 49 Glebeland Street, Merthyr. Mr. C. M. DAVIES, architect, 112 High Street, Merthyr.

Jenkins	£630	0	0
Williams	600	0	0
Sullman	550	0	0
S. HAWKINS, Garth Villas (accepted)	549	0	0

WEST BECKHAM.

For alterations and additions to infirmary at workhouse. Mr. T. INGLIS GOLDIE, architect and surveyor, Norwich.

	Alterations and Additions.	Verandah and Staircase.	Side Staircase.
Hannant	£779 0 0		
Weston	763 0 0	£80 13 0	£41 0 0
Chapman	735 0 0	66 0 0	40 0 0
Payne	721 17 7	60 12 0	42 9 0
C. T. Baker, Ltd.	712 12 4	53 19 2	40 5 6
Neale	706 3 6	57 4 0	42 2 6
Gaze	698 18 0	62 0 6	76 17 6
Watts	697 2 7	59 3 10	39 9 6
Needs	686 0 0	68 0 0	41 0 0
Appleton Bros.	675 11 1	57 0 0	39 19 6
H. BULLEN (accepted)	648 0 0	71 15 0	38 19 0

Received too late for classification.

PAU, FRANCE.

For the erection of a half-timber and rough-cast dwelling-house for Dr. Edwards, exclusive of stone foundations but inclusive of Customs, freight, &c., and everything else; to be erected within three months by English workmen. Messrs. HAYWARD & MAYNARD, architects, 20 John Street, Adelphi, London, W.C.

Humphreys, Ltd.	£1,382	0	0
Iles & Co.	1,012	8	0
Rowell & Co. (tentative price only)	850	0	0

Negotiations have been entered into with Messrs. Robert Iles & Co. for the execution of the work.

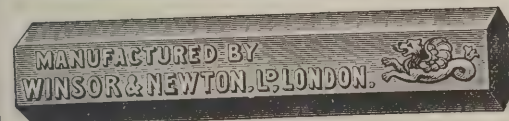
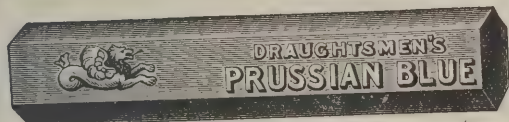
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MANCHESTER
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LONDON.

For forming a basement 13 feet 4 inches deep under Neal's Yard and connecting to 41 Neal Street, for Mr. Joshua Morell. Messrs. HAYWARD & MAYNARD, architects, 20 John Street, Adelphi.

McCormick & Sons	£1,978	0	0
Macey & Sons, Ltd.	1,665	0	0
Holloway Bros., Ltd.	1,500	0	0
Stevens	1,380	0	0

A contract has been entered into with Messrs. Holloway Bros. to carry out the work in three months.

WOODFORD.

For the erection of a detached house at Woodford, Essex. Mr. HERBERT RICHES, architect, 3 Crooked Lane, King William Street, London, E.C.

T. OSBORN & SONS (accepted)	£1,268	0	0
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TRADE NOTES.

THE directors of Waygood & Co., Ltd., are to be congratulated on being able to pay a dividend of 9 per cent. on ordinary shares. The profits earned by the company, including 6,074*l.* from last year, were 29,339*l.* 5*s.* 3*d.* A balance of 12,164*l.* 5*s.* 3*d.* has been brought forward.

MESSRS. W. POTTS & SONS have issued a sketch of the late Lord Grimthorpe, under whose direction the firm have made and erected many important clocks since 1847.

THE Hattersley-Pickard hot-air drying system has been adopted by Messrs. J. & R. Bruce for their new works at Eldwick, Bingley. As a result, timber is dried in far less time than before. By the application of a Hattersley-Pickard patent screw fan in conjunction with a steam-heating battery air is drawn. The hot air is then forced through ducts to various parts of the room and distributed throughout its whole area. Arrangements are also provided for circulating, so that when desired the air can be reheated and used over again, thereby giving an increased temperature and greatly economising the amount of steam required.

VARIETIES.

THE Light Railway Commissioners have sanctioned the construction of a railway between Maidstone and Headcorn, a distance of twelve miles.

THE Runcorn Urban Council have decided to carry out the plans for the alteration and extension of the free library provided for by the gift of 3,000*l.* from Mr. Carnegie.

A MONUMENT has been unveiled at Iselle to the memory of the workmen who lost their lives in the piercing of the Simplon tunnel. Over 3,000 persons were present.

THE Gosport Council have rejected a proposal to pave the private streets with tar-paving in favour of the use of artificial slabs.

THE Co-operative Union have decided to erect central offices in Manchester at a cost of about 10,000*l.*, inclusive of site.

A PARIS theatre has replaced all its inflammable scenery by scenes painted on galvanised iron and metallic gauze. The framework is of iron tubing.

THE Board of Education have informed the Merionethshire education committee that the school at Llanelltyd is structurally unfit, and that a new school is necessary.

THE Mersey Docks and Harbour Board have under consideration the extension of the Birkenhead Lairages, and plans have been submitted of the enlargement, which will cost 50,000*l.*

AT Flimly, a mining village near Maryport, Mr. W. Coulthard, assistant overseer, has erected a block of cottages which he lets for 3*s.* 6*d.* per week. They contain two large rooms and attic, with range, vestibule and yard.

THE Birmingham Board of Guardians have approved the recommendation from the infirmary committee asking for power to build a new nurses' home, with accommodation for twenty-eight nurses, at an approximate cost of 3,500*l.*

THE City Offices Company's new premises, Baltic House, E.C., of which Messrs. Gordon & Gunton are architects, have been completed by Messrs. Patman & Fotheringham, Ltd.

THE plans and works committee of Edinburgh Town Council recommend the erection of a police office and fire

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station at Saunders Street, Stockbridge, at a cost of about 8,000*l*.

MR. C. E. EASTMAN, an American architect, has patented plans for building houses of glass. If his idea is adopted dwellings, banks and hotels will have walls entirely of opalescent wire glass, and windows will be abolished.

THE Commercial Intelligence Branch of the Board of Trade have received a copy of a notice issued from the office of the purchasing agent at Washington for the Isthmian Canal Commission calling for tenders for the supply of 3,000,000 paving bricks.

THE Lancashire education committee propose to erect new public elementary schools at Skelmersdale, to accommodate 120 children; at Edgworth, near Turton, for 200 children; and at Wroughton, near Chorley, for 200 children.

THE housing committee of the Birmingham City Council invite offers for taking on ninety-nine years' building leases about 15 acres of land situate at Bordesley Green. About 2½ acres of land in the centre of the site will be reserved and maintained by the Corporation as a recreation-ground.

FOR the summer holidays a little work issued by Messrs. Thomas Cook & Son, of Ludgate Circus, E.C., should be of service; particulars will be found therein to suit the pockets of all, and the list of places and cost is given so extensively that there should be no difficulty in selecting where to go and how to go there.

THE Bristol City Council have decided to erect the second of the two huge tobacco warehouses which the Imperial Tobacco Company need for the storage of tobacco they intend to import direct to Bristol. It is anticipated that a considerable volume of imports will be diverted as a result from Liverpool and other ports.

THE tramways department of Glasgow Corporation have issued an official penny guide to the 150 miles of tramways which they operate in the city and suburbs. A brief historical sketch of the city and of the tramway undertaking is given, and directions are furnished for a series of eighteen or nineteen tours.

At the last monthly meeting of the Sheffield Master Builders' Association the formal presentation of photos to the past presidents in recognition of their services in the chair took place. The photos are to be hung in the Builders' Exchange, and each year it is intended to add the photo of the president immediately on the termination of his year of office.

BRIGHTON has received sanction to borrow 12,038*l*. Of this 9,138*l* is in respect of the cost of the construction of concrete foundations for works of wood-paving and 300*l* is to defray legal costs. The period of repayment of the first sum is fifteen years, and of the 300*l* five years. The remainder of the 12,000*l* (2,600*l*.) is for the erection of a temporary school on land in Bates Road and Loder Road.

THE current orders in the United States for structural shapes and fabricated steel continue to run to 2,000 tons a day, while contracts for various large projects are pending. The orders now, says the *Glasgow Herald*, on hand in one department alone of the American Bridge Company exceed 400,000 tons. Large orders are being placed with the steel and iron manufacturers. The lower grades of foundry iron are weak.

THE Salford Council have agreed to apply to the Local Government Board for sanction to borrow about 8,366*l*. to be spent in repaving several streets adjoining the new dock on the Ship Canal. In contemplation of the increased traffic which would pass over the streets leading to and from the new dock—namely, Hulton Street, West Park Street and Robert Hall Street—it would be necessary to substitute granite for the present grit setts.

At the last meeting of the Oldham Town Council a long discussion took place with reference to the letting of the contract of 18,370*l*. for the erection of the new school at Clarksfield, the complaint being that the plans had not been on view to the members of the Council. An amendment

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FIRST WEEK IN JUNE.

that the contract be referred back and plans submitted before further consideration was, however, defeated by an overwhelming majority.

THE Chelsea borough surveyor is of opinion that if granite chippings were used on the asphalt roads in lieu of fine ballast and sand it would materially assist to keep the roadways from becoming "greasy," and so lessen the danger to vehicular traffic. The general purposes committee therefore recommend that, as an experiment, granite chippings be used on the asphalt roadways, in lieu of ballast and sand.

THE British consular report for the year 1904 on the trade of Japan states that window glass shows a decline of some importance, the figures being 73,000*l.* as against 116,000*l.* This is attributed to the exceptional conditions of the past year. In normal years, when economy is not so much the order of the day, the demand for window glass as a substitute for the paper shoji is a constantly increasing one, and the native industry is not as yet a very formidable competitor.

LORD PROVOST SIR ROBERT CRANSTON has written to the secretary of the Edinburgh and Leith Master Builders' Association and the secretary of the joiners on strike offering his services to bring the present dispute to an end. His Lordship appeals to both parties as to whether the time has not now arrived when it is desirable to have a conference of both sides to endeavour to arrive at a settlement, and he expresses his willingness to act as intermediary in order to bring about such a conference.

THE committee who have under consideration the question of adopting means for the protection of Freshwater Bay from further encroachments of the sea, consider that it would be desirable to extend their scheme to include the provision of a small harbour at the bay for yachts, fishing and pleasure boats, &c., and sufficient assurances have been given to justify them in obtaining from Mr. W. T. Douglass, the eminent engineer, an amended report as to the possibility of a harbour being formed.

THE Aberdeen Harbour Commissioners decided on Monday that, in view of the importance of the works contemplated in connection with the harbour, it would be of advantage to have an opportunity this autumn of visiting

and inspecting the extensive dock improvements now in an advanced state of progress at Hamburg, the works there including the improvement of the navigation channel, the construction of new docks, transit sheds and warehouses, and other appliances for the quick handling of cargoes.

THE fourth municipal dry dock at Rotterdam, which was commenced in 1902, has been completed. It ranks amongst the largest in Europe. Its length is 556 feet, with a breadth of 118 feet, and its lifting capacity is 15,600 tons. The dock rests on seven pontoons, each weighing 600 tons, whilst its total weight amounts to 6,500 tons, and all the necessary appurtenances are worked by electricity supplied by a station on the left bank of the river. Its total cost slightly exceeds 100,000*l.*

IN connection with the efforts to obtain an improved water supply, the Lincoln City Council have resolved to continue the 9-foot diameter shaft for a further depth not exceeding 600 feet, at an additional expenditure not exceeding 4,000*l.*, on the understanding that the work will be carried on continuously, the actual depth to be left to the discretion of Mr. P. Griffith, engineer, and that he be authorised to prepare in advance the necessary plans and specifications for pumping machinery on the lines suggested by him with a view to having the work put in hand without loss of time, should the water be proved of good quality and of sufficient quantity.

TESTS have been made of a portion of the new river wall on the Tay at Dundee harbour to replace the existing wooden jetties. The wall is built in ferro-concrete, and the part completed has a length of 400 feet and a width of 45 feet. It is protected by wooden fenders, and the walling is built to withstand the pressure of any ship which arrives. The outer wall consists of ferro-concrete cylinders, inside of which are piles, and the gaps are filled up with concrete, while on the top of the decking is a line of rails. A huge weight of pig-iron was placed upon the structure in presence of an inspecting party, and the experiment was found to be entirely satisfactory.

THE Epsom Urban Council have received a report from Mr. Vane Graham, consulting engineer, on the extension of the pumping plant at their waterworks. The following recommendations have been approved:—(1) That the

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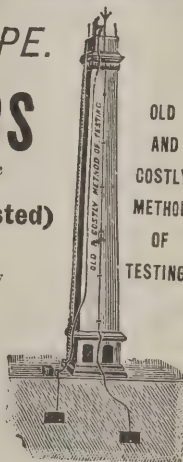
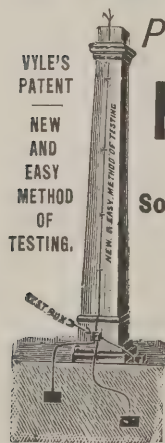
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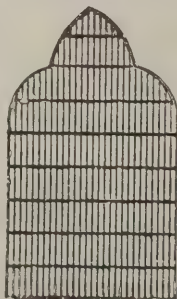
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For Index of Advertisers, see page x.

pumping plant to be installed be of a capacity of not less than 50,000 gallons per hour; (2) that the new pump be placed in the garden well; (3) that the pumping be done in one lift; (4) that the pump be capable of raising water from the bottom of the well, *i.e.* from the level of the adit connecting the old borehole to the oval well 90 feet below the surface; (5) that the pump be of such a type as to be capable of being slung in the well from above the water level to avoid the necessity of pumping the well out while the pump is being fixed.

THE third annual conference of the Lancashire Association of Urban District Councils considered the question of the proposed lunatic asylum at Whalley. The price paid for the site was 32,400*l.* for 307½ acres, or over 100*l.* an acre for country land. According to one speaker, the site was in the drift of the Calder and had neither natural nor artificial shelter, and the soil was of such a character that it would be impossible within any reasonable period to cultivate the growth of trees upon it. It was much too low a site, and would be conducive to phthisis and other tubercular diseases. The Conference carried a motion expressing strong disapproval of the proposal and instructing the executive committee to take such steps to oppose the scheme as they considered advisable.

WE have received a copy of the summer number of *Country Life*. It contains, amongst other things, a hitherto unpublished poem by Robert Browning called "A Forest Thought," which is not only fine in itself but extremely appropriate to this season of the year. With a series of reports on the breeding places of sea-birds there are some extraordinary photographs of flying sea-gulls. The other bird-pictures show snapshots of the beautiful and scarce bearded tit in its native haunts. The house illustrated is Cotehele, a seat of the Earl of Mount Edgcumbe, and there is a most interesting article on Heron Court and the Malmesburys by the Earl of Malmesbury. Mr. George Bourne contributes one of his most charming papers. The issue is beautifully printed on good paper, and is an excellent example of British journalism.

THE Edinburgh Town Council have been recommended to make the following additions to their fire appliances under the estimates for 1905-6:—(a) A motor steam fire-

engine of 500-gallons capacity, similar to that seen in Liverpool, fitted with a chemical cylinder (the boiler to be fired by either coal or oil fuel) at an approximate cost of 1,150*l.*; (b) a turnable mechanical fire-escape capable of reaching 80 feet at an approximate cost of 600*l.*; (c) under the estimates for 1906-7—a petrol motor hose tender for first aid and other purposes, carrying all the necessary apparatus for working at both small and large fires, at an approximate cost of 800*l.*; (d) twelve small portable chemical extinguishers of 3 gallons capacity to be carried on the existing hose tenders of the brigade, at a cost of 50*l.*; (e) the substitution of rubber-lined canvas hose of 1½-inch diameter for the 1¼-inch ordinary canvas hose now used on the hose tenders, at a cost of 50*l.*

THE Carlisle Town Council have received the following report as to the Geltsdale water-supply scheme:—The total amount authorised to be borrowed under the Carlisle Water Act, 1898, is 150,000*l.*, with the cost of the Act 3,532*l.*, making altogether 153,532*l.* Of this amount 114,562*l.* has been borrowed, leaving a balance of 38,970*l.* still to be raised; 86,793*l.* 13*s.* 8*d.* has been expended, 43,987*l.* paid to contractors, 12,861*l.* for purchase of land, and 4,016*l.* 2*s.* 4*d.* for easements. The total amount of Messrs. Kennedy's contract for the construction of works is 120,377*l.* 19*s.* 3*d.*, and as they have already received 43,987*l.* there still remains to be paid to them 76,390*l.* 19*s.* 3*d.* on the amount of their tender. To this must be added the amount already paid, making a total expenditure of 163,184*l.* 12*s.* 11*d.* In addition to this expenditure there will also be Messrs. Mansergh's charges, engineer's salaries, office and other expenses, 10,000*l.*, which makes a total of 173,184*l.* 12*s.* 11*d.*, or 19,652*l.* 12*s.* 11*d.* more than the present borrowing powers.

MESSRS. W. PORTS & SONS, clock manufacturers, Leeds and Newcastle-on-Tyne, have received instructions from Councillor J. T. Whipp, J.P., the mayor of Clitheroe, and his two brothers, to erect an illuminated Cambridge quarter-chime clock and bells at the Carnegie new Free Library, Clitheroe, to the memory of two brothers drowned at sea on the *Stella*. The clock and chimes will have all Lord Grimthorpe's latest improvements inserted.

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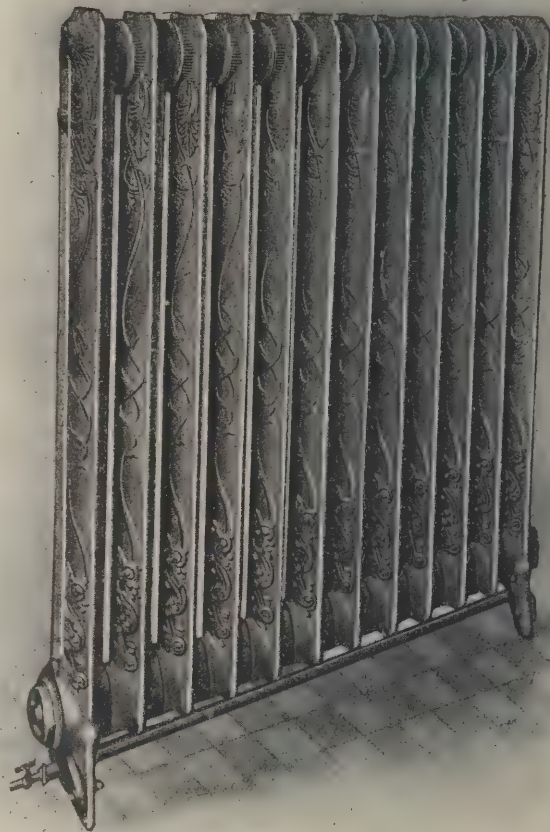
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THE "HERMETICA."

ALTHOUGH the English fireplace is a national institution which is never likely to be altogether superseded, yet there are many places for which it is not suitable. As substitutes radiators rather than continental stoves are more likely to win their way in this country. One of the latest forms of radiators has been introduced by the Tubular Bath Boiler Company, Ltd. It has many advantages. In the first place, each is complete in itself, and is self-contained in operation with the exception of a small gas pipe. There is no necessity for cumbrous accessories, and as there is no fixing they need only be seen and used in winter. They cannot be considered as landlord's fixtures, which is an advantage to modern tenants. The consumption of gas will be proportionate to the temperature that is desired, and there is no effluvia. Another special feature is that their cost is measured by the number of sections employed, radiators of six, eight and twelve sections being kept in stock. The efficiency of the "Hermetica" can be judged by the following table:—

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There can be no danger, for each radiator is tested at ten times the working pressure. The principle is described as follows by the patentees:—"The liquid sealed up in radiator is heated by gas and air burner into steam, which rises up the columns above the burner, then travels along the top tube and down the columns beyond the burner, expanding and condensing again to liquid, to be reheated into steam as before. This process continues all the time the radiators are at work, whether for weeks or years. The burner, being made in proportion to the size of each radiator, cannot raise the steam pressure to over five pounds, which causes the radiators to contain a temperature of 228 deg. Fahr., or nearly 100 deg. Fahr. more than an ordinary radiator charged with hot water can give." Lastly, the appearance of the "Hermetica" is in its favour.



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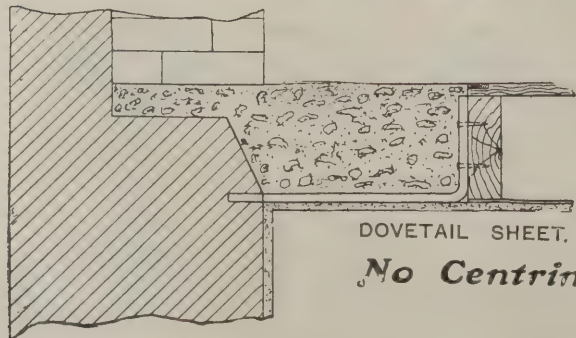
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ELECTRIC NOTES.

MR. CHARLES LILL has accepted the appointment of technical manager in the power department of the Armorduct Manufacturing Company, Ltd.

AN arrangement has been come to between the German and Belgian Governments for the construction of an electric railway from Bruxelles to Aix-la-Chapelle. It will pass through Louvain and Tongres.

MR. A. A. DAY, electricity engineer to the Bolton Corporation, has been offered the post of chief electrical engineer and manager of the tramways at Johannesburg. The salary is 2,000*l.* per annum.

THE Eccles Town Council have sustained a loss on the borough electricity department during the past year of 473*l.*—a sum greater than the loss of the previous year. This was due to the increased payments made for loans and interest through the extension of the mains.

THE International Power and Transmission Company, of Niagara Falls, U.S.A., has been incorporated, with a capital of 2,000,000 dollars, to supply electricity for light, heat and power purposes. The Niagara and Eastern Power and Transmission Company, of Niagara Falls, has been incorporated with a similar capital.

THE city of New York is stated to have purchased property in Long Island City for the purpose of constructing an electric-light plant for the boroughs of Brooklyn and Queens. Another plant will be constructed in Manhattan Borough, and the two plants will be connected under the river. It is proposed to light with electricity all the streets, bridges, public offices and parks.

THE Boston Town Council have rejected a recommendation from the paving and lighting committee that a London firm should be instructed by the town clerk to prepare a full report of an electric-lighting scheme for the borough for the Local Government Board, and any other work necessary to obtain the consent of the Local Government Board to the necessary loan, at a fee of 200 guineas. The supporters of the project intend to endeavour to obtain a poll of the ratepayers on the matter.

A DISAGREEMENT having arisen between the electrical department of Ayr and the cleansing department as to the value of the steam for the electrical works generated by the

destructor furnaces, the sanitary inspector submitted an elaborate report as to tests to ascertain the value of the steam. The sum charged by the cleansing department for the year was 500*l.* The electrical engineer reported that the value of steam was not more than 200*l.* The sanitary inspector's report brought out the value at 532*l.* 1*s.* 8*d.* It was agreed to remit the matter to a sub-committee for a report.

THE extensions at the Govan electricity works, N.B., have been formally inspected. In 1903 the electricity plant installed consisted of two steam dynamos of 90 kilowatts capacity each and two of 200 kilowatts each, a battery of 150 ampere hour capacity and four Babcock boilers. The Town Council then decided to make extensive additions, and the larger of two schemes—involving an expenditure of 35,364*l.*—was sanctioned. During the six years since the initiation of the scheme for electricity, their capital expenditure had increased from something like 16,000*l.* to 94,000*l.*

MAJOR C. E. NORTON, R.E., Local Government Board inspector, held an inquiry at the council chamber of the town hall into the application of the Horsham Urban District Council for sanction to borrow 5,123*l.* 1*s.* for the purposes of electric lighting. The estimate of the amount was made up as follows:—Feeders, machinery and main extensions, 3,420*l.*; works already executed, but not included in previous loans, 1,303*l.* 1*s.*; for free wiring, 400*l.* The total expended on the electric-lighting works was 23,206*l.* and the outstanding debt was 21,761*l.* The repayment of the loan applied for will be spread over twenty-five years.

MR. ALEXANDER GRAY, Edinburgh, the holder of the Engineering Vans Dunlop Scholarship of Edinburgh University and a Whitworth Scholarship, has, in the Faculty of Applied Science of M'Gill University, Montreal, Canada, been devoting himself for the session 1904-5 to the third year's course in electrical engineering, and has been placed first, with prizes, in the subjects of electrical engineering and electrical theory and measurements. Mr. Gray has entered the service of the Bullock Electrical Company of Cincinnati, Ohio, for the five months' vacation, and intends to return to M'Gill University for the fourth year and graduating course in September next.

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THE Beckenham Urban District Council have decided to take over and themselves work the electric-lighting undertaking at Beckenham, now being worked by the British Insulated and Helsby Cables, Ltd. The undertaking was built on public moneys raised by loan, and was leased to the company for five years, the company agreeing to run the station at their own risk for that period, while the Council was to have the option at the expiration of the time of taking the concern over or of renewing the lease. For the first few years the business was worked at a loss, but last year the returns showed a profit of 200%.

THE Folkestone Corporation have under consideration the offers of two companies to construct tramways from the harbour through Cheriton to Shorncliffe Camp and Hythe. The Traction and Powers Securities Company proposes to put down the overhead system, and the National Electric Construction Company specifies the Dolter surface contact plan. Each company offers to pay the Town Council 15,000% towards the expense which it has incurred in widening Cheriton Road, and 1,200% to reimburse the Corporation in regard to the cost incurred in securing a provisional order to construct its own tramways. Under that order there is an agreement with the Earl of Radnor not to adopt the trolley system, and his Lordship has refused to waive his objection.

THE Louth Town Council on Tuesday approved the recommendation of the electric-lighting committee that a loan of 17,000%, in respect of the installation of electric light within the borough, should be for thirty years, and that it should be obtained from the Public Works Loan Commissioners. It is proposed in the first instance to put down two vertical oil-engines, at a cost of 1,950% each, coupled to a 75 k.w. dynamo, and a battery of accumulators. In those streets in which electric-light mains are laid it is proposed to convert the present gas street lamps to electric lamps, fitted with incandescent and three arc apparatus. The estimated cost of the works shows the necessary immediate outlay to amount to 12,230%, while prospective expenses to be incurred during the first two years bring the estimated cost up to 16,990%.

THE utilisation of electricity as motive-power in Germany is increasing much more than for lighting purposes. At the

Berlin electric works there were used (exclusive of power required for driving street cars) in 1897 for motive-power 7,224 kilowatts, for lighting 14,601 kilowatts; in 1904 for motive-power 44,448 kilowatts, for lighting 36,195 kilowatts. Within the same period the number of motors supplied increased from 2,056 to 12,933. According to a reliable estimate the number of hands employed in the German electric industry was 72,500 in 1904 (compared with only 26,300 in 1895 and 54,100 in 1898), of which number 17,500 were in the electric departments of the General Electric Company and Union group—which employs about 29,000 in all—12,000 in the electric departments of the Siemens-Schuckert combine, while the remaining 43,000 are distributed among the electric specialty manufactories numbering about 225 in 1904. The total capital invested in the electric industry is estimated at 30,000,000%.

REGENT HOTEL, ROYAL LEAMINGTON SPA.

THE beautiful town of Leamington has a world-wide reputation for its Spa, and is well known as the most convenient centre for the many beautiful and interesting spots of Warwickshire—Kenilworth and Warwick Castles, Stoneleigh Abbey, Guy's Cliff, &c. A fresh addition has been made to the attractions of the town by the entire remodeling, redecoration and refurnishing and bringing up to date with every modern convenience and luxury of this fine *hôtel de luxe*, of which a short description will be found interesting.

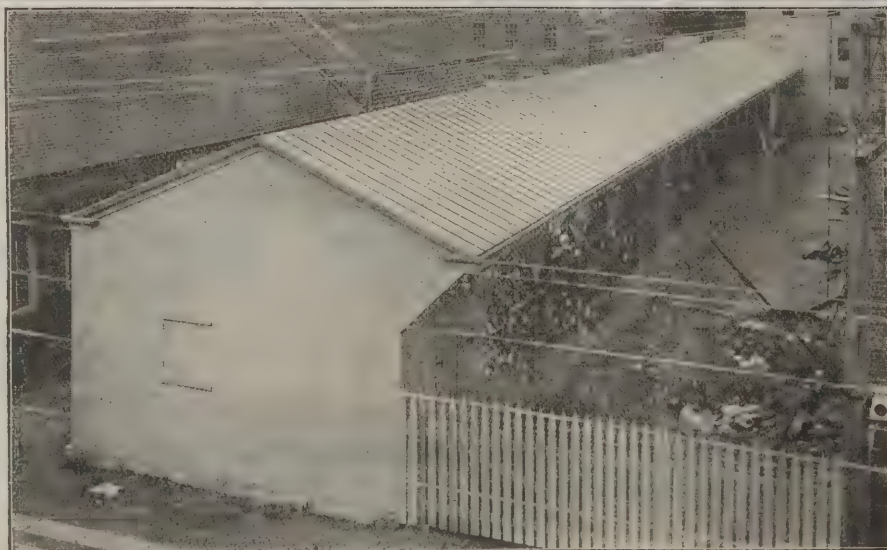
Passing through the spacious hotel entrance and vestibule decorated with faience, it will be found that the accommodation has been immensely improved. On the ground floor is a handsome lounge, a large drawing-room decorated and furnished in Louis XV. period, a grand Georgian dining salon and ball-room overlooking the gardens, fitted with polished oak dancing floor supported on spiral springs, specially constructed on the latest and most approved principles; a commodious smoking-room, billiard-room, &c. A public telephone for the use of visitors is also provided. At the south-east angle a spacious restaurant and buffet are arranged with decorated tile wall-linings and mosaic floors, and beyond a lofty public billiard-room fitted

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with two tables. At the back, and connecting the dining salon and restaurant, the model kitchen and offices and service are arranged, with specially constructed cold storage accommodation worked by an electric motor, special care having been taken in planning so as to facilitate quick service.

From the ground floor access is gained by the grand oak staircase or electric passenger-lift to the three floors above, which contain spacious and luxuriously furnished sitting-rooms and bedrooms for 120 or more guests, a portion being arranged *en suite* to suit the convenience of guests. Each room is fitted with electric light, a telephone in direct communication with the several services, and special accommodation is provided for visitors' servants. Every floor is provided with tile and mosaic-lined lavatory and bath-room accommodation fitted with special showers and every convenience, and, needless to say, the whole of the sanitary and warming arrangements have been carried out in the most up to date manner.

Attached to the hotel and in direct communication at ground and first-floor levels a steam laundry has been arranged and fitted with the latest approved machinery. At the back of the hotel grounds and approached through a large archway adjacent to the south wing access is gained to the stables and coach-houses providing accommodation for ninety horses, conveniently divided up into stalls and loose boxes for hunters, also a motor garage fitted with pit and repairing-shop, for the whole of which a contract has been entered into for entirely refitting and retraining in a manner that will correspond with the way in which the hotel has been treated.

The builder is Mr. R. Cleaver, of Northampton, and Mr. C. Ridley Shield has acted as clerk of works. Messrs. Flavel, of Leamington, have fitted the kitchen and offices; Messrs. Braithwaite, of Kendal, the laundry. Messrs. Brown & Parsons, of Leamington, have executed the whole of the electric lighting, the Eastern Lift Company the passenger and service lifts, and the Art Pavements and Decorations, Ltd., all faience, tile wall-lining and mosaic work. Messrs. Shanks, of London, have supplied all sanitary fittings. The architect is Mr. Ernest R. Barrow, A.R.I.B.A., of the firm of Messrs. Brown & Barrow, of 12 Norfolk Street, London, W.C.

The hotel is the property of Mr. J. J. Cridlan, and the whole establishment is to be run at moderate charges, giving the best possible French and English *cuisine* and accommodation, and is especially convenient for invalids, being in close proximity to the Pump-room baths and public gardens, also for American visitors wishing to see Shakespeare's country, and being in the midst of a famous hunting district will serve, in conjunction with the stables, as a splendid rendezvous for huntsmen. A four-in-hand coach leaves the hotel daily for Stratford-on-Avon and district. There is a splendid new service of express trains from London in one hour and fifty minutes by Great Western and London and North-Western Railways, and excellent communication with the North and all parts.

THE JAPANESE TIMBER TRADE.

THE report of the Yokohama Chamber of Commerce for March states that the Japanese Department of Agriculture and Commerce intend to export timber from the State forests to North China and Korea, through contract exporters. According to Imperial Ordinance No. 32, just issued, contracts for exporting the State timber will only be concluded with those merchants whose annual business tax is not less than 250 yen, or with those companies which have a paid-up capital of not less than 50,000, or those merchants abroad who are testified by the Japanese Consul as possessing property worth 50,000 yen or upwards. This business enterprise is believed to be a promising one. Hitherto North China and Korea have obtained their timber supplies mainly from the banks of the Yalu. But this source of supply was stopped for military reasons, and the timber now brought to the market from South China and America is quite different from that to be exported from Japan, so that competition is out of the question. In Japan the demand for timber is amply supplied from private forests, and a large surplus remains for export. In view of these circumstances, the Diet recently voted 380,000 yen as expenditure for carrying on this business. According to the authorities, the forests first to be felled for exportation purposes will be those in Aomori and Akita prefectures and Kishu, Tosa and Shinshu provinces.

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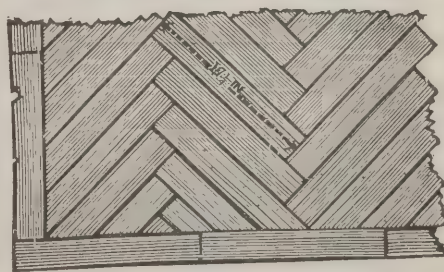
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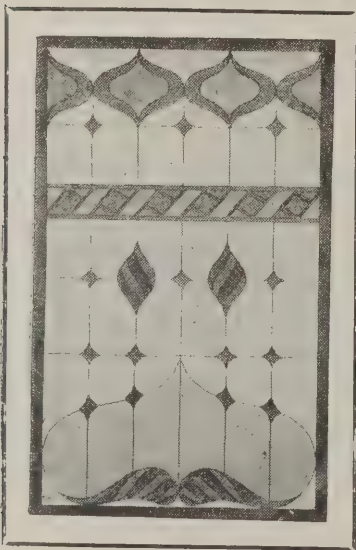
IRON TRADE OF GERMANY.

ACCORDING to the report of Consul-General Schwabach, the concentration movement in the German iron industry which has attracted so much attention may be classed under two headings. On the one hand there is a tendency to concentrate different branches of the industry, representing generally consecutive stages of production, while on the other the object seems to be the regulation of the output and prices, the home and lately also the export market by cartels or syndicates comprising single branches of the industry (such as the powerful Pig-iron Syndicates) or a number of branches (such as the Steel Works Syndicate). The latter developments, which aim at a complete organisation of a whole national industry, was referred to in previous reports; the tendency to concentrate different stages of production in one works has also been dwelt upon, but more comprehensive information may be appreciated. An able exponent of this process characterises it as follows:—"The ideal concentration, which has already been achieved in a number of cases, consists in the uninterrupted concentration in one hand of all the stages of production required to produce a 'Fertigfabrikat' (finished article) from the mining of ore and coal, the smelting of pig-iron and its conversion into steel up to the manufacture of the finished article." The advantage offered thereby in respect of a considerable saving in the coal and coke bill and cost of transport, general cost of production, the possibilities for the most economic division and combination of labour will, of course, vary according to local conditions, such as the proximity or remoteness of ore and coal supplies from the ironworks or the latter from the steelworks, &c. The technical advantage of a concentration is apparent, but the economic considerations play the most important part; the wish of the steel and other works to become independent as regards the supply of raw materials and partly finished goods was met half-way by the desire of coal mines and ironworks to escape the restrictions placed on their production by the Coal Syndicate and the Pig-iron Syndicate, for the quantities of coal and pig-iron used in the ironworks is not included in the quota for sale to third parties. This practice, if generally adopted, must logically undermine the

syndicates, as it is equivalent to an evasion and thwarting of their very efforts and principal aim to regulate the production, and the Coal Syndicate at least is already forced to consider means of dealing with the difficulties arising from the privilege accorded to "Hüttenzechen," i.e. coal mines combined with and owned by ironworks to produce the coal required by these over and above their selling quota. The syndicate and cartel movement and the concentration movement are therefore likely to clash. The concentration tendency has made considerable progress this year, and the position is peculiar in so far as the very men who have promoted these concentrations are among the most influential members of the Coal Syndicate. From 1893 to 1902 the number of "Hüttenzechen" increased from 7 to 18, and their output from 4,000,000 to 11,000,000 tons.

The amalgamations between collieries and iron and steelworks include the Gelsenkirchen-Rothe Erde-Schalcke Combine, and it is noticeable that in this case the Gelsenkirchen Colliery is the most important factor of the combine. In 1903, 4,962 works in the iron industry were "combined works," 138 of which were combined with 5, 112 with 6, 80 with 7, 27 with 8, 10 with 9, 12 with 10, 23 with 11, 26 with 12, that is to say, 428 were combined with 5 and upwards of 5 works. Of 88 blast furnace works 50 were connected with other branches in 1903. These were connected with ingot and ironworks in 34 cases, welded ironworks in 18, cast steelworks in 17, rail, girder, &c., works in 26, bar ironworks in 29, plateworks in 20, foundries in 32; making a total of 176 cases. The 96 ingot ironworks were connected with other works, viz. with blast furnace works in 34 cases, welded ironworks in 34, cast steelworks in 29, bar ironworks in 55, rolling mills manufacturing rails and girders in 39, plate mills in 39, rolling mills for pipes or tubes in 13, wire rolling mills in 16, wire drawing mills in 7, fine iron industries in 17, engineering works in 14, boilerworks in 14; making a total of 311 cases. The whole of the 50 rolling mills, manufacturing rails and girders, were connected with other branches, viz. 39 with bar ironworks, 17 with plate mills, 11 with wire-drawing mills, 9 with tubeworks; making a total of 76. Of 107 bar ironworks only 6 were not combined with other branches, of 92 plate mills only 10, and of 195 wire-drawing mills, 92. All of the wire-rolling mills were combined works.

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ALEXANDRA HOSPITAL, PORTSDOWN.

WITH business-like acumen of a sort that is not usually credited to them, says the *Portsmouth Evening News*, the War Office authorities are erecting a fine modern hospital on a splendidly situated thirty-acre site on the southern slope of Portsdown Hill without asking the taxpayer for a penny piece to pay for it. This manœuvre has been achieved by selling the antiquated hospital—it is nearly 100 years old—in Lion Terrace, Portsea, to the Admiralty for 80,000*l.* and applying the sum obtained for this valuable urban site to building a thoroughly up-to-date institution on an infinitely healthier but vastly cheaper position on the breezy side of Portsdown. It is believed, even, that there will be a nice little nest-egg in hand out of the 80,000*l.* to be carried forward for other Army purposes.

The hospital buildings are for sanitary reasons much detached, and are dotted all over the estate obtained from the Lord of the Manor, but the non-contagious disease cases will be placed in a diffuse two-storey building somewhat resembling the letter E in shape, but with four horizontal lines. The backpiece of the E is represented by a corridor 430 feet long—twice as long as the town hall is high—running on each floor from end to end of the buildings and from east to west. From it jut out down the hill the four pavilions of eight big wards, each to contain twenty-two beds. The run of them is north and south, and thereby, except at midday—when the intense heat is undesirable in summer-time—the sun pours in from morn till eve through the lofty windows between the beds. As is the case now with all the best hospitals, the offices and bath-rooms are really separate from the wards, being built at the end and approachable only through the open air. In addition to the wards used in common, there are distributed at the entrance to the pavilions four small single-bed observation wards, four wards for lunatics, a ward for four eye cases, and a four-bed ward each for prisoners and for soldiers suffering from that dread complaint commonly known as the itch. Thus in the main building we have a total accommodation for 197 cases of all sorts, which can be distributed into any of twenty-two wards. The lavatory and office accommodation is in all cases excellent, and

splendid arrangements have been made for dealing with dirty linen in a sanitary manner.

The operating theatre is placed, as in the best hospitals, on the north side of the building, to avoid the variations in shade caused by the entry of the sun's direct rays, and there is a lantern in the roof directly above the operating table. Other rooms for special purposes include an anæsthetic room, a sterilising room and a Röntgen-ray room, to be used both for photographic purposes and for the cure of lupus and the alleviation of cancer by exposure to the X-rays.

Symmetrically placed in the centre of the buildings is the administration block. Externally it is somewhat ornate, the terra-cotta facings being more in evidence here than in the rest of the hospital, where Rowland's Castle or Fareham red brick predominates. Here, on the ground floor, are the men's and women's waiting-rooms, the dispensary, laboratory, matron's office, big kitchen (30 feet square), scullery, &c. All the cooking will be done by gas, and hand lifts are everywhere used for the conveyance of the food to the patients. A passenger lift gives access to the first floor, where are the various medical officers' rooms, clerk's room and a dining hall and recreation-room for convalescent patients. Manchester stoves, open grates and coils are used for heating, and in the pneumonia ward special fittings are to be supplied to give a regular temperature. Two big Cornish boilers are to be erected in the basement for warming the coils. Along the corridors there are numbers of store-rooms, lifts for coal, &c., and private rooms for the female nursing staff; and it may be added that the building is so placed that when needed it can be extended on the present plan to almost double its existing accommodation by the addition of three more pavilions. The floors of all the wards are fireproof, being built of concrete and iron girders, and the flooring-boards are tongued and grooved to secure a close joint with no nails showing, while all corners are rounded. Where these are not used the ordinary floors are of maple.

The infectious diseases blocks are a quarter of a mile away from the big buildings, and on the lee side of the usual breeze in these parts—a south-wester. There are three for the women and children and three for the men, to allow of a suitable selection of the cases to prevent

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contagion, and each set has ten beds available without pressure on the accommodation. Close by is the special mortuary, with an entrance direct into Southwick Road, and in a disinfecting block is a special steam plant to kill germs in the big articles like mattresses. The infected articles go in one side, are steamed for fifteen minutes and come out the other side sterilised.

The principal medical officer has a fairly commodious, but not luxurious, house, provided for him in the lower part of the grounds, with a two-stall stable adjoining. A little further up the hill on the far side are the R.A.M.C. officers' quarters. Here four single officers can be accommodated, each having a partitioned bed-sitting-room, while the messman also sleeps on the premises. Further round still is the officers' mess, and next comes the barrack block, where in four dormitories fifty-six privates of the R.A.M.C. can live and sleep, the sergeant having a room to himself. Close at hand are special bath-rooms for them, stores, kitchen, &c.

Other groups of buildings include a coalyard to store 150 tons of coal, married quarters neatly arranged for fourteen families, a laundry for the common use of these families, with an ironing-room and drying-chamber all complete; a well-appointed sergeants' mess, a men's recreation-room with a stage ready and waiting for artistes, a wet and dry canteen with a bottle-and-jug department for the women folk, a general mortuary, and a porter's lodge at the gate.

The works have now been in hand two years, and it is hoped to finish them by the middle of next summer. Much has to be done meanwhile, as most of the roofs are not yet on and the floors have still to be made and laid, the big wards, 80 feet by 24 feet, being mere shells. Roads are being constructed out of the flints from the excellent chalk foundations.

The hospital being so far from the garrison, a small emergency ward is to be built in the corner of the men's recreation ground and the grammar school. An electric ambulance car running from a specially constructed siding in the men's ground will carry the patients over the Corporation lines to Cosham, and from the light railway a second siding will lead up to the back of the hospital. The method of lighting the buildings has not yet been decided on, but it may be by electricity from the Corporation mains.

No less than four miles of drain pipes have been laid, as there is both a storm-water and a foul-sewage system.

The architect is Mr. H. B. Measures, F.R.I.B.A., director of barrack construction, who designed the Rowton lodging-houses; Messrs. Kirk & Randall, of Woolwich, are the contractors, and Mr. J. H. Sills is clerk of the works.

RATING OF CLAYWORKING PROPERTIES.

In an article on the above subject in the *British Clayworker* Mr. J. Jopling writes:—Clay, brick-earth, sand, &c., are the clayworker's raw materials pure and simple; he manufactures certain goods from them, and sells those goods. He however, rated on the value of his land, buildings, works and raw material. The cotton spinner is rated on the rental value of his land and mills, but not on his raw material. A manufacturer of wood goods is rated on the rental value of his land and works, not on the wood he uses, which is his raw material. The occupier of a saw mill, established on an estate to use up and consume the growing timber thereon, is rated on the rental value of the saw mills, not on the value of the timber that is his raw material. The foregoing sufficiently show that the clayworker is in a peculiar position. What is really needed is a strong and representative body or association to urge these things upon the powers that be, and to assist its members in resisting any claim that is really unfair. The writer suggests that the following should be the general lines of rating procedure:—Royalty being, as a matter of fact, the purchase price of a certain raw material (and in no sense a rent), should be exempt from rating. The one great principle, viz. that the assessable value of a property is its fair rental value, less the statutory deduction, should be strictly adhered to. Whenever the rating authority alters an assessment, notice should be given to the person concerned, and the reason for the alteration stated. If the ratepayer feels aggrieved, he should within a given time signify his intention to object or appeal. The appeal should be heard and adjudicated upon by an independent, disinterested person, having practical knowledge of the particular class of property as to which the dispute has arisen.

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NOTICE TO ADVERTISERS.

Under no circumstances whatever can the proprietors of this Journal guarantee alteration of copy if received after the first post on Tuesday mornings, and no proofs can be submitted if copy arrives later than first post on Saturday mornings.

EDITORIAL NOTICES.

In view of the many difficulties which are certain to arise in connection with the law, practice rules and procedure under the Workmen's Compensation Act, we have added to our staff A VERY EMINENT BARRISTER, who has made the subject a special study, and will be glad to answer in the columns of this paper any questions relating to the complicated matters arising from the provisions of this difficult Act. Our LEGAL ADVISER will further answer any legal question that may be of interest to our readers. All letters must be addressed "LEGAL ADVISER," Office of "The Architect," Imperial Buildings, Ludgate Circus, London, E.C.

The Editor will be glad to receive from Architects in London and the Provinces results of Competitions and Tenders and other particulars of Works in progress in which they may be interested.

The authors of signed articles and papers read in public must necessarily be held responsible for their contents.

No communication can be inserted unless authenticated by the name and address of the writer—not in every case for publication, but as a guarantee of good faith.

Correspondents are requested to make their communications as brief as possible. The space we can devote to Correspondence will not usually permit our inserting lengthy communications.

TENDERS, ETC.

* * As great disappointment is frequently expressed at the non-appearance of Contracts Open, Tenders, &c., it is particularly requested that information of this description be forwarded to the Office, Imperial Buildings, Ludgate Circus, London, E.C., not later than 2 P.M. on Thursdays.

COMPETITIONS OPEN.

BEXHILL.—July 27.—Designs for a public elementary school at Bexhill-on-Sea, Sussex. Premiums of 50l., 30l. and 20l. are offered. Mr. A. H. Ryan-Tenison will act as assessor. Secretary of the Education Committee, Amherst Road, Bexhill.

CARLISLE.—Aug. 1.—Designs and estimates for the erection of school buildings, caretaker's cottage, &c., on a site off Greystone Road. Architects must be practising exclusively in Carlisle, or resident therein, or whose head office has been located there since May 1904. Mr. A. H. Collingwood, clerk, 15 Fisher Street, Carlisle.

HOVE.—Aug. 1.—Designs for new free library, not to exceed 10,000l. (exclusive of furniture). Premiums of 50l., 30l. and 20l. Further particulars, Mr. H. Endacott, town clerk, Town Hall, Hove.

PERTH.—Aug. 1.—Plans for (1) reconstruction of the existing city hall at a cost not exceeding 6,000l., and (2) erection of a new hall at a cost not exceeding 15,000l. Premiums will be awarded authors of plans placed first, second and third in order of merit as follows:—(1) For reconstruction, 30, 20 and 10 guineas respectively; (2) for a new hall, 50, 30 and 20 guineas respectively. Instructions, general conditions and plan of site from Mr. John Begg, town clerk.

CONTRACTS OPEN.

ABINGDON.—June 24.—For the erection of a new ward block (sixteen beds). Mr. J. G. T. West, architect, The Knowl, Abingdon.

ASHBY WOULDs.—July 1.—For the construction of sedimentation tanks, detritus chamber, percolating filter and about 1,700 lineal yards of 8-inch stoneware-pipe sewers, with manholes, &c. Messrs. Herbert Walker & Son, engineers, Albion Chambers, Nottingham.

ASHREIGNEY.—June 28.—For a new Bible Christian chapel and schoolroom at Ashreigney, Devon. Mr. Robert Alford, Riddlecombe, Ashreigney.

BARNET.—June 29.—For the erection of a church house at Barnet. Mr. J. C. Traylen, architect, 16 Broad Street, Stamford.

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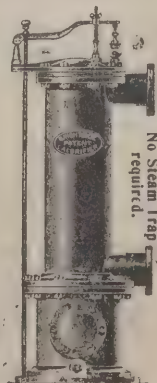
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BILLERICAY.—June 24.—For the construction of pumping-stations, sewers and filtration-beds in the district of Shenfield, near Brentwood, Essex. Messrs. Jones, engineers, Parliament Mansions, Victoria Street, Westminster.

BILLERICAY.—June 26.—For additions and alterations to the isolation hospital, Gooseberry Green, near Billericay, Essex. Mr. R. J. W. Layland, Billericay.

BRISTOL.—July 1.—For the erection of four workmen's dwellings at the junction of Fishponds Road and Freeland Buildings, Bristol. Mr. T. H. Yabbicom, city engineer, 63 Queen Square, Bristol.

BROMLEY.—June 27.—For proposed works to the operating-room at the district sick asylum, Devon's Road, Bromley, E. Messrs. J. & W. Clarkson, architects, 136 High Street, Poplar, E.

BROMPTON.—July 3.—For the whole or any of the various trades—namely, bricklayer and mason, carpenter and joiner, plumber and glazier, slater, painter and ironfounder's work—required in extension of spinning mills at Brompton, near Northallerton. Messrs. Thos. Winn & Sons, architects, 92 Albion Street, Leeds.

BURNHAM.—July 3.—For the erection of a new room and offices at the school. Rev. F. F. Penruddock, Burnham Vicarage, Bucks.

BURTON-UPON-TRENT.—June 30.—For the construction of permanent way, including paving of a route length of 1½ miles of tramways, together with works in connection with the road widening and alteration of levels. Messrs. Kincaid, Waller, Manville & Dawson, consulting engineers, 29 Great George Street, Westminster.

CHESHUNT.—June 26.—For the erection and completion of a new petty sessional court and technical school, Cheshunt, Hertfordshire. Mr. Urban A. Smith, county surveyor, Hatfield.

CHESTER.—June 24.—For the erection of shedding, canyas and other works in connection with the annual exhibition, August 30. Mr. T. A. Beckett, secretary, St. Werburgh Chambers, Chester.

DARLINGTON.—June 26.—For taking-out the decayed stone in the town hall, clock tower and market buildings, and inserting about 1,300 cubic feet of new stone. Mr. George Winter, borough surveyor.

DEVONPORT.—June 28.—For repairs and painting at the isolation hospital, Bladderly. Mr. John F. Burns, borough surveyor, Municipal Offices, Devonport.

DORCHESTER.—June 24.—For repairing and painting, &c., at the headquarters police-station, Dorchester, where specifications may be seen.

DURHAM.—June 27.—For the erection of new brick latrines at Greencroft school. The Education Office, Durham.

ECCLES.—July 5.—For the erection of forty-six semi-detached houses in and off Lewis Street, Patricroft, Lanes. Mr. George Meek, architect, Leinster Chambers, 4 St. Ann's Square, Manchester.

EDINBURGH.—June 28.—For the mason, carpenter and joiner, plumber, plasterer and slater's work to be executed in setting back frontage of properties at corner of Salisbury Place and Minto Street. Burgh Engineer, City Chambers, Edinburgh.

FELTHAM.—July 17.—For alterations at the town hall, Feltham, Middlesex. Mr. H. T. Wakeham, county architect, Middlesex Guildhall, Westminster.

GLASGOW.—June 24.—For the digger, concrete and brickwork of the foundations and substructure of the new north block of the Glasgow Royal Infirmary. Mr. James Miller, architect, 15 Blythwood Square, Glasgow.

GLASGOW.—July 1.—For (1) the digger, brick and mason, &c., work, and (2) the sanitary fittings required in connection with the extension and alteration of the public convenience at Gorbals Cross. The Office of Public Works, City Chambers, 64 Cochrane Street.

GLASGOW.—July 3.—For the erection of a sub-station in Stirling Road, Glasgow. Mr. W. W. Lackie, engineer, 75 Waterloo Street, Glasgow.

GUILDFORD.—June 27.—(a) For the erection of brick and concrete piers to carry a girder bridge across the river Wey at Newark, (b) for the supply of the iron and steelwork and fixing of same in connection therewith. The Engineer, District Council Offices, Commercial Road, Guildford.

HOLBETON.—June 30.—For the erection of a dwelling-house on Alston estate, Holbeton, near Plymouth. Mr. Geo. B. Perrott, architect, Kingsbridge.

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HORNCHURCH.—July 3.—For the construction of an outfall sluice and culvert and works in connection therewith at the mouth of the Beam river, Hornchurch, Essex. Mr. A. Havelock Case, Broad Sanctuary Chambers, Westminster, S.W.

ILFORD.—June 26.—For the erection of a cottage at the outfall works. Mr. Herbert Shaw, engineer and surveyor, Town Hall, Ilford.

ILFORD.—June 27.—For the erection of a corrugated iron temporary school building for about 500 children, with temporary latrines, drains, &c., at Uphall Road, Ilford, Essex. Mr. C. J. Dawson, architect, 11 Cranbrook Road, Ilford.

IRELAND.—June 29.—For building a residence with out-offices, &c., and a dispensary at Prioryland, Duleek, for the Guardians. Mr. Thomas Dowdall, clerk, Workhouse, Drogheda.

IRELAND.—July 13.—For the erection of a gallery in the Roman Catholic chapel at the Omagh district asylum. Mr. Robert J. Creery, clerk.

KNOWLE.—June 27.—For erecting medical officer's residence at the county asylum, Knowle, Fareham, Hants. Mr. W. J. Taylor, county surveyor, The Castle, Winchester.

LEDGBURY.—June 27.—For the erection of new refreshment-rooms, &c., at Ledbury station, for the Great Western Railway Company. The Engineer at Gloucester Station.

LEEK.—June 26.—For extensions to the sewage-disposal works in the South District, comprising alterations to present works, the laying-down of sedimentation-tanks, percolating filters and other appurtenant works. Mr. W. E. Beacham, engineer and surveyor, Town Hall, Leek.

LEYTON.—June 27.—For the cleansing, painting, repairs and improvements to schools to be executed during the summer vacation, for the Leyton Urban District Council. Mr. William Jacques, architect, 2 Fen Court, Fenchurch Street, E.C.

LONDON.—For erection of two blocks of residential flats and shops at Bayswater (estimated cost, 26,000*l.* and 16,000*l.*). Mr. R. Anderson, architect, 39 Victoria Street, Westminster.

LONDON.—June 24.—For alterations to the premises lately occupied as the St. John's Girls' school and 1 Potter's Fields, Tooley Street, S.E. Mr. R. J. Angel, borough surveyor, Town Hall, Spa Road.

LONDON.—June 27.—For the erection of the Patents Office extension, Fumival Street. H.M. Office of Works, &c., Storey's Gate, S.W.

LONDON.—June 27.—For laying of about 600 superficial yards of mastic asphalt on the footway on the south side of Newington Green. Mr. J. Patten Barber, borough engineer, Town Hall, Upper Street, N.

LONDON.—June 28.—For repaving with creosoted deal blocks portions of Hammersmith Road and Uxbridge Road. Mr. H. Mair, borough surveyor, Town Hall, Hammersmith.

LONDON.—June 29.—For reinstating after damage by fire the Croydon town hall and library buildings. Mr. G. F. Carter, borough engineer, Town Hall, Croydon.

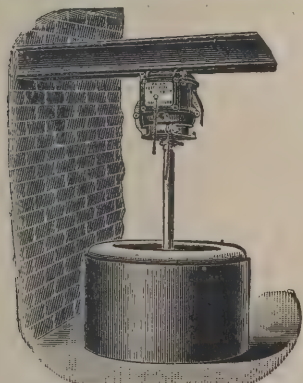
LONDON.—June 29.—For repairing, painting and cleansing the Tate central library, Brixton Oval, for the Lambeth Borough Council. Mr. Henry Edwards, borough engineer, 346 Kennington Road.

LONDON.—July 1.—For alterations to engineering arrangements, &c., in laundry at the South-Eastern hospital, New Cross, S.E. Mr. W. T. Hatch, engineer-in-chief, Office of the Metropolitan Asylums Board, Embankment, E.C.

LONDON.—July 4.—For (a) the conversion of the dwelling-house known as Prospect House, Peckham Rye, into dressing-rooms and tenements for park employes; (b) the erection of dwarf walls and railing along the Dartmouth Park Hill boundary of Waterlow Park, Highgate; and (c) the conversion of the stables at Marble Hill, Twickenham, into a bothy and tenements for park employes, for the London County Council. The Superintending Architect's Department, 15 Pall Mall East, S.W.

LONDON.—July 11.—For the roadwork and platelaying required for the construction, for electrical traction on the conduit system, of the authorised tramways from Wandsworth to Tooting *via* Red Lion Street, South Street, Garratt Lane and Defoe Road, and for the execution of certain paving works in connection therewith for the London County Council. The total length of the lines is about

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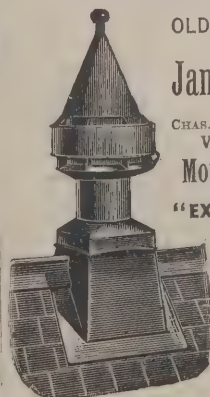
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LONDON.—July 12.—For the erection of a vaccine station at Hendon. Mr. J. B. Westcott, H.M. Office of Works, Storey's Gate, Westminster, S.W.

LUDDENDENFOOT.—July 3.—For the erection of a light steel girder foot-bridge (in lieu of the present wooden structure known as Longbottom wood bridge) over the river Calder at Luddendenfoot, near Halifax. Mr. F. G. Carpenter, county surveyor, County Hall, Wakefield.

MANCHESTER.—June 24.—For the iron and steelwork required for supporting an existing retort-house floor at Rochdale Road gas station. Mr. C. Nickson, superintendent, Gas Department, Town Hall, Manchester.

MIDDLESBROUGH.—June 24.—For the erection of Crescent Road schools. Messrs. R. Lofthouse & Sons, architects, 62 Albert Road, Middlesbrough.

NELSON.—June 28.—For the completion of nave and the erection of tower, &c., in connection with St. Mary's Church, Nelson, Lancs. Messrs. Waddington, Son & Dunkerley, architects, 11 St. Ann's Square, Manchester.

NELSON.—July 3.—For the erection of a ferro-concrete bridge over the canal in Scotland Road. Mr. B. Ball, borough engineer, Town Hall, Nelson.

NEWARK.—June 26.—For rebuilding bridge over Witham on the road leading from Claypole to Newark. Mr. C. D. M. Trinder, district surveyor, Brant Broughton, Newark.

RENWICK.—July 1.—For the whole of the works in connection with the ventilation, drainage, &c. of the Renwick Council school, Cumberland. Mr. J. Forster, clerk of works, The Courts, Carlisle.

RHYL.—June 24.—For taking-down the old police station buildings and for the erection on the site of a public free library and extension to the town hall. Mr. Arthur A. Goodall, town surveyor, Council Offices, Clwyd Street.

RIPPONDEN.—June 27.—For the erection of a new engine-house, &c., at Chapelfield Mills, Ripponden, Yorks. Messrs. R. Horsfall & Son, architects, 22A Commercial Street, Halifax.

ROCHDALE.—June 28.—For the erection of conveniences and also a stone wall base, at the Castleton recreation

ground. Mr. S. S. Platt, borough surveyor, Town Hall, Rochdale.

ROTHERHAM.—June 28.—For the erection of new shops, offices, &c., for the Corporation. Mr. J. Platts, architect, High Street, Rotherham.

ST. GERMANS.—June 28.—For building a retaining wall and enclosing a portion of the head of Polbathic creek, &c. Mr. Fred. Cleverton, clerk, 4 Buckland Terrace, Plymouth.

SANDWICH.—June 26.—For the erection of a great hall at Sir Roger Manwood's grammar school, Sandwich, Kent. Mr. Chas. L. Crowther, architect, Queen Street, Deal.

SCOTLAND.—June 27.—For the erection of stables, &c., in Anderson Street, Port Glasgow, for the Town Council. Messrs. Stewart, Tough & Alexander, architects, 2 Hamilton Street, Greenock.

SCOTLAND.—June 28.—For the reconstruction of old quay wall at Lower Harbour, Perth. Mr. Robert M'Killop, borough surveyor, 12 Tay Street, Perth.

SCOTLAND.—June 30.—For the mason, joiner, slater, plaster and plumber's work of proposed additions and alterations on the Barony, Cupar-Fife. Mr. David Storral, architect, Cupar-Fife.

SOUTH BRENT.—July 15.—For alterations and additions to the South Brent Council school, Devon. The Architect's Office, 1 Richmond Road, Exeter.

SUDBURY.—July 10.—For new sanitary annexes and drainage, for the Sudbury (Suffolk) Board of Guardians. Messrs. Clare & Ross, architects, 1 West Street, Finsbury Circus, London, E.C.

TAUNTON.—June 24.—For the erection and completion of a new school of art. Messrs. Sampson & Cottam, architects, 1 Hammet Street, Taunton, and 43 High Street, Bridgwater.

TEIGNMOUTH.—July 3.—For the erection of an isolation hospital, mortuary, laundry, administrative block, &c., on the Bitton estate. Mr. C. F. Gettings, surveyor and water engineer, Town Hall, Teignmouth.

THORNHILL.—June 28.—For the erection of boiler-house, chimney, warehouse, &c., at Hebble Mills, Thornhill. Messrs. W. & D. Thornton, Oates Street, Dewsbury.

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TIPTON.—July 3.—For alterations and provision of partitions at Tipton Green and Great Bridge Council schools. Mr. Long, architect, 21 New Street, West Bromwich.

TORQUAY.—June 30.—For the erection of the Carnegie library. Mr. Fredk. S. Hex, town clerk, Town Hall, Torquay.

ULVERSTON.—June 28.—For alterations to Fountain Street House, Ulverston. Messrs. Settle & Brundrit, architects, Ulverston.

WALES.—For erection of seventy-eight houses, including two business premises, at Duffryn Rhondda, Cymmer, P.T. Messrs. Jones & Peregrine, architects, Bank Chambers, Port Talbot.

WALES.—June 24.—For alterations and additions to Zion English Baptist chapel, Ynysybw. Messrs. Morgan & Elford, architects, 1 Jeffrey Street, Mountain Ash, or 42 Canon Street, Aberdare.

WALES.—June 26.—For extensions and renovations at Trerhondha chapel, Ferndale. Mr. Lewis, jeweller, Duffryn Street, Ferndale.

WALES.—June 26.—For the erection of proposed Masonic hall, Barry. Mr. J. A. Owen, architect, Main Street, Cadoxton-Barry.

WALES.—June 27.—For the erection of isolation hospital, for the Caerphilly Urban District Council. Mr. John H. Phillips, architect, Clive Chambers, Windsor Place, Cardiff.

WALES.—June 27.—For alterations and additions at Zion chapel, Pentre, Rhondda. Mr. Price, 74 Llewellyn Street, Pentre.

WALES.—June 27.—For the erection of a new station at Trodyrhiew Garth, Glamorganshire, for the Great Western Railway Company. The Engineer, Newport Station.

WALES.—June 28.—For the erection of new Baptist chapel at Garnyrew, Blaenavon, Mon. Mr. William Thomas, architect, Nantyglo.

WALES.—June 29.—For altering and enlarging the chapel and school at the Trinity Presbyterian church of Wales, Abertillery. Mr. R. L. Roberts, architect, Abercarn.

WALES.—July 1.—For the erection of a vicarage house at Wales, near Kiveton Park. Mr. C. Hodgson Fowler, architect, The College, Durham.

WALES.—July 1.—For carrying-out certain alterations and repairs at the following elementary schools, for the Denbighshire education committee:—(1) Council school, Clocaenog; (2) Pentrecelyn Council school, Llanfair Dyffryn Clwyd; (3) Council school, Ruthin; (4) Higher Grade school, Penygelli; (5) boys and girls' Council school, Rhosllanerchrugog. Mr. W. D. Wiles, county surveyor, 15 Well Street, Ruthin.

WALES.—July 3.—For the erection of a stone bridge over the Llywernog at Rhydsaddler, near Ponterwyd. Mr. Hugh Hughes, clerk, 8 Market Street, Aberystwyth.

WALES.—July 3.—For the construction of a service reservoir, filter beds and other works at Frampton, near Llantwit Major, with cast-iron supply, compensation and distribution mains, &c., for the supply of water to Llantwit Major. Messrs. Kirby, Son & Brown, water engineers, Stow Chambers, Newport, Mon.

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WIMBORNE.—June 30.—For the erection of a new church house at Wimborne Minster, Dorset. Mr. W. J. Fletcher, architect, Wimborne.

THE Edinburgh Town Council will discuss the following motion:—"That the magistrates and Council discharge the present special committee on the Usher City Hall. Further, the magistrates and Council, in the interests of the despatch of public business, suspend the standing orders and appoint another special committee to deal with the whole matter, and especially with the report submitted to them recommending acceptance of the estimates for the erection of the hall in accordance with the plans and elevations which have already been approved by the Council; the committee to consist of five members—the Lord Provost as chairman and four members appointed by the Council, none of whom shall be members of the present committee."

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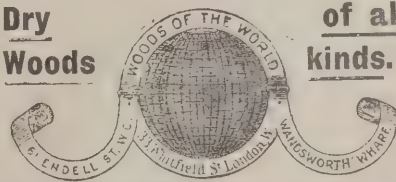


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McGuinness	3,909	14	4
McKee & McNally	3,900	0	0
Campbell & Son	3,780	0	0
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Devaney	7,510	2	1
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Read & Sons (withdrawn)	7,225	7	8

Eastham Village Sewerage.

Dawson	4,432	2	10
Jowett	4,033	15	5
Brebner & Co.	3,482	5	0
Taylor	3,467	0	0
Allen	3,449	7	1
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MAIDENHEAD—continued.

Creed	£10,128	0	0
Lovell	10,120	0	0
Hollis & Sons	10,092	0	0
Wallis & Sons	10,114	0	0
Stimson & Sons	9,992	11	7
Oak Building Co.	9,986	0	0
Pizzey	9,828	0	0
Walden & Cox	9,786	16	0
Rowland Bros.	9,713	0	0
Tucker	9,620	0	0
Watson	9,618	0	0
Hawkins	9,597	0	0
Cox & Sons	9,596	0	0
Bowyer	9,584	0	0
Brown	9,577	0	0
Gibson	9,547	0	0
Lawrence & Son	9,467	0	0
Flint	9,442	0	0
Stokes & Son	9,411	0	0
Hughes	9,376	0	0
Faulks	9,274	0	0
Wheeler & Co.	9,252	0	0
Fitt	8,995	0	0
Godwin	8,987	0	0
Colbourne	8,888	16	0
County surveyor's estimate	9,750	16	0

MUCH HADHAM.

For the construction of a concrete-covered service reservoir, of an engine-house and attendant's cottage at the pumping station; supply and laying of about 11,800 lineal yards of cast-iron mains, 4 inches and 3 inches in diameter, with all necessary valves, hydrants, &c., for the Rural District Council. Messrs. POLLARD & TINGLE, engineers, Westminster.

Page	£6,822	2	4
Neal, Ltd.	6,504	0	0
Shardlow	5,831	19	0
Tabor	5,736	7	0
Ewart	5,499	17	0
Roberts	5,407	0	0
Ekins & Co., Ltd.	5,400	0	0

MUCH HADHAM—continued.

Nunn	£5,399	3	1
Ashley	5,390	0	0
Kitteringham	5,386	0	0
Meredith Bros.	5,124	13	2
Collingwood	4,990	17	0
Davies, Ball & Co.	4,907	8	5
J. W. Dean, Ltd.	4,767	7	3
J. J. RAYMENT & SON, Hertford (accepted)	4,497	0	0

NORTHFLEET.

For reconstruction of the nave roof of St. Botolph's Church. Mr. G. E. CLAY, architect, Gravesend.

Dering	£694	0	0
Multon & Wallis	679	0	0
Beal & Hubbard	634	15	4
Larner & Co.	588	0	0
W. & F. Tuffee	563	0	0
Martin	540	0	0
J. B. LINGHAM, Northfleet (accepted)	538	7	0

SCUNTHORPE.

For the erection and construction of new buildings and other works of levelling, paving, the supply and erection of new cattle pens, and fittings for the new market buildings and premises. Mr. A. M. COBBAN, engineer, Scunthorpe.

Ashley	£2,345	0	0
Thompson	2,145	0	0
Hollingsworth	2,135	13	7
W. PALLISTER, Scunthorpe (accepted)	2,134	0	0

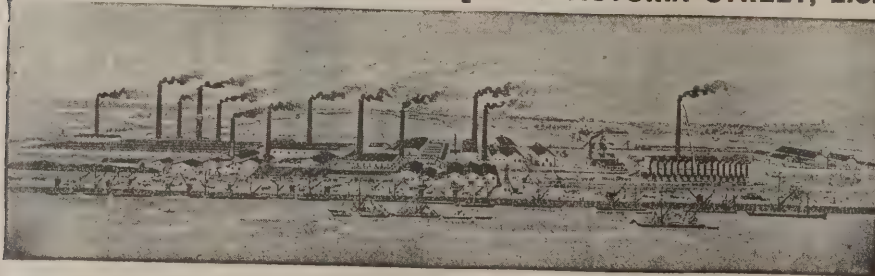
For construction of a storage reservoir, erection of a pump-house and offices, supply and erection of wrought-iron fencing, works of alteration at and the setting of a Lancashire boiler for the power station. Mr. A. M. COBBAN, engineer, Scunthorpe.

Dawson & Son	£6,062	0	0
Parker & Sharp	5,252	0	0
Bower Bros.	4,980	0	0
Hollingsworth	4,972	0	0
Arundel's Exors.	4,600	0	0
Ashley	4,270	0	0
A. J. THOMPSON, Scunthorpe (accepted)	4,176	0	0
Dixon	4,100	0	0

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For the extension of the Y. M. C. A. buildings at Leslie.

Accepted tenders.

T. Whittaker, mason.

Mitchell & Sons, joiner.

Whyte & Son, plumber.

Shoolbraid & Son, plasterer and slater.

J. Allan, painter.

SOUTHAMPTON.

For private street works in Howard Road. Mr. J. A.

CROWTHER, borough surveyor.

Osman. £1,443 10 0

Butt 1,443 0 0

SOUTH MOLTON.

For the construction and completion of works for water supply in the parish of Chulmleigh. Mr. F. B. GODDARD, engineer.

Stanbury £2,778 11 10

Parkin 2,506 14 11

Harrison & Co. 2,485 8 9

Hooper 1,998 10 0

Pyke 1,604 14 3

Steer & Pearse 1,587 0 0

Harris 1,470 16 3

E. TABOR, Cambridge (*accepted*) 1,311 12 6**TIVERTON.**

For building classroom and offices at Elmore school, Tiverton. Mr. W. BARRONS, architect.

Saunders 313 4 0

Manning 305 0 0

Loosemore 281 0 0

Deering 277 10 0

R. GOATER & SONS, Tiverton (*accepted*) 269 0 0

For addition to Warnicombe House, Tiverton. Mr. W. BARRONS, architect.

Ellis & Son £448 10 0

Holcomb 363 0 0

Parr, Sanders & Thorne 340 0 0

Nicks Bros. 335 0 0

Manning 315 0 0

LABDON & SONS, Cullompton (*accepted*) 310 0 0**WALES.**

For the supply of electric fittings and wiring for the new asylum at Whitchurch.

Baker & Co. £12,900 0 0

Booth & Co. 10,254 0 0

Saunders & Co. 9,716 0 0

Price, Friend & Co. 9,500 0 0

Armstrong 9,212 0 0

Walsall Electrical Co. 9,130 0 0

Scott Anderson 8,500 0 0

South Wales Installation Co. 8,229 0 0

Buchanan & Co. 8,200 0 0

Clements, Booker & Co. 8,178 0 0

Jackson 8,150 0 0

Arnold & Co. 8,030 0 0

Haddon & Sons 7,930 0 0

Sharp 7,869 0 0

Clay Brothers & Co. 7,860 0 0

Lee & Warren 7,205 0 0

Firth & Co. 7,198 0 0

Troup, Curtis & Co. 4,584 0 0

WARWICK.

For the erection of science school, King's schools. Mr. FRANCIS P. TREPES, architect.

Smith & Sons £2,576 0 0

A. & J. Chaplin 2,530 0 0

Cashmore & Sons 2,488 0 8

E. TALLISS, Warwick (*accepted*) 2,479 16 6**WALTON.**

For the construction of a new sewer in Ellesmere Road, Walton, Surrey. Mr. R. WILDS, surveyor.

Willis £550 0 0

Soan 409 0 0

Streeter & Co. 399 0 0

Potterton & Co. 397 0 0

Hebburn 364 0 0

Hewett & Sons, Ltd. 343 0 0

Kavanagh & Co. 335 0 0

Wheeler 321 0 0

Jackson 315 0 0

C. HORSELL (*accepted*) 261 0 0

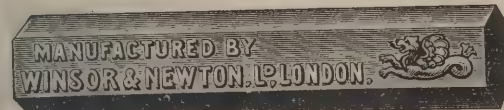
Surveyor's estimate 297 0 0

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WALTON—continued.

For the extension of the surface-water sewer along Oatlands Avenue.

Willis	£158	0	0
Wheeler	133	0	0
Jackson	126	0	0
Kavanagh & Co.	97	0	0
Potterton & Co.	96	0	0
Streeter & Co.	94	0	0
Soan	92	0	0
Hebburn	82	0	0
C. HORSELL (accepted)	69	0	0
Surveyor's estimate	96	0	0

WALTON-ON-THAMES.

For laying and construction of 434 yards of 7-inch stone-ware pipe sewer, together with manholes, &c. Mr. R. WILDS, engineer.

Willis	£550	18	6
Soan	409	9	2
Streeter & Co.	399	4	7
Potterton & Co.	397	0	0
Hebburn	364	10	0
Hewett & Sons, Ltd.	343	17	3
Kavanagh & Co.	335	16	0
Wheeler	321	18	5
Jackson	315	12	1
C. HORSELL, Weybridge (accepted)	261	2	8
Surveyor's estimate	297	16	0

NEW CATALOGUE.

IN no class of industry has machinery been more successful than in laundry work. At one time it was monopolised by a very humble class of people, and it was well known that bundles of clothes had to periodically find their way to pawnbrokers owing to the difficulty of finding money to pay for assistance. Now, laundry work is taken up by limited liability companies, and, if well managed, they are found to be profitable enterprises. It is not necessary to say anything about the risks of contagion which not so many years ago were a danger to the public. Owing to buildings which are properly designed and to machinery all the processes can now be conducted with safety. The extent to which machinery is applied can be judged from the illustrated pages of the new catalogue of Messrs. W. Summerscales & Sons, Ltd. Established in 1850, the public owe much to them for the improvements which they have been able to effect in laundry work by their machines. Their ingenuity has produced excellent results, and with such a guide as the catalogue affords it would not be difficult to meet the requirements which are now essential. They have special sanitary apparatus such as a hot-air fumigator, steam disinfectors, &c. With so many arrangements for employing heat it is a short step with Messrs. Summerscales from the laundry to the kitchen. They produce many aids to cooking on a large scale which are adapted to public institutions, clubs and hospitals, as well as improved kitchen ranges which are adapted for ordinary houses. The catalogue is worthy of preservation.

THE Homeland Association have published two additional handbooks, which are well adapted for those who wish to spend their holidays in an English district. One relates to the neighbourhood of Huntingdon, the Great Ouse, St. Neots and St. Ives; the other to Horsham and St. Leonard's Forest. The two districts are unlike, but both are interesting, and offer many objects which are worth the attention of tourists. They are carefully written from personal observation, and are therefore superior to guide-books which are only compilations.

THE special committee of the London Corporation to whom, in conjunction with the Bridge House estates committee and the streets committee, was referred the consideration of the question of widening Blackfriars Bridge with a view to the linking up of the tramways, have come to a decision in favour of the proposal, leaving the details as to the cost and method of widening and the conditions under which tramways should be admitted into the City for further discussion.

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GAIETY RESTAURANT.—THE GRILL ROOM.

A HOUSE ON THE SUSSEX DOWNS.

ELLESBOROUGH PARISH HALL, BUTLER'S CROSS, NEAR WENDOVER, BUCKS.

ARNMORE, PROGNAL LANE, HAMPSTEAD.

TRADE NOTES.

A LARGE clock with three dials has just been erected in the parish church at Elsecar, Yorkshire, by John Smith & Sons, Midland Clock Works, Derby. It is generally to the designs of the late Lord Grimthorpe.

MESSRS. ARTHUR L. GIBSON & Co. have received the contract for ten Kinnear rolling shutters with patent trolley wire connections for the car shed at Swadlincote of the Burton and Ashby Light Railway.

THE Coalbrookdale Co., Ltd., give notice of their removal from Queen Victoria Street to Rathbone House, 15 and 16 Rathbone Place, Oxford Street, W. The new premises are large and admirably lighted, thereby offering adequate opportunity for exhibiting the numerous goods of the company. The Tottenham Court Road station of the Central London Railway is within about three minutes' walk.

MESSRS. W. POTTS & Son have just completed a new Cambridge-quarter clock for the Huddersfield Co-operative Society, with three illuminated dials 6 feet 6 inches in diameter, and a set of bells from Lord Grimthorpe's design; and also a new hour striking clock showing the time upon three external dials painted and gilt at Warley Church, near Halifax.

NEW COMPANIES.

THE prospectus has been issued of Messrs. F. Smith & Co., Ltd., Carpenters' Road, Stratford, London, E. The company is formed for the purpose of acquiring and taking over as a going concern the business of Messrs. F. Smith & Co., iron buildings and roofing manufacturers. Their business has increased so rapidly that further capital is needed for an extension of the works in order to keep pace with the orders placed with them. The use of iron buildings is becoming more and more general. It is estimated that the British Government alone have expended in this way between 2,000,000*l.* and 3,000,000*l.* during the past three years. The capital of the company is 12,000*l.*, and is divided into 5,000 Seven per Cent Cumulative Preference shares and 7,000 Ordinary shares of 1*l.* each. The present partners will take a large portion of the purchase money in Ordinary shares. The great success of the business cannot be questioned when we are told that during the past four years the profits show an average return of about 80 per cent. per annum on the capital employed. The subscription list opens on Monday next, the 26th inst., and closes on the following Friday, June 30.

MESSRS. JOHNSON & PHILLIPS have been in business since 1875 as electrical, telegraph and general engineers. The premises at Old Charlton, Kent, were originally one-eighth of an acre in extent. It is indicative of the excellence of the manufactures to find that each year has seen an addition until in 1905 they occupy about 8 acres. The object of the formation of this company is to allow Mr. W. C. Johnson, the sole proprietor since 1893, to retire. This will not affect the fortunes of the new concern, as the business will continue to be in the hands of the same general and departmental managers who have almost entirely controlled it during the last five years. Messrs. Kennedy & Fox, chartered accountants, certify that the profits of Messrs. Johnson & Phillips during the five and a half years ending December 31, 1904, have averaged 37,664*l.* per annum. The capital of the company is 175,000*l.* divided into 175,000 Ordinary shares of 1*l.* each. The subscription list opened on Thursday, June 22, and will be closed on the 23rd for town and the 24th for country.

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VARIETIES.

THE late Baron Nathaniel de Rothschild has bequeathed about 835,000l. for the building and endowment of a sanatorium.

THE Metropolitan Life Insurance Company are to enlarge their New York offices by a tower 70 feet square and 560 feet high.

THE site of a small cigar shop at the corner of Wall Street, New York, has been sold for 140,000l. This works out at more than 16s. the square inch and 5,200,000l. an acre.

THE Foleshill Board of Guardians have received the sanction of the Local Government Board to a loan of 9,250l. for the purposes of providing an infectious diseases hospital. It was decided to apply to the Public Works Loan Commissioners for the loan.

THE Board of Trade are in receipt, through the Foreign Office, of information from His Majesty's ambassador at Washington to the effect that goods for use in the construction of the Panama Canal coming from countries other than the United States are free of duty.

THE Widnes municipal gasworks produced last year a profit of 6,135l., though the gas is the cheapest in the world—1s. 6d. per thousand feet to private consumers and 1s. 2d. to manufacturers. Production and distribution cost 11d. per thousand feet, and last year the residuals more than paid for the coal used.

SINCE the commencement of the construction of the new dock at Avonmouth, Bristol, there have been eight fatal accidents, and an inquest was held on Saturday. The deceased fell a distance of 13 feet into a trench, which he was crossing by means of a truss-beam. He struck his head against a stone block, and died shortly afterwards from fracture of the skull. The verdict was "Accidental death."

THE Nobel's Explosive Company, Ltd., Glasgow, despatched on the 17th inst. a special representative to Tokio to superintend the erection of a large factory in Japan for the manufacture of war explosives. The factory will take two years to erect and equip, and it is stipulated that the Japanese Government is to have the option of acquiring the new factory after ten years.

THE Anstruther harbour commission have asked the Board of Trade for approval of a scheme of harbour extension to cost 36,000l. The harbour is the centre of the fishing industry, and it could be greatly developed if further harbour facilities were available. The locality find it impossible to raise the 24,000l. of the total cost. It is hoped that a free grant to carry out the improvement will be obtained.

THE Local Government Board has refused to allow the Brighton Corporation to borrow 4,000l. in order to pay the cost of laying down a track for the motor speed trials to be held by the Automobile Club in July. It is contended that the road was in no need of any repair. The cost of the work, which is nearly completed, will now have to be borne by the ratepayers.

THE renovation of the roof of Cannon Street railway station, which has just been completed, occupied sixty men for sixteen months and cost 12,210l. The materials used included 12½ tons of paint, 195 tons of ironwork, 21,000 square feet of zinc, 20,500 slates, 38,000 square feet of glass, 865 gallons of oil, 45 tons of putty, 1½ tons of nails and 3,300 gallons of petroleum.

THE directors of the London and North-Western Railway Company have accepted the tender of Messrs. Holme & King, Ltd., railway and public works contractors, Liverpool, amounting to about 400,000l., for the construction of a new dock at Garston, covering an area of some 16 acres. The work consists in the removal of about 1,500,000 cubic yards of excavation, and is mostly in red sandstone rock, which has to be conveyed along the main line of railway and tipped upon land at Ditton Junction, so as to form extensive goods sidings there. The sea walls are of a heavy type, and consist of cement concrete to the extent of upwards of 100,000 cubic yards.

THE Southwark Borough Council recently served a notice on the trustee of an estate in Walworth requiring one of the rooms to be stripped and cleansed because the sanitary inspector considered that the walls showed signs of being verminous. The requirement to strip the walls was disregarded, and the new paper was put on over the old. The case was brought to the Lambeth police court on

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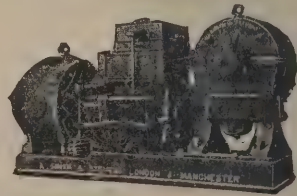
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the 16th inst. For the defence it was contended that the walls were not verminous, and that as there was, therefore, no nuisance, the Council had no power to issue the order. Evidence was also called to show that it was not customary to strip walls, except for special reasons, unless there were more than two papers upon them. The magistrate said that, without laying down a hard and fast general rule, in this case the walls ought to be stripped, and made a order accordingly. It was intimated that probably there would be an appeal.

A DEPUTATION on behalf of the unemployed in Birmingham waited on Monday upon the Lord Mayor, as chairman of the tramways committee, in reference to the importation, as they allege, of outside labour on the tramway contracts. It was stated that a large proportion of the men engaged on the Nechells tramway route were strangers to Birmingham. A meeting of unemployed had been recently attended by 1,000, and of that number 400 had some knowledge of tramway work. Many of these men had been refused employment. In reply to the deputation his lordship again pointed out that the tramways committee could not dictate to the contractors. He promised to bring the complaint before the members of the committee and the contractors, and that investigations should be made so as to determine the exact state of affairs concerning the employment of local and "imported" labour.

ELECTRIC NOTES.

MR. FRANK BAILEY, the engineer of the City of London Electric Lighting Co., Ltd., states that if the accounts of the borough councils supplying electricity were accurately audited, there is no doubt that they would show a loss.

At a meeting of Kirkcaldy Town Council on the 19th inst., the report by Mr. O. F. Francis, burgh electric engineer, was submitted, showing deficits of 403% on electric lighting and 1,500% fully on tramways.

The exports of electrical plant and material from the United States show an increase, the figures for the ten months ended April last being 9,915,100 dols., as against 8,722,957 dols. for the same period of the preceding year.

The best customers in order of value are British North America, Japan, the United Kingdom and Mexico.

DURING the thunderstorm which passed over the Manchester district on Monday afternoon an electric tramcar going along Oldham Road, Waterloo, near Ashton, was struck by lightning and set on fire. The flames were soon extinguished with water, but the tramcar was unable to continue its journey.

THE contract for the extensive electric works proposed at the head of Loch Leven, Glencoe, by the British Aluminium Company has been given to Sir John Jackson, Ltd. The undertaking, which includes the utilisation of local water-power for the production of electricity for industrial purposes, is to proceed on a very extensive scale, the cost running into six figures.

THE Welshpool ratepayers have passed a resolution in favour of the introduction of electric light. The town's refuse is, it is said, sufficient to find work for a destructor, which would give power for lighting 1,500 eight candle-power lamps. In addition a landowner has offered to let the Council have the turbines by the river at a low rent on a long lease, which would enable them to produce current as cheaply as a farthing per unit from water-power.

MR. JAMES DALRYMPLE, the Glasgow tramway manager, who was invited to Chicago to advise Mayor Dunne on the municipalisation of the local lines, has declared his conviction that in America municipal ownership could not be completely successful because political considerations dominate the situation without regard to the real needs of the community. The only specific for the disease was the full use of a Civil Service system.

MESSRS. GRIFFITHS & Co., the contractors for the Lincoln electric trams, are to commence the work of construction without delay. The contractors must finish within twenty weeks of the commencement, but they calculate that they will not occupy more than seven or eight weeks in accomplishing the work. The line will be double, and the roadway under the railway bridge near Boultham Avenue will have to be lowered to admit the passage of the "double-decker" cars.

THE result of the year's working of the Southport Corporation's electricity department has been a net profit

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of 3,355*l*. From the total revenue of 22,593*l* there was a gross profit of 14,771*l*. Interest and sinking fund absorbed 11,415*l*. The amount now paid in reduction of debt amounts to 32,878*l*. The surplus has been dealt with as follows:—In aid of rates, 2,500*l*; rates suspense account, 284*l*; and balance and profit and loss account, 570*l*. For the next financial year 2,500*l* has been promised in aid of the rates. The gross profit of the Corporation gasworks amounted to 23,989*l*, an increase of 1,651*l*, while the net profits were 11,473*l*, an increase of 1,473*l*.

THE arrangements for the electrification on a new system of the London, Brighton and South Coast Railway from Victoria to London Bridge, *via* Battersea Park, Brixton and Peckham Rye, are making satisfactory progress. In this case the electric conductors will be overhead instead of being on a three-rail system, and continuous current will not be used. The overhead conductor will be so constructed and supported that even in the event of any breakage it will not be possible for it to descend more than a few inches, and it will then still be outside the loading gauge.

THE Clyde Valley Electrical Power Company's new generating station at Yoker, which has been erected and equipped by the British Westinghouse Electric and Manufacturing Company, Ltd., was opened on Wednesday. A similar station has been erected at Motherwell by the same contractors, as well as various sub-stations dotted over the company's area, which comprises about 750 square miles. The chimney is built on the Alphonse Custodis system, and is 225 feet high above the foundations, with an internal diameter at the top and bottom of 11 feet and 14 feet respectively.

THE annual report by Kirkcaldy burgh electrical engineer on the electric-lighting and tramway schemes shows that on the electric lighting there is a net deficiency of 403*l*. 16*s*. after paying all interest on the sinking fund charges, and to this must be added a debit balance last year of 42*l*. 10*s*. 2*d*. The net revenue from private lighting was not increasing so fast as anticipated, the increase only amounting to 388*l*. 6*s*. 1*d*. for last year. This was due to the small number of consumers. It was proposed to lay before the committee a suggestion to have an electric household apparatus exhibition to advertise the undertaking.

THE Simplex Steel Conduit Company, for their own protection, and with the object of removing an obsolete patent which caused some uncertainty in the electrical trade in reference to patents connected with the continuity methods for socket joint conduits, obtained the authority of His Majesty's Attorney-General to present a petition to the High Court of Justice for the revocation of the said patent on June 3 in the Chancery Division of the High Court of Justice, before Mr. Justice Joyce. The Metallic Seamless Tube Company, Ltd., who had alleged there was an infringement of their patent, submitted to an order for the revocation of the above patent, and judgment was entered accordingly in favour of the Simplex Steel Conduit Company, with costs.

THE electricity committee of Glasgow Corporation have received numerous representations regarding the charges for current. The accounts for the year just closed have yet to be made up, but they are confident that they will be able to reduce the charges for current to shops, warehouses, &c., for lighting purposes from 6*d*. per unit for 365 hours per year maximum demand and 1*d*. thereafter to 3½*d*. per unit for the first two hours' use maximum demand. All consumers, therefore, whose consumption is under the average two hours per day will receive a substantial benefit. They also expect to reduce the charges for stair-lighting from 25*s*. per lamp per annum to 15*s*. per lamp per annum.

MR. GRAHAM HARRIS as arbitrator at the Middlesex Guildhall, Westminster, opened on Monday the hearing of a claim made by Messrs. William Griffiths & Co., contractors, against the Middlesex County Council. The claim arose in connection with the construction of the Middlesex Light Railways system. Messrs. Griffiths contracted to lay the track in Tottenham, and estimated that they would complete the work in twenty weeks. Actually the work occupied fifty-five weeks, and Messrs. Griffiths claimed to be paid the extra cost involved in watching and lighting, rent of local offices, and other matters on the ground that the delay was due to causes for which the County Council was responsible.

THE Mayor of Bournemouth and other members of the Town Council, who signed a cheque for 750*l*., voted by a majority of the members, authorising a payment to Mr.

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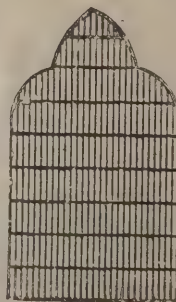
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F. W. Lacey, borough engineer, for extra remuneration in carrying out the electric tramway scheme, were recently surcharged by the district auditor with that amount. They appealed to the Local Government Board against the surcharge, and have since received a reply stating that "the Board were of opinion that the disallowance and surcharge were lawfully made, and they confirmed the auditor's decision, but in consideration of all the circumstances the Board decided to exercise the equitable jurisdiction conferred upon them by remitting the disallowance and surcharge."

THE memorandum of agreement between the Corporation and the Edinburgh and Queensferry Tramway Company relative to the proposed tramway from Edinburgh to Queensferry was under consideration on Monday. The fifth clause provides that the part of the undertaking within the city shall be executed by the promoters at the sight of and to the satisfaction of the Corporation or their engineer; the promoters are to keep in repair so much of the street as lies within their rails and 18 inches on each side of them, and there is a clause protecting the drains, &c. The ninth clause gives the Corporation power to say what system of electrical traction is to be used, the tenth prohibits the company from erecting their power station within the city or of selling electric power or light within the city boundaries, and the eleventh clause contains powers of purchase by the Corporation of the tramways in whole or in part on specified conditions. There are clauses also dealing with running powers, workmen's cars, &c., and the company are to be bound to carry passengers for three miles beyond the city boundary at 1d. a mile.

BUILDING AND BUILDERS.

THE Govan Dean of Guild Court have granted a warrant to reconstruct Bellahouston academy, and erect a further block facing Clifford Street to the south of the present school. The new seminary will have accommodation for over 1,200 children, and there will be a gymnasium and a swimming pond. The cost of the scheme is 17,000l.

ABOUT 30,000 bricklayers and others engaged in the building trade in Westphalia, says the *Daily Chronicle*

Berlin correspondent, have been dismissed in consequence of no agreement with their employers having been come to regarding an increase of wages which they demanded a fortnight ago. The employers were inclined to grant their demands on condition that the workmen broke up their union organisations. This they declined to do.

THE Queen Victoria Memorial hospital at Cheetham, Manchester, is to be altered in order to provide more accommodation for its inmates and for a large staff of administration. The proposed alterations, as designed by Mr. H. Arnold Turner, architect, of Eccles, will provide accommodation for more nurses and probationers, and will include also the reconstruction of the house surgeon's and the matron's apartments. Another feature of the proposed alterations is the enlarging of the hall and the construction of a new entrance in the Renaissance style.

COLONEL R. BARCLAY SHAW, of the firm of Messrs. W. Shaw & Son, Ltd., Glasgow, who died last week, was one of the foremost Scottish contractors. His father died when he was nineteen, and Mr. Barclay Shaw at once assumed control of the business. His tender was accepted for the erection of the buildings for the Glasgow exhibition of 1888 as also for those of 1901. Under his supervision the extensions at Woodilee asylum were completed at a cost of over 70,000l. Many buildings in the city, including the Fyfe Chambers in West George Street and the City Parish Council Chambers in George Street, were constructed by his firm.

THE annual general meeting of the Association of Master Plumbers was held last week in the Building Trades Exchange, Glasgow. The annual report stated that the membership stood at 180, eleven members having been admitted during the year. The report also dealt with the work done, and, in referring to the stoppage of labour by the operatives connected with the Amalgamated Society on account of the reduction in wages of 3d. per hour, the secretary reported that the position, so far as the masters were concerned, was practically unchanged since the last meeting, the majority of the members finding no difficulty in executing their work. It was also reported that several operatives who had been members of the Amalgamated Society had returned to their work under the new conditions. The funds of the Association as at April 30 last

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amounted to 1,085*l.* 6*s.* 11*d.* The following office-bearers were appointed for next year:—President, Mr. Chas. Hegney; vice-president, Mr. R. S. Renfrew; treasurer, Mr. Jas. Somerville; secretary, Mr. J. Wyle, writer.

THE BUILDERS' EXCHANGE AND EXHIBITION.

THE Builders' Exchange and Exhibition in Birmingham is progressing most favourably. The number of exhibitors and catalogues already arranged is 329, and this is being added to daily, so that when the day of opening arrives—June 29—the whole thing will be in good shape. The exhibition is to be opened by the president, Mr. Wm. Sappote, and there will be a large and representative gathering of the combined profession of trades. The Canadian manufacturers will be in the city on June 26, and they are to visit the exhibition. They will be able to see there those trades which truly represent the manufactures of the district. The position of the Exchange is all that could be desired, and the building is both central and well lighted, and most adaptable to all that is likely to be required. There seems little question, indeed, that this new venture in Birmingham is going to be a great success. May it go forward, expand and increase.

THE LATE THOMAS LISTER, C.E.

ON Sunday evening the death took place at his residence, Morton, Gainsborough, of Mr. Thomas Lister, at one time a well-known engineer, particularly in connection with early railway development. According to the *Sheffield Daily Telegraph*, he worked in conjunction with the Stephenson, also with George Hudson, who was known as the "railroad king." Mr. Lister was ninety-six years of age, and his life story is of unusual interest. He was born at Wath, near Doncaster, in 1809, his father being a stonemason. He was apprenticed to a carpenter, but bought himself out of his apprenticeship at eighteen or nineteen, and went to his brother, an architect, at Rotherham. Here he was set to make tracings of plans of bridges in connection with the

construction of the Grand Junction Railway, now the L.N.W.

In 1837 he assisted in the construction of the Sheffield and Rotherham Railway, and turned the first sod half-way between the two towns. Subsequently Mr. Lister prepared an estimate for a line from Blisworth to Oundle for Stephenson, who next employed him on a branch line from Blackburn to Preston. That finished, Mr. Lister was sent in 1841 to superintend the construction of that portion of the then Manchester, Sheffield and Lincolnshire Railway lying between Bole (Notts) and New Holland, on the banks of the Humber. The most important portions of this work were the Kirtley Lindsey tunnel, built on an incline and cut through rock full of springs, and the railway bridge over the river Trent, where "quicksand" difficulties were successfully overcome.

Mr. Lister was then employed by Mr. John Fowler to cut a canal across the island of South Beveland in Holland. He was engineer to the Gainsborough Urban Authority until 1866, when he entered into the shipbuilding business with Mr. Trenery, and in the meantime carried out private works for Sir T. Beckett, Lord Middleton and Lord Hawke (father of the Yorkshire cricket captain). Among other enterprises of a private character were the erection of the Sheepbridge Ironworks in 1857, also the erection of five places of worship in and around Chesterfield.

In 1864 he built for a private company the Gainsborough waterworks, and in 1867 he became architect and surveyor to Messrs. Marshall & Co., of Gainsborough, a position he held until a few years ago. He undertook many other important works during that time.

As might have been expected, Mr. Lister had a rich fund of reminiscences. He was connected with the building of the first "skew" bridge, notable in connection with all Stephenson's contracts, and his experiences of Yorkshire engineering works are particularly interesting. It was in December, 1836, that he was sent into Yorkshire to prepare an estimate for a line of railway from Sheffield to Rotherham for an independent company. Mr. Swanwick was the engineer-in-chief. Stephenson's tender for this line was 66,000*l.*, and the works were commenced on February 28, 1837, at Brightside, where Mr. Lister turned over the first sod. Here the chief feature of the work was a cutting,

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The Cathedral Church, Pretoria, South Africa.
St. Matthias Church, Barbadoes, West Indies.
St. Thomas's Church, Newport, Isle of Wight.
St. John's Church, Forton, Gosport.
St. Paul's Church, Peterborough.
Linslade Parish Church, Leighton Buzzard.
St. Mary's Church, Linslade, Bucks.

Works have been carried out under the direction of the late Sir ARTHUR W. BLOMFIELD, A.R.A., J. L. PEARSON, Esq., R.A., F.S.A., Messrs. BOOTH & CHADWICK, Manchester, and other eminent Architects.



and the geological formation was found to be very interesting. In Mr. Lister's own words, "Thousands of fossil ferns were exposed, in perfect figure and profile, as when they were green fronds, and 'now' are 'coal.'" In describing this work, Mr. Lister says in one of his reminiscences:—

"The line passed through the Holmes Works, Masborough, of the late Samuel Walker & Co. He (Mr. Walker) began life as a working foundryman, and died worth 1½ millions. About the year 1813 the Vauxhall Bridge, London, was built at these works by S. Walker & Co. I well remember, as a little boy, walking over this bridge with my father, before it was removed to London. Previous to this a bridge was built here for the East Indies. It was here also that Mr. Isaac Dodds commenced a locomotive engineering establishment, under the management of Mr. John Bell, a North-countryman, who became locomotive engineer and superintendent at Swinton, under the South Yorkshire, now the Manchester, Sheffield and Lincolnshire Railway Company (the Great Central). Near the Holmes Works the line passed through a rock cutting, where a slip occurred—a common occurrence in cuttings which make it necessary to have a watcher to warn the men while at work. In this instance the necessary warning was given, but one man ran under to secure his shovel and was killed."

In another of his reminiscences Mr. Lister says:—

"In 1838, on the occasion of the coronation of Her Majesty Queen Victoria, we had a general holiday." Mr. Stephenson brought out all his stud of eighty horses with their drivers decked with rosettes and ribbons, finishing in the evening with a grand dinner at the Crown inn, Rotherham. At the opening of the Sheffield and Rotherham line a festive gathering of shareholders and friends was assembled at the Tontine hotel, Sheffield, when I heard Mr. George Stephenson make the following statement:—"I congratulate the shareholders of the Sheffield and Rotherham Railway in this undertaking, inasmuch as their line will be the only one that will ever come into Sheffield. Whatever connection Sheffield may have with other places must enter by their line." I also once heard him say on the platform at Chesterfield:—"If Joe Locke ever makes a tunnel through Woodhead I will eat my hat." While the works on the Sheffield and Rotherham line were in progress, Stephenson took

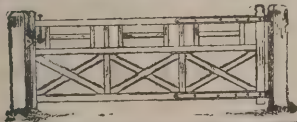
contracts on the Midland, the Greasboro', Masboro' and Wath lines. On the latter (Wath, my native place) was the first locomotive engine for constructive purposes, introduced in consequence of the long distance the earth had to be carried. The Greasboro' and Masboro' contract joined the Sheffield and Rotherham at Masboro' station, and was under the management of Mr. George Mould and Mr. John Stephenson, who at that time resided at Rotherham. The Wath and Darfield was, under Mr. T. R. Stephenson, who resided near Darfield, and was assisted by Mr. J. Stephenson, jun., of Doncaster. The Altofts and Methley, forming two junctions with the Midland near Wakefield, were under the management of Mr. Philip Stephenson, who resided at Glass Houghton. It was at Normanton station soon after the line was opened that the electric telegraph was introduced and adopted by the company. One of the clerks gave up his situation under the impression that the electric scheme 'was infernal, from the dark regions,' and he would not have anything to do with it. I remember on one occasion, when the directors came over these works, Hudson, the railway king, remarked to Stephenson, 'Stephenson, if you don't get better on with your work I shall put you down that embankment.' Stephenson replied, 'Yes, Mr. Hudson, you must take into account that I shall be there when you do so.' Hudson was a draper, residing in York, a great speculator in abortive schemes of railways, and when the bubbles burst he had to refund some quarter of a million, became a poor man, and, I think, went into Spain to Mr. Mould to try and redeem his position."

Mr. Lister has many interesting stories to tell of the disturbances which took place between the English and Irish labourers. He remembered well how to divide the two parties. Stephenson called the Irish together, and told them if they would follow him he would give them protection.

TECHNOLOGY IN MANCHESTER.

A PROPOSED scheme for the institution of a faculty of technology at Manchester University, which has been the subject of a conference between a sub-committee of the educa-

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BATH-ROOM OPEN.

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tion committee and the Council of the University, came up for consideration at the meeting of the Manchester education committee on Tuesday. The report of the sub-committee stated that the Council of the University is prepared to recommend the establishment of a faculty of technology on certain conditions. The first members of the Board of the faculty are to be the present members of the Board of Studies of the school of technology engaged in the teaching of mathematics as applied to technical subjects, mechanical engineering, electrical engineering, sanitary engineering, applied chemistry, applied physics, architecture and building construction, technology of fibres and their subsequent treatment, and mining; the Vice-Chancellor and five members nominated by the Senate, and the principal of the Municipal School of Technology, who will be recommended to the court for appointment as first dean of the faculty and as a member of the Senate. In the first instance Dr. J. T. Nicolson, Mr. W. J. Pope and Mr. A. Schwartz are under the scheme to be professors of the University and members of the Senate so long as they hold their present appointments in the School of Technology. It is suggested that their titles should be respectively professor of mechanical engineering, professor of applied chemistry and professor of electrical engineering, unless some other suitable titles are agreed upon. The principal of the Municipal School of Technology is to be an officer of the University and dean of the faculty of technology, with a seat on the Senate, "provided that the procedure as to his appointment be that set forth in clause 8." Clause 8 is as follows:—"In the case of a vacancy in the principalship of the Municipal School of Technology and any University professorship or lectureship, the stipend of which is paid by the education committee, the following procedure shall be adopted:—(a) The Senate of the University and the education committee shall each appoint a committee of recommendation; the two committees shall meet and jointly discuss the claims of the candidates. (b) The committee shall report, either jointly or separately, and such report or reports shall be submitted to the Senate and the education committee respectively, and both these bodies shall report separately to the University Council. (c) The University Council shall make the appointment to the professorship or

lectureship in the University, but such appointment shall not come into effect until the City Council have expressed their concurrence.

A NOVEL CONTRACT IN BUENOS AYRES.

A VERY interesting and unusual piece of architectural work, one which might have been planned equally well by Penelope or Sisyphus, says the *American Architect*, has recently been carried out in a South American city with such ingenuity and cleverness that, unless the work may actually have been carried out by North American contractors, the Chilenos are in some danger of having wrested from them by the inhabitants of the Argentine Republic their sobriquet of "the Yankees of South America." The Casino on the Rua Maipu at Buenos Ayres was the scene of operations, and the problem presented for solution was nothing less than its entire reconstruction and considerable enlargement without occasioning the slightest break in the continuity of the nightly theatrical representations. As the change in plan of the stage and auditorium involved not only a certain enlargement but a considerable change in orientation, the main axis being revolved through 45 degs., it can be seen that the building operations, which involved galleries as well as the parquet, must not only have been of considerable extent, but occasioned situations where most contractors would have been glad to leave scaffolding undisturbed for days at a time. Actually, however, all building operations in the auditorium and stage had to stop at about three o'clock in the afternoon, the time between that hour and the rising of the curtain each evening being needed for the replacing of chairs, stalls, boxes, carpets and hangings, and the strengthening of all walls and supports, so as to be able to pass the official examination of the building inspectors, who each night gave a written permit for the use of the building as a theatre for that one night. As the building was entirely rebuilt inside and out, of course much of the exterior work could go on uninterruptedly through the usual working hours, but so far as the auditorium and most of the internal work was concerned, the hours between

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midnight and two o'clock the following afternoon had to suffice.

That work of such extent—the building since its enlargement has contained audiences of 4,000 persons—could be done at all under such unusual conditions, was made possible by the most precise of plannings and the most skilful of execution, and only then because of the present advanced condition of the art of metal construction and the possibility of bringing framework, and so on, to the job in unusually short sections that required a minimum of field-work in their installation. As the climate is not severe in Buenos Ayres and the building is often used for hippic performances of one kind or another, the roof over the auditorium is made to roll forward over the flat roof of the front portion of the building, thus opening the auditorium to full air. This movable roof and its electric installation were made in the United States. The floor of the parquet is centrally supported on pivoted bascule trusses, and this makes it possible to incline the floor towards the stage and place thereon the chairs *en gredin* in ordinary theatre fashion, or tilt the floor up to a level, so that after the chairs are removed it may afford a good dancing-floor for public balls. As the circus-ring is below the level of this tilting floor, it is necessary to dismantle and remove the whole structure whenever equestrian performances, horse-shows and so on are to take place; at such times the seating capacity lost in the parquet is more than made good by the now uncovered seats in the basement that surround the ring. The architect and contractor clever enough to conceive and carry out this interesting piece of alteration were MM. Charles Séguin and A. Prunières.

THE PONTINE MARSHES.

ON the fringe of the Pontine Marshes, that historic swamp which consuls, emperors and popes in vain endeavoured to drain, there lies, says Mr. William Miller in the *Morning Post*, a deserted city, a Mediæval Pompeii. The slow train, which winds round the spurs of the Volscian Mountains on its way to Terracina and the Latin shore, pulls up on the margin of a lake, resonant with the hoarse croaking of hundreds of Pontine frogs, and in five minutes we are within the magic circuit of the ivy-grown walls of Ninfa. A

tall tower, once the proud creation of Cardinal Peter Gaetani, nephew of the great Pope Boniface VIII., guards the entrance to the abandoned town, whose sole inhabitants are the butterflies and the lizards and the frogs. A few children and a woman, gaunt with fever, the product of the marshes, come here by day to work at a mill, but no one sleeps within the ruined Mediæval fortress.

Yet here was once a flourishing little community. On one of the deserted churches we could still see the frescoes of saints, painted by some long forgotten artist, and the long trails of the clematis cover houses once inhabited by the vassals of the ancient Pontine family of the Gaetani, whose chief still owns the great castle of Sermoneta on the hill yonder. A broken bridge half spans a rapid stream, which intersects the deserted town, and the Mediæval streets and the old market-place have long since disappeared beneath a thick growth of luxuriant weeds, which flourish in the marshy soil. Here some novelist might lay the scene of a stirring romance in the dim twilight of the Middle Ages; indeed, a legend tells of a fair damsel who threw herself, for the sake of her lover, from the Gaetani tower into the silent lake below. Yet there was a time when Ninfa, now so picturesquely desolate, figured largely in parchment deeds, and was bought and sold as a valuable asset. Far back, in the spacious Byzantine days, when Rome was an annexe of Constantinople, and the Imperial Exarch still lingered on at Ravenna, the iconoclast Emperor Constantine, he of the unsavoury nickname, granted Ninfa, and with it lofty Norma, which rises high above us on the mountain-side, to the sainted Pope Zacharias to be part of the Papal patrimony, and here, within one of these roofless churches, a later pope, Alexander III., the successor of our only English pontiff, and the mightiest adversary of Barbarossa, was consecrated with all the ceremonies of the Mediæval hierarchy.

But the golden age of Ninfa was the close of the thirteenth century, when the Gaetani began to consolidate their little Pontine kingdom under the auspices of their great kinsman, Boniface VIII. In those days Cardinal Peter paid in hard cash some 94,000*l.* of our money for the undivided possession of the township of Ninfa, and received it from his Papal uncle as a fief for ever on condition that he should never alienate one single stone of it to the hated

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Colonna. It was then, too, that Boniface himself bought lofty Norma for 12,000*l.*, so that the Gaetani scutcheon might be seen on all the towns of the Marshes.

But fever was stronger than popes or cardinals. Gradually the deadly disease of the marshes crept over the dwellers by the lake of Ninfa. To-day the station master and his family are the sole denizens of that low-lying ground, and for four months every summer they too reside up at Norma, and Ninfa is left without a living soul. Here at last is a place which modern Italy cannot "improve" out of its picturesque existence.

It is strange to find one of our countrymen in this unfrequented region. The stationmaster at Ninfa, at whose house we passed the night, had much to tell of the British abbot of an adjoining monastery, a man beloved by the whole countryside. Early next morning we attended service in this picturesque abbey church, one of whose windows commemorates the safe return of a Gaetani from the great struggle between the Cross and the Crescent in the waters of Lepanto. Dogs and babies ran about the floor of the spacious building, while the peasants in their costumes knelt reverently at their devotions. Here, at any rate, the populace had much for which to bless the Government of the Popes. The fine bridge which leads to the abbey, the splendid road which leads in huge serpentines up to Norma, were the work of Pius IX., while the one man of modern times who has seriously grappled with the problem of the Pontine Marshes was Pius VI., the martyr of the Modern Papacy, whose name should go down to history in this region with that of Appius, the builder of the Pontine road, whose huge blocks we traverse outside Terracina, just as did Horace on that memorable journey to Brindisi and as did St. Paul on his still more famous journey to Rome.

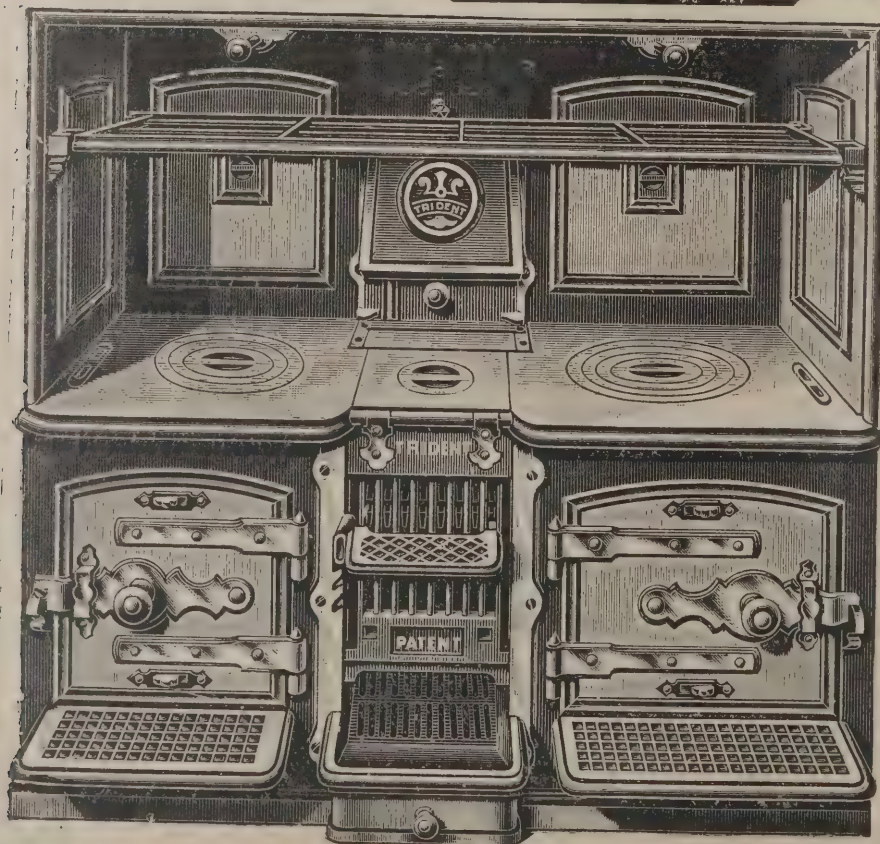
Terracina still stands, as it stood in Horace's time, on the white limestone cliff, which shows above the dull level of the vast plain. At the foot of the rock a colony of herdsmen and their families from Trella, in the Abruzzi, have settled for the winter in conical huts of straw, like the Koutso-Wallachs whom one sees in Boeotia. The people of Trella are of Saracenic origin, and the women show their Oriental ancestry in the costume which they still wear—the white head-dress, on which the picturesque pitchers of copper or earthenware are so deftly poised, the braces and

the dark cloth fastened over the skirt. Seldom in modern Italy, amidst the sartorial abominations of the slop-shop, does one see so much costume as here. But Terracina, despite the ugly modern town which has grown up near the sea, preserves in the tortuous streets of the rock-city all the attributes of the Middle Ages. The quaint beasts which support the outer pillars of the fine cathedral must have listened to the reading of the quaint charter of Pius II., who allowed the Jews to live at Terracina "because of the necessity which the citizens have of borrowing money." The town walls contain blocks of stone which withstood many a Papal siege, and if recent excavations have cruelly dislodged the ghost of the great Theodoric from the vast ruins on the promontory above the town, his memory is preserved in the name of the local theatre and in those of many a local tradesman. But here the climate and the natural surroundings are rather Greek than Italian. Terracina was, indeed, once a Greek city, and in the asphodel meadow above the town the traveller might easily imagine that he was in one of those Homeric scenes which are so common in the islands of the Ionian Sea.

But we have not far to go from Terracina in order to get upon the track of the Homeric hero. A drive of ten miles over the plain and among the smouldering fires of the charcoal burners takes us to the foot of the enchantress Circe's fabled home, now no longer an island though it seems so from afar. Among the herds of black pigs which thrive on the mountain there may be descendants of the unhappy mortals whom the cunning witch converted into animals, and her name still lingers on in that of this lofty and isolated rock—Monte Circeo.

There is nowadays a greater air of prosperity about Terracina and its neighbourhood than might have been expected. Living is cheap there; fish, fruit and vegetables are abundant, and the people seem to live well. Certainly they are not tempted by the distractions of the capital; for there are few who care to take the five hours' journey to Rome behind one of the "coffee-pots," as they call the engines, which pant laboriously along the railway at a speed of fifteen miles an hour. Amid the orange groves and the lemon gardens of this old Volscian town men can cultivate that equanimity which Horace declared would secure happiness even in the depths of the Pontine Marshes.

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Advertisements for Tenders, Building Land, Situations Vacant or Wanted, &c., can be left at those Offices, and copies of "The Architect," "Builders' Reporter," and other publications of MESSRS. GILBERT WOOD & CO. can be obtained as early as at the City Office, Imperial Buildings, Ludgate Circus, E.C.

NOTICE TO ADVERTISERS.

Under no circumstances whatever can the proprietors of this Journal guarantee alteration of copy if received after the first post on Tuesday mornings, and no proofs can be submitted if copy arrives later than first post on Saturday mornings.

EDITORIAL NOTICES.

In view of the many difficulties which are certain to arise in connection with the law, practice rules and procedure under the Workmen's Compensation Act, we have added to our staff A VERY EMINENT BARRISTER, who has made the subject a special study, and will be glad to answer in the columns of this paper any questions relating to the complicated matters arising from the provisions of this difficult Act. Our LEGAL ADVISER will further answer any legal question that may be of interest to our readers. All letters must be addressed "LEGAL ADVISER," Office of "The Architect," Imperial Buildings, Ludgate Circus, London, E.C.

The Editor will be glad to receive from Architects in London and the Provinces results of Competitions and Tenders

and other particulars of Works in progress in which they may be interested.

The authors of signed articles and papers read in public must necessarily be held responsible for their contents.

No communication can be inserted unless authenticated by the name and address of the writer—not in every case for publication, but as a guarantee of good faith.

Correspondents are requested to make their communications as brief as possible. The space we can devote to Correspondence will not usually permit our inserting lengthy communications.

TENDERS, ETC.

* * As great disappointment is frequently expressed at the non-appearance of Contracts Open, Tenders, &c., it is particularly requested that information of this description be forwarded to the Office, Imperial Buildings, Ludgate Circus, London, E.C., not later than 2 P.M. on Thursdays.

COMPETITIONS OPEN.

BEXHILL.—July 27.—Designs for a public elementary school at Bexhill-on-Sea, Sussex. Premiums of 50l., 30l. and 20l. are offered. Mr. A. H. Ryan-Tenison will act as assessor. Secretary of the Education Committee, Amherst Road, Bexhill.

CARLISLE.—Aug. 1.—Designs and estimates for the erection of school buildings, caretaker's cottage, &c., on a site off Greystone Road. Architects must be practising exclusively in Carlisle, or resident therein, or whose head office has been located there since May 1904. Mr. A. H. Collingwood, clerk, 15 Fisher Street, Carlisle.

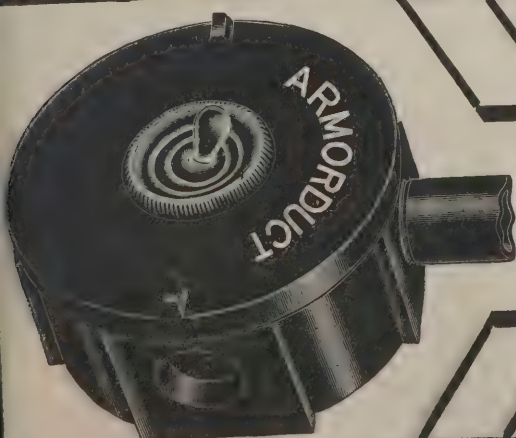
HOVE.—Aug. 1.—Designs for new free library, not to exceed 10,000l. (exclusive of furniture). Premiums of 50l., 30l. and 20l. Further particulars, Mr. H. Endacott, town clerk, Town Hall, Hove.

PERTH.—Aug. 1.—Plans for (1) reconstruction of the existing city hall at a cost not exceeding 6,000l., and (2) erection of a new hall at a cost not exceeding 15,000l. Premiums will be awarded authors of plans placed first, second and third in order of merit as follows:—(1) For reconstruction, 30, 20 and 10 guineas respectively; (2) for a new hall, 50, 30 and 20 guineas respectively. Instructions, general conditions and plan of site from Mr. John Begg, town clerk.

CONTRACTS OPEN.

ASHBY WOULDs.—July 1.—For the construction of sedimentation tanks, detritus chamber, percolating filter and about 1,700 lineal yards of 8-inch stoneware-pipe sewers, with manholes, &c. Messrs. Herbert Walker & Son, engineers, Albion Chambers, Nottingham.

ASPATRIA.—July 6.—For building four dwelling-houses at Aspatria. Mr. J. S. Moffat, architect, 53 Church Street, Whitehaven.



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BARNSELY.—July 12.—For the following works at the undermentioned schools, for the Education Department of the West Riding County Council:—Barugh Provided school (junior and infants' department), whitewash ceilings, colourwash walls, paint inside and outside, and repair (1) chimneys, (2) ventilators (ceiling outlets, &c.); Mapplewell Provided school (boys, girls' and junior departments), repair boiler-house underdrawn; Mapplewell Provided school (infants' department), whitewash ceilings, colourwash walls, paint inside and outside; Ardsley Provided school (junior and infants' departments), whitewash ceilings, paint walls, paint inside and outside and repair roofs (slates and spouting). Mr. T. Graham, divisional clerk, Education Offices, Barnsley.

BEDALE.—For the erection of schoolroom. Mr. J. Beck, Carthorpe, Bedale.

BELFAST.—Aug. 15.—For the heating and ventilation of the new municipal technical institute. Mr. Samuel Stevenson, architect, 83 Royal Avenue, Belfast.

BELGRADE.—July 8.—For the building of a new Parliament house. The Accounts Branch of the Public Works Department, Belgrade.

BERGH APTON.—For alterations and additions to Bergh Apton non-Provided school, Norfolk. Mr. Arthur J. Lacey, architect and diocesan surveyor, 6 Upper King Street, Norwich.

BRADFORD.—July 3.—For alterations at Thornbury car dépôt. The City Architect, Whitaker Buildings, Brewery Street, Bradford.

BRADFORD.—July 3.—For the erection of lavatories and alterations to various rooms in the technical college. Architect's Department, the Education Office, Manor Row.

BRADFORD.—July 3.—For heating installations at Thornbury and Bowling car dépôts. The City Architect, Whitaker Buildings, Brewery Street.

BRISTOL.—July 1.—For the erection of four workmen's dwellings at the junction of Fishponds Road and Freeland Buildings, Bristol. Mr. T. H. Yabbicom, city engineer, 63 Queen Square, Bristol.

BRISTOL.—July 4.—For the erection of four workmen's dwellings at the junction of Fishponds Road and Freeland

Buildings, Bristol, for the City Council. Mr. T. H. Yabbicom city engineer, 63 Queen's Square, Bristol.

BROMPTON.—July 3.—For the whole or any of the various trades—namely, bricklayer and mason, carpenter and joiner, plumber and glazier, slater, painter and ironfounder's work—required in extension of spinning mills at Brompton, near Northallerton. Messrs. Thos. Winn & Sons, architects, 92 Albion Street, Leeds.

BUCKINGHAM.—Aug. 1.—For the erection of the new royal Latin school at Buckingham. Mr. W. G. Wilson, architect, 5 Bloomsbury Mansions, Hart Street, London.

BURNHAM.—July 3.—For the erection of a new room and offices at the school. Rev. F. F. Penruddock, Burnham Vicarage, Bucks.

BURY.—For the alterations to the co-operative bakery for the Bury and District Co-operative Society, Ltd. Mr. Wm. E. Gill, architect and surveyor, Derby Chambers, Fleet Street, Bury.

BYFIELD.—July 10.—For the erection of the new Council school, Byfield, Northamptonshire. Messrs. Law & Harris, architects, 1 Sheep Street, Northampton.

CARDIFF.—July 11.—For the erection of infants' department, with classrooms for boys and girls' departments, at Bute Terrace National schools, Cardiff. Messrs. Veall & Sant, architects, Cardiff.

COCKFIELD.—For the proposed new P.M. school and alterations to church, Cockfield. Messrs. Davidson & Phillipson, architects, Pearl Buildings, Newcastle-on-Tyne.

DANBY WISKE.—For reseating, &c., the Wesleyan chapel, Danby Wiske, near Northallerton. Lazenby Hall, Danby Wiske.

DARLINGTON.—July 3.—For supplying and delivering at the electricity works 7 tons of 12-inch by 6-inch and 12-inch by 5-inch steel girders, with angle plates, bolts, &c., for the Corporation. Mr. J. R. P. Lunn, electrical engineer, Electricity Works, Haughton Road, Darlington.

DEWSBURY.—July 5.—For the plasterer's work required at the Dewsbury Pioneers' Industrial Society's warehouse. Messrs. Holton & Fox, architects, Corporation Street, Dewsbury.

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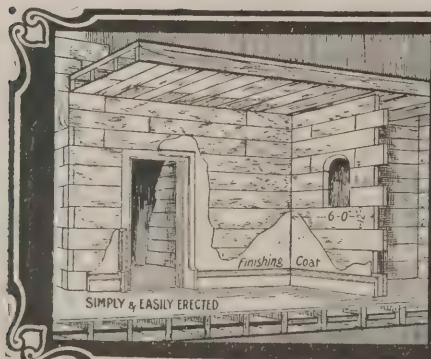
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DYKEBAR.—July 8.—For the execution of the mason and brickwork (above damp-course level), including steel and ironwork, of the new district asylum at Dykebar, Paisley. Mr. T. Graham Abercrombie, architect, County Place, Paisley.

EARBY.—July 14.—For the construction of sewage tanks, material filters, storm-water filter, engine-house and other works for the extension of the Earby sewage disposal works, Skipton, Yorks. Mr. H. A. Johnson, engineer, 15 Exchange, Bradford.

ECCLES.—July 5.—For the erection of forty-six semi-detached houses in and off Lewis Street, Patricroft, Lancs. Mr. George Meek, architect, Leinster Chambers, 4 St. Ann's Square, Manchester.

FELTHAM.—July 17.—For alterations at the town hall, Feltham, Middlesex. Mr. H. T. Wakeham, county architect, Middlesex Guildhall, Westminster.

GLASGOW.—July 1.—For (1) the digger, brick and mason, work, and (2) the sanitary fittings required in connection with the extension and alteration of the public convenience at Gorbals Cross. The Office of Public Works, City Chambers, 64 Cochrane Street.

GLASGOW.—July 3.—For the erection of a sub-station in Girdling Road, Glasgow. Mr. W. W. Lackie, engineer, 75 Waterloo Street, Glasgow.

GLASGOW.—July 6.—For executing the work of treating the decayed stoneware of the western, eastern, southern, northern and Queen's Park police buildings, as also Camerdown Street police station. The Office of Public Works, City Chambers, 64 Cochrane Street.

GLASTONBURY.—July 3.—For the re-erection of St. Benedict's bridge. Borough Surveyor, Glastonbury Urban District Council Office.

GRIMSBY.—July 3.—For the erection of Sunday school and internal alterations to the Zion Baptist church, Freeman Street, Grimsby. Messrs. Garside & Pennington, architects, Ropergate, Pontefract, and Central Chambers, Castleford.

HEREFORD.—July 12.—For building the chancel, organ chamber and vestry of Holy Trinity Church, Hereford. Messrs. Nicholson & Hartree, architects, and surveyors, Hereford.

HORNCHURCH.—July 3.—For the construction of an outfall sluice and culvert and works in connection therewith at the mouth of the Beam river, Hornchurch, Essex. Mr. A. Havelock Case, Broad Sanctuary Chambers, Westminster, S.W.

IRELAND.—July 4.—For the erection of a villa at Helen's Bay, co. Down. Messrs. Hobart & Heron, architects, 124 Scottish Provident Buildings, Belfast, and Dromore, co. Down.

IRELAND.—July 5.—For the erection of a residence at Douglas, Cork. Messrs. W. H. Hill & Son, architects, 28 South Mall, Cork.

IRELAND.—July 13.—For the erection of a gallery in the Roman Catholic chapel at the Omagh district asylum. Mr. Robert J. Creery, clerk.

ISLEWORTH.—July 15.—For sundry repairs (stonework, painting, &c.), for the Isleworth Burial Board. Mr. E. J. Partridge, Bank Chambers, 39 George Street, Richmond.

KING'S LYNN.—July 6.—For alterations in the able-bodied men's yard at the workhouse. Messrs. Jarvis & Sons, architects, Paradise Parade, Lynn.

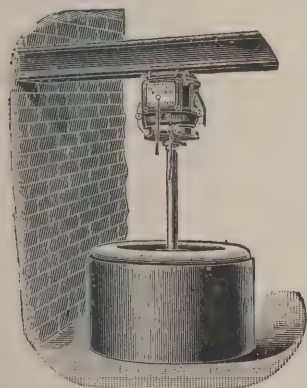
LONDON.—July 1.—For alterations to engineering arrangements, &c., in laundry at the South-Eastern hospital, New Cross, S.E. Mr. W. T. Hatch, engineer-in-chief, Office of the Metropolitan Asylums Board, Embankment, E.C.

LONDON.—July 4.—For (a) the conversion of the dwelling-house known as Prospect House, Peckham Rye, into dressing-rooms and tenements for park employes; (b) the erection of dwarf walls and railing along the Dartmouth Park Hill boundary of Waterlow Park, Highgate; and (c) the conversion of the stables at Marble Hill, Twickenham, into a bothy and tenements for park employes, for the London County Council. The Superintending Architect's Department, 15 Pall Mall East, S.W.

LONDON.—July 4.—For the erection of cottage for horse-keeper in the Willesden Council's storeyard in Dyne Road, Kilburn, N.W. Mr. O. Claude Robson, engineer, Public Offices, Dyne Road, Kilburn, N.W.

LONDON.—July 5.—For additions and alterations to Southwark County Court. The Commissioners of H.M. Works and Public Buildings, Office of Works, S.W.

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LONDON.—July 11.—For the erection of a brick chimney-shaft 60 feet high, for the Bethnal Green Borough Council. The Borough Engineer, Town Hall, Bethnal Green, N.E.

LONDON.—July 11.—For the roadwork and platelaying required for the construction, for electrical traction on the conduit system, of the authorised tramways from Wandsworth to Tooting *via* Red Lion Street, South Street, Garratt Lane and Defoe Road, and for the execution of certain paving works in connection therewith for the London County Council. The total length of the lines is about 5½ miles, single track. Engineer's Department, County Hall, Spring Gardens, S.W.

LONDON.—July 12.—For the erection of a vaccine station at Hendon. Mr. J. B. Westcott, H.M. Office of Works, Storey's Gate, Westminster, S.W.

LONDON.—July 19.—For carrying-out the alterations and additions to the Board-room and offices at the workhouse, Union Road, Leytonstone, N.E., for the West Ham Union. Mr. J. Williams Dunford, architect, 100c Queen Victoria Street, E.C.

LUDDENDENFOOT.—July 3.—For the erection of a light steel girder foot-bridge (in lieu of the present wooden structure known as Longbottom wood bridge) over the river Calder at Luddendenfoot, near Halifax. Mr. F. G. Carpenter, county surveyor, County Hall, Wakefield.

NELSON.—July 3.—For the erection of a ferro-concrete bridge over the canal in Scotland Road. Mr. B. Ball, borough engineer, Town Hall, Nelson.

NORTH BERWICK.—July 3.—For alterations upon the conveniences at the public school. Mr. A. D. Wallace, clerk, North Berwick.

NORTH SHIELDS.—July 4.—For extension of the engine-house at the electricity works, Tanner's Bank, North Shields. Mr. John F. Smillie, borough surveyor, Tynemouth.

NORTH SUNDERLAND.—July 11.—For the erection and completion of the North Sunderland new school for 230 children. County Surveyor's Office, Moot Hall, Newcastle.

PATRICROFT.—July 5.—For the erection of forty-six semi-detached houses in and off Lewis Street, Patricroft, for the Eccles Corporation. Mr. George Meek, architect, 20 Leinster Chambers, 4 St. Ann's Square, Manchester.

PELDON.—July 1.—For structural alterations, additions and repairs to the Peldon schools, near Colchester. Mr. F. Whitmore, architect, Duke Street, Chelmsford.

REDRUTH.—July 13.—For the erection of lecture hall and classrooms at U.M.F.C., Redruth. Mr. Sampson Hill, architect, Green Lane, Redruth.

RENWICK.—July 1.—For the whole of the works in connection with the ventilation, drainage, &c. of the Renwick Council school, Cumberland. Mr. J. Forster, clerk of works, The Courts, Carlisle.

RESTON.—For the erection of a villa residence at Reston, near Staveley. Mr. Joseph Bintley, architect, 7 Lowther Street, Kendal.

SALFORD.—July 5.—For about 3,500 square yards of hard blue floor tiles, similar to the sample at the Salford sewage works, Weaste. Borough Engineer's Office, Town Hall, Salford.

SCOTLAND.—For the mason, joiner, slater, plumber, plaster and electric-lighting work of additions and alterations to the Ayr Court-house. Mr. Allan Stevenson, 14 Cathcart Street, Ayr.

SCULCOATES.—July 11.—For the addition of a square window to the kitchen of the house of the superintendent of the cottage homes at Hessle. Mr. T. Beecroft Atkinson, architect, 11 Trinity House Lane, Hull.

SETTLE.—July 7.—For the erection of a residence, with stable buildings, &c., at Settle. Mr. James Hartley, architect, Skipton.

SHETLAND.—July 22.—For about two miles of 3-inch and 4-inch cast-iron pipes, including cutting and filling tracks, and the construction of a reservoir and other works in connection with the water supply of Scalloway, Shetland. Messrs. Jenkins & Marr, architects, 16 Bridge Street, Aberdeen.

SOUTH BRENT.—July 15.—For alterations and additions to the South Brent Council school, Devon. The Architect's Office, 1 Richmond Road, Exeter.

SOUTH SHIELDS.—July 17.—For the erection of the buildings and other works in connection with the public abattoir. Mr. S. E. Burgess, borough engineer and surveyor, Chapter Row, South Shields.

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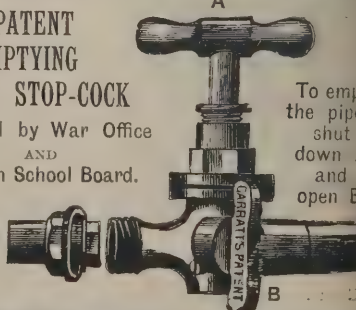
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SUDBURY.—July 10.—For new sanitary annexes and drainage, for the Sudbury (Suffolk) Board of Guardians. Messrs. Clare & Ross, architects, 1 West Street, Finsbury Circus, London, E.C.

SWINDON.—July 3.—For the alteration and enlargement of Swindon and North Wilts secondary school and technical institution. Mr. R. J. Beswick, architect, Victoria Road, Swindon.

TEIGNMOUTH.—July 3.—For the erection of an isolation hospital, mortuary, laundry, administrative block, &c., on Bitton estate. Mr. C. F. Gettings, surveyor and water engineer, Town Hall, Teignmouth.

TIPTON.—July 3.—For alterations and provision of parlours at Tipton Green and Great Bridge Council schools. J. Long, architect, 21 New Street, West Bromwich.

TOTNES.—July 7.—For the erection of the stands, bridge, dock and offices for the Totnes and Bridgetown races. Mr. W. M. Tollit, surveyor, 10 High Street, Totnes, Devon.

TYNEMOUTH.—July 4.—For the extension of the engine-house at the electricity works, Tanners Bank, North Shields. The Draughtsman's Office, Electricity Works.

WALES.—For pulling-down and rebuilding the George Hotel, together with shop and stables, in Market Street, Pontypool, and also for alterations and additions to the Talpole hotel at Llanhilleth. Messrs. Swalwell & Havard, architects and surveyors, Steam Packet Chambers, Dock Street, Newport.

WALES.—For the erection of seventy-eight houses, including two business premises, at Duffryn Rhondda, Glamorgan, P.T. Messrs. W. B. Jones & Peregrine, architects and surveyors, Bank Chambers, Port Talbot.

WALES.—For the erection of a residence at Gwbert-on-Sea. Mr. S. G. Adams, 21 St. Mary Street, Cardigan.

WALES.—July 1.—For the erection of a vicarage house at Wales, near Kiveton Park. Mr. C. Hodgson Fowler, architect, The College, Durham.

WALES.—July 1.—For carrying-out certain alterations and repairs at the following elementary schools, for the Denbighshire education committee:—(1) Council school, Llanfawr; (2) Pentrecelyn Council school, Llanfair Dyffryn

Clwyd; (3) Council school, Ruthin; (4) Higher Grade school, Penygelli; (5) boys and girls' Council school, Rhosllanerchrugog. Mr. W. D. Wiles, county surveyor, 15 Well Street, Ruthin.

WALES.—July 3.—For the erection of a stone bridge over the Llywernog at Rhydsaddler, near Ponterwyd. Mr. Hugh Hughes, clerk, 8 Market Street, Aberystwyth.

WALES.—July 3.—For the construction of a service reservoir, filter beds and other works at Frampton, near Llantwit Major, with cast-iron supply, compensation and distribution mains, &c., for the supply of water to Llantwit Major. Messrs. Kirby, Son & Brown, water engineers, Stow Chambers, Newport, Mon.

WALES.—July 3.—For the erection of two houses at Maesycwmmmer. Mr. W. A. Griffiths, architect and surveyor, Pontilnraith, Mon.

WALES.—July 7.—For the repairs and alterations of the Swansea market. Mr. Glendinning Moxham, architect, 39 Castle Street, Swansea.

WALES.—July 8.—For the erection of new offices at the Ruabon (Cefn) Council school. Messrs. Evans & Roberts, secretaries, Education Offices, Ruthin.

WALES.—July 8.—For the erection of fifty houses at Pwllgwaun, Pontypridd, for the Danylan Building Club. Messrs. A. O. Evans, Williams & Evans, architects, Pontypridd.

WALES.—July 10.—For alterations and additions to the Golf clubhouse, Radyr. Mr. W. H. Dashwood Caple, architect, Church Street Chambers, Cardiff.

WALES.—July 10.—For alterations, &c., at the Brynmawr police station. Mr. Charles W. Best, county surveyor for Breconshire, County Hall, Brecon.

WALES.—July 12.—For alterations and additions to the rectory house, Llangattock-juxta-Usk. Mr. W. H. Dashwood Caple, architect, Church Street Chambers, Cardiff.

WALES.—July 21.—For the additions and alterations, &c., to the workmen's hall and institute at Nantymoel, near Bridgend. Mr. J. Morris Williams, architect and surveyor, Blackmill.

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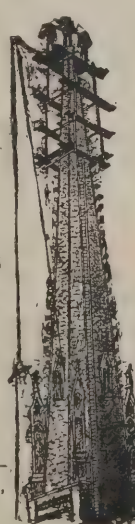
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Jenkins & Son	£3,199	8	1
Waghorn Bros.	3,035	2	5
Ball	2,592	9	0
Barry	2,557	8	0
Bennie & Thompson	2,435	10	1
Ball & Co.	2,302	5	0
Buckley	2,242	8	6
Meredith Bros.	2,194	4	8
Vickers	2,174	5	7
Aves & Houston	2,144	18	4
J. W. Dean, Ltd.	1,916	5	9
Holmes & Sons	1,859	0	4
Spardlow	1,840	0	0
Ashley	1,780	0	0
Macdonald	1,767	12	2
Streeter & Co.	1,697	8	10
P. & S. Kearsley	1,635	8	5
Harper	1,627	0	0
Crawford	1,551	7	3
Sangwin	1,471	17	11
Brebner & Co.	1,397	0	0
T. Jackson, jun.	1,391	7	6
Parkin & Co.	1,386	0	0
T. Kearsley, jun.	1,283	2	0

BRIERLEY HILL.

For altering and improving town hall. Mr. LEWIS HARPER, surveyor.

Male	£1,500	0	0
Jakeman & Round	1,430	0	0
Oakeley & Coulson	1,327	0	0
C. A. Hoxton, Brierley Hill (accepted)	1,288	0	0
Allen	1,278	0	0
A. & S. T. Bishop	1,268	0	0

CARDIFF.

For organ-chamber, additions and renovations to the Tabernacle chapel, The Hays. Messrs. R. & S. WILLIAMS, architects.

Shepton & Sons	£1,297	6	3
Allen & Sons	1,085	0	0
Morgan	1,070	0	0
Williams & Thomas	1,070	0	0
Knox & Wells	1,054	0	0
Gibson	1,048	9	6
Symonds & Co.	1,029	6	10
Griffiths & Son	1,005	0	9
Turner & Sons	948	0	0
Bevan	920	0	0
Gough Bros.	917	0	0
G. HALLETT (accepted)	800	10	0

CARLTON COLVILLE.

For alterations and additions at Carlton Colville, Suffolk, for the Rev. L. W. H. Andrews. Mr. HERBERT J. GREEN, architect, 31 Castle Meadow, Norwich.

Chaston & Grimson	£885	19	0
Searle	815	19	4
Cole	792	4	0
G. E. Hawes, Norwich (accepted conditionally)	701	18	0

CHESTER.

For sewerage, preliminary road formation, edging and channelling in connection with the laying-out of a building estate. Mr. JOHN LITTLE, engineer, Carlisle.

Hutton	£2,910	13	2
Hynes	2,889	5	6
Allan	2,573	2	6
Bennie & Thompson	2,467	13	6
Owens	2,462	4	9
Brebner	2,458	0	0
Lowe & Sons	2,396	18	4
Harris	2,385	0	0
Bullen Bros.	2,361	10	0
Davies & Co.	2,315	7	10
Johnson	2,292	18	1
Reid & Son	2,257	3	9
Oxley	2,058	19	10
SNAPE & SONS, Eccles (accepted)	2,083	19	10

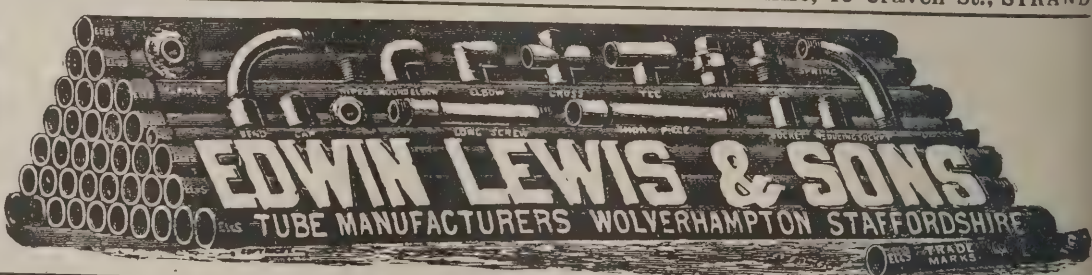
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CROYDON.

For erection of detached house in Coomb Road. Mr. SPENCER W. GRANT, architect.

Baldwin Bros.	£1,345	0	0
Truett & Steel	1,224	0	0
Wiles	1,168	0	0
J. LONG, Earlsfield (accepted)	1,098	10	0

DORCHESTER.

For the re-erection of premises, 13 South Street. Mr. F. T. MALTBY, architect.

Barrett, Son & Davis	£649	10	0
Selby	590	4	0
Davis & Son	588	0	0
WATTS BROS., Dorchester (accepted)	573	10	0

DOVERCOURT.

For new shop and alterations to business premises, High Street, Dovercourt, Essex. Mr. H. STEWARD WATLING, architect, Dovercourt, and at Ipswich and Lowestoft. E. SAUNDERS, Hill Crest Works, Dovercourt (accepted).

DUNFERMLINE.

For the masonwork of the new administration hospital and ordinary ward blocks in connection with the poorhouse extension scheme. STEWART & SONS, Dunfermline (accepted) £2,872 18 11

GUILDFORD.

For the erection of additions to the school at Westfield.

Drowley	£5,272	0	1
Martin, Wells & Co.	5,255	0	0
Gale	5,250	3	6
Moss & Co.	5,247	11	0
Harris	5,214	1	0
Patrick, Wandsworth (conditionally accepted)	5,120	0	0

There were fourteen tenders.

GRIMSBY.

For isolation block at smallpox hospital, Laceby. Mr. H. GILBERT WHYATT, borough engineer.

Walker Bros.	£530	0	0
Wrench & Sons	520	0	0
Pearse	442	10	0
R. Iles, Ltd.	425	0	0
Brown & Lilly	424	0	0
Fenn & Co.	399	0	0
Keay, Ltd.	399	0	0
Chick	396	0	0
Harbrow	377	0	0
Humphries, Ltd.	377	0	0
MacManus	366	0	0
Mitson & Harrison	347	0	0
Ginger & Co.	339	0	0
Smith & Co.	336	0	0
Seamer	327	10	0
Hawkins & Co.	325	0	0
Waterman	320	0	0
Banbury	320	0	0
J. A. THOMAS, Grimsby (accepted)	310	12	0
Wire Wove Roofing Co.	305	10	0

HOUNSLOW.

For the erection of three shops in High Street. Mr. W. A. DAVIES, architect.

Doney & Son	£3,073	0	0
Dawson	2,920	0	0
Wisdom Bros.	2,875	0	0
Pope	2,875	0	0
Irwin	2,868	0	0
A. & B. HANSON, Southall (accepted)	2,766	0	0

IVYBRIDGE.

For the erection of a mill about 50 feet by 30 feet. Mr. W. M. TOLLIT, architect, Totnes.

Yeo & Sons	£939	0	0
Stanbury	819	0	0
Sincock & Blight	720	0	0
Axworth	698	0	0
Vincent	669	0	0
G. ANDREWS, Ivybridge (accepted)	596	0	0

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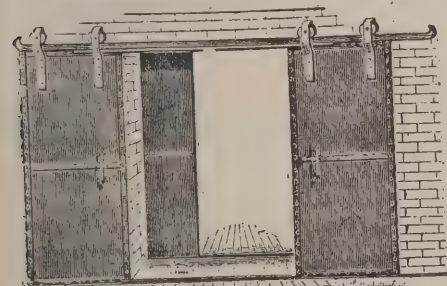
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For erecting a pair of stone-built cottages. Mr. J. GUNTER, architect, Glasbury.

J. M. Jones	£750	0	0
T. D. Evans	737	17	0
J. C. Evans	680	0	0
J. Evans	668	0	0
Beavan & Jones	650	0	0
Herbert	645	0	0
PRICE, Three Cocks (accepted)	577	0	0

LONDON.

For the erection of parish hall, classrooms, &c., in Braemar Road, Stamford Hill. Mr. SPENCER W. GRANT, architect. Quantities by Mr. C. W. BROOKS.

Parren & Son	£4,823	0	0
Brown	4,513	0	0
Silk & Son	4,227	0	0
King & Son	4,054	0	0
Barrett & Power	3,997	0	0
Stewart	3,976	0	0
Hyde	3,953	0	0
Porter	3,905	0	0
Turtle & Appleton	3,880	0	0
Pollard & Brand	3,868	0	0
Symes	3,850	0	0
Parker	3,835	0	0
Sheffield Bros.	3,787	0	0
Knight & Son	3,767	0	0
Truett & Steel	3,750	0	0
Castle & Son	3,750	0	0
Monk	3,700	0	0
Todd & Newman	3,669	0	0
Calnan & Son	3,575	0	0
Crisp	3,527	0	0

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For the execution of (a) boiler and engine-work, and (b) laundry and kitchen engineering-work at the Southern hospital, for the Metropolitan Asylums Board.

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Fraser & Co., Ltd.	£8,695	0	0
Danks & Co., Ltd.	8,590	0	0
Moorwood, Sons & Co., Ltd.	8,020	0	0
Lea, Son & Co.	7,785	0	0
L. & F. May	7,698	0	0
Rosser & Russell, Ltd.	7,659	0	0
Simpson & Co., Ltd.	7,584	0	0
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Wenham & Waters, Ltd.	7,203	0	0
Hill & Herbert, Ltd.	7,040	0	0
Death & Ellwood, Joseph Street, Leicester (recommended)	6,492	0	0

Laundry and kitchen engineering-work.

Cudlipp	6,444	0	0
Clements, Jeakes & Co.	4,450	0	0
J. & F. May	4,095	0	0
Rosser & Russell, Ltd.	4,065	0	0
Simpson & Co., Ltd.	3,635	0	0
Lea, Son & Co.	3,593	0	0
Moorwood, Sons & Co., Ltd.	3,515	0	0
Wenham & Waters, Ltd.	3,398	0	0
Hill & Herbert, Ltd.	3,370	0	0
Death & Ellwood	3,275	0	0
Potter & Sons, Ltd. (recommended)	3,249	0	0

For alterations, additions, repairs, sanitary work and new caretaker's house, &c., at Westminster Chapel, Buckingham Gate, S.W. Mr. W. J. KEMP, architect. Quantities by Mr. W. E. STONER.

Lidstone & Son	£5,889	0	0
Bywaters & Sons	5,632	0	0
Stanley Bird & Co.	5,299	0	0
Higgs & Hill	5,198	0	0
H. L. Holloway	5,140	0	0
Carmichael	5,115	0	0
Holloway Bros.	5,048	0	0
Patrick & Son	4,932	0	0
HOLLIDAY & GREENWOOD, LTD. (accepted)	4,926	0	0

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Mason	337	0	0
Hobbs & Sons	329	10	0
Porter	320	0	0
PATMAN (accepted)	319	0	0

For painting and cleaning infirmary, for the Guardians of Chelsea union.

W. Brooks & Co.	£670	0	0
Payne	558	10	0
Pearce	499	10	0
Dow & Co.	460	0	0
Bouneau	427	0	0
Bigg & Co.	420	9	6
Wade	419	0	0
H. McCarthy	399	0	0
R. Iles, Ltd.	375	0	0
Dudley	375	0	0
Harvey & Co.	336	15	0
Wright	319	10	0
Lilley & Sons.	307	0	0
P. McCarthy	303	0	0
Eames	298	0	0
Victoria Sanitary Engineering Co.	298	0	0
Hussey	295	0	0
Callis & Co.	273	0	0
Feen	249	10	0

LUDLOW.

For sixty loose boxes, boys' dormitories, canteen, &c., for the Ludlow Race Club. Mr. J. BUTTERS, architect.

Collins & Godfrey	£4,498	0	0
Bevan & Hodges	4,158	0	0
H. Lovatt, Ltd.	3,996	0	6
W. Bowers & Co.	3,948	10	0
Cooke	3,750	0	0
Bryan	3,331	5	0
TURFORD & SOUTHWARD (accepted)	3,262	0	0
Architect's estimate	3,300	0	0

MATLOCK BRIDGE.

For the erection of two semi-detached villas, Lime Grove Road. Mr. D. M. WILDGOOSE, architect.

Dawes	£1,610	10	6
Dakin Bros.	1,469	14	6
J. W. WILDGOOSE, Matlock Bank (accepted)	1,449	0	0

NORFOLK.

For restoration of north aisle of Thornham Church, Norfolk. Mr. HERBERT J. GREEN, architect, 31 Castle Meadow, Norwich.

Cracknell	£436	0	0
Dye	387	9	6
Tath, Langley & Co.	342	1	10
R. Shanks, Hunstanton (accepted conditionally)	340	0	0

POOLE.

For the erection of elementary school at Oakdale. Mr. ANDREW PARKSTONE, architect.

Wilkins & Son	£4,638	0	0
Chincher & Co.	4,387	0	0
Wort & Way	4,326	14	0
Jenkins & Sons	4,232	0	0
Erwood & Morris.	4,088	0	0
Miller	3,941	2	8
George & Harding	3,928	0	0
Hoare & Sons	3,866	0	0
Jesty & Baker	3,824	0	10
Burt & Vick	3,797	10	0
Cross	3,785	12	5
Baker & Percy	3,736	0	0
Brown	3,724	0	0
A. & F. Wilson	3,688	10	0
Leach	3,683	0	0
A. J. COLBORNE, Swindon (accepted)	3,570	16	8

PETWORTH.

For the erection of a block of three four-roomed cottages near Petworth, Sussex. Messrs. BARRETT & DRIVER, architects, 23 York Place, Baker Street.

Boxall	£400	0	0
Spooner	392	0	0
Rowland Bros., Horsham (recommended)	350	0	0

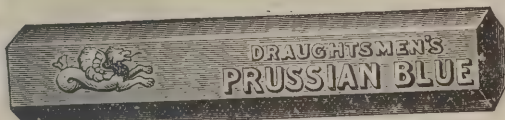
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PETWORTH—continued.

For removing bridge over the old canal at Drungewick, and building a steel-girder bridge over the river and other works in connection therewith.

Wilkinson Bros.	£741	0	0
Edwards & Co.	610	0	0
Rigby	465	0	0
E. & J. H. Holden	454	0	0
Lindfield & Son	427	0	0
Spooner	397	0	0
J. BOXALL, Tillington, Petworth (accepted)	340	0	0

READING.

For the erection of the George Palmer school.

Godwin	£26,268	0	0
J. T. NORMAN, Swindon (accepted)	25,473	0	0
Harris	25,150	0	0

There were twenty-two tenders; the amounts of the other tenders ranged from £26,744 to £39,700.

For the hot-water engineering work at the same school.

DENNING & COOKE, Newcastle (accepted)	£793	0	0
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ST. ASAPH.

For construction of about 1,850 lineal yards of stoneware pipe sewers, 12 inches and 9 inches internal diameter, with manholes, lampholes, covers, ventilating shafts, &c. Mr. T. B. FARRINGTON, engineer, Llandudno.

Marland	£1,838	16	4
Hughes & Williams	1,718	13	0
Underwood Bros.	1,585	0	0
Griffiths & Son	1,450	0	0
Mitchell & Son	1,420	0	0
Reid & Son	1,417	13	0
Roberts	1,215	15	0
Badsey & Redhouse	1,195	6	3
Hughes & Rowlands	1,139	2	6
Roberts Bros.	1,098	0	0
SHEFFIELD & EVANS, Rhyl (accepted)	1,357	10	0

SOUTH STONEHAM.

For the supply of an 8-ton steam-roller and appliances to the Guardians.

AVELING & PORTER, LTD. (accepted)	£528	0	0
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SHANGHAI.

For the erection of the church of St. Ignatius, Shanghai, for the Catholic Mission. Mr. W. M. DOWDALL, architect.

Yang Tse Ta	Taels.	
Ko Lai Chee	397,000	
Zee Kuen Kee	342,600	
Oriental Construction Co.	292,250	
Eastern Construction and Engineering Co.	284,500	
Shanghai Building and Investment Co., Ltd.	278,300	
The present value of 1 tael is about 2s. 7d. sterling.	278,000	

SOUTH BRENT.

For construction of water-mains, with intake tank, collecting drains and other incidental works for the water-supply of South Brent. Mr. R. HANSFORD WORTH, engineer, Plymouth.

Pethick Bros	£444	0	0
Tabor	396	10	5
Hughes	370	3	3
Doney	346	12	9
Hawking & Best	344	11	7
Shaddock	330	12	8
Jefford & Sons	328	12	0
Steer & Pearce	322	8	0
Duke	310	13	7
Narracott	307	6	8
Andrews	294	16	6
Pike	294	9	8
Shaddock	283	1	7
Stevenson	275	0	0
R. VEALE, South Brent (accepted)	244	8	9

TALGARTH.

For the erection of house and shop. Mr. J. GUNTER, architect, Glasbury.

Meredith	£1,115	0	0
Lewis & Co.	975	0	0
T. D. Evans.	950	0	0
Davies.	935	12	4
J. C. Evans.	920	0	0
J. JONES, Talgarth (accepted)	840	0	0

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WARMINSTER.

For the erection of a fire-station in Close Road. Mr. C. H. LAWTON, surveyor.

Ponton	£572	9	0
Butcher	558	14	0
H. FRANKLIN (accepted)	527	0	0

WATFORD.

For making-up Park Avenue. Mr. D. WATERHOUSE, engineer.

Treeby & Sons	£880	12	9
Free & Sons	873	5	6
Bowyer	870	0	0
Fry & Sons	846	16	7
Crouch	839	0	0
Champniss	816	8	4
Harvey Bros.	798	6	3
Jackson	787	0	0
Bracey & Clark	775	0	0
Clark Bros.	766	0	0
Catley	758	0	0
Goss Bros.	750	0	0
Watkins	730	0	0
H. BROWN, Watford (accepted)	724	0	0
British Paving Co.	618	1	5

TRADE NOTES.

THE Isolation Hospital, Ealing, is being warmed and ventilated by means of Shorland's double-fronted patent Manchester stoves with descending smoke-flues, Manchester grates, exhaust roof and inlet ventilators.

We have much pleasure in announcing that the firm of C. W. Waters & Co., of Great Eastern Street, London, has been converted into a limited liability company. All the trade creditors of the late firm have been paid in full, and the business will be carried on under the old name of C. W. Waters & Co., Ltd. In consequence of a steadily increasing business new works are being equipped, and will shortly be opened at Brimsdown.

CITY AND GUILDS OF LONDON INSTITUTE'S
DEPARTMENT OF TECHNOLOGY.

ON Wednesday last an exhibition was opened by Earl Spencer at the Imperial Institute of practical work executed by students of technological classes in Great Britain, Ireland and the Colonies, and by candidates at the City and Guilds of London Institute's annual examinations, 1905. The specimens of workmanship, which are of a very creditable character taken altogether, are arranged along the North Gallery at the Imperial Institute, and will remain open for inspection up to and including July 8. They comprise examples of road engineering, mechanical engineering and building designs, metalwork, carriage building, manual training, plasterers' work, carpentry and joinery, cabinet-making, plumbers' work, painters' and decorators' work, besides goldsmiths' and silversmiths' work, &c.

From the report which was read on the occasion, referred to by Sir Philip Magnus, the superintendent, we gather that the present exhibition of students' work is the seventh which has been held by the City and Guilds of London Institute, and while in 1881, the year after its incorporation, there were but 2,500 students in attendance at the evening classes and 1,563 candidates came up for examination, this year there have been 44,099 students in attendance and the number of candidates has increased to 20,923. The number of separate subjects in which classes were held in 1881 was twenty-three only, whilst at the recent examination candidates presented themselves in sixty-seven branches of trade. It is also interesting to note that 1,127 candidates were recently entered for the examinations for the teacher's certificate—1,015 in woodwork and 112 in metalwork. Specimens of their work are among the exhibits on view.

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BUILDING AND BUILDERS.

MR. ARTHUR STRATTON, A.R.I.B.A., architect, has removed to 16 Hart Street, Bloomsbury Square, London, W.C.

MR. JOHN C. STOCKDALE, architect, has removed to 16 Hart Street, Bloomsbury Square, London, W.C.

THE North British Railway Company have authorised the erection of a new station at Berwick at a total cost of over 50,000*l*.

NEW insurance offices in the Gothic style have been erected in Dale Street, Liverpool, from the designs of Mr. Aubrey Thomas. The furnishing and decoration are by Messrs. Waring & Gillow, Ltd.

MR. CHARLES A. WALKER, a well-known Preston contractor, died on Tuesday at fifty years of age. His firm is the oldest firm of builders in Preston, and many important contracts have been carried out by it. He was president of the Master Builders' Association.

A CONFERENCE between representatives of the Edinburgh, Leith and District Building Employers' Association and the operative joiners on strike took place on the 23rd inst. on the initiative of the Lord Provost. The proceedings lasted nearly six hours.

At the last meeting of the Glasgow Town Council a letter was read from the Trades Council drawing attention to the delay in completing Corporation contracts, on account of the present dispute between the private building employers and their workmen. The letter concluded with a request that the Corporation should receive a deputation on the question. The Council agreed to hear the deputation.

THE National Lime Manufacturers' Association, U.S.A., offer two prizes, one of 100 dollars for the best paper and the other of 50 dollars for the second paper on the subject of lime *v*. plaster. It is desired in these papers to present the best truthful arguments in favour of the use of lime, either directly as a lime-plastering mortar, or indirectly by its use in large quantities in a hydrated form in prepared plasters.

THE Yorkshire Federation of Master Builders held their monthly meeting on the 23rd inst. At the conclusion of the business Mr. J. Biggin was presented with a carved oak timepiece, with Westminster chimes, a gold snuff-box and

an illuminated address from the members of the Sheffield Association, as a token of their regard and esteem for his many years of useful work in connection with the organisation.

BUILDING operations in Portsmouth are becoming extremely active. A week ago the roads and works committee passed a large number of plans for houses which it is proposed to erect, and at the meeting of the same committee on Monday another exceptionally large batch of plans was approved. Altogether plans for the large number of eighty-two houses were passed.

FORTY years ago, says the *Manchester Guardian*, a young man went up from Gloucestershire to be clerk of the works at the rebuilding of Hawsker Church, between Robin Hood's Bay and Whitby, and, so far from home, he fell ill and died. They buried him in Hawsker churchyard, and the masons whom he had directed set a stone over his grave and cut upon it the inscription, "Study to be quiet and mind your own business."

A MEETING of the Essex education committee was held on the 26th inst., when the county architect reported having found the Leigh-on-Sea National school in such an unsatisfactory state that it was advisable to vacate it at once. The school is built on the face of a steep hill, and there were signs that the school was gradually sliding down the hill, though there was no immediate danger of a sudden rush. It was agreed to close the school and to erect a temporary building, and eventually a new school, on other ground.

ARRANGEMENTS are being made for holding the next course of advanced instruction for plumbers at King's College, London, in August and September next, under the auspices of the Plumbers' Company and several of the county and municipal educational authorities. Plumbing teachers and advanced students desirous of availing themselves of the facilities provided should apply as early as possible to the educational authority of the town or county in which they reside for the requisite grant or scholarship to enable them to attend.

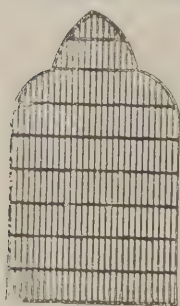
UNDER the auspices of the Workmen's National Housing Council a Lancashire and Cheshire conference was held at Manchester on the 24th inst. to discuss the housing problem. More than 150 labour organisations were re-

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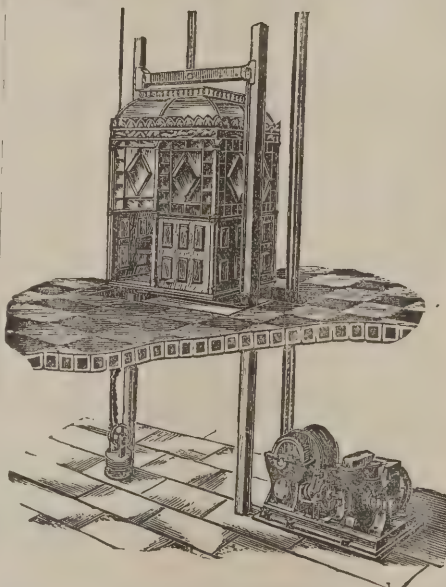
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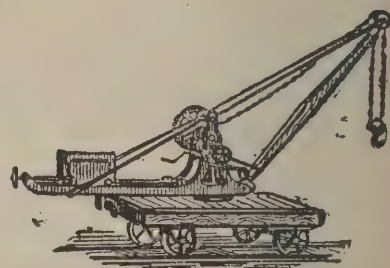
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For Index of Advertisers, see page x.

presented. A resolution was agreed to complaining of excessive rents and overcrowding in insanitary dwellings, and declaring that the result was physical and moral deterioration and abnormal disease and death rates. The resolution also appealed to the organised workers to earnestly grapple with the housing difficulty by inducing trades unions and co-operative societies to invest their funds in the provision of good houses for their members, and, above all, by bringing pressure to bear upon the local authorities so that the securing to every family the necessary amount of healthy house accommodation should not be left to chance or private enterprise, but should be accepted as the responsibility of the community.

ELECTRIC NOTES.

ELECTRICAL installations are being provided in the larger cantonments in the plains of India, where the hot weather is of long duration.

THE net profit on the working of the Glasgow municipal tramways for the year is 93,257*l.*, of which 68,000*l.* is to be written off for special depreciation and the balance carried to reserve.

THE Board of Trade have sanctioned the borrowing by the Heywood Corporation of 37,200*l.* for electrifying the tramways within the borough and the extension of the electricity works.

THE Corporation of South Shields propose to extend its electricity works at a cost of 15,625*l.* Additional plant is to be installed in the power station, so as to provide electrical energy for the tramways, and also for supplying current to factories and workshops. An official inquiry has been held.

THE Incorporated Municipal Electrical Association are seeking the support of local authorities owning electrical undertakings to the electrical exhibition to be held in London in the autumn under the auspices of the National Electrical Manufacturers' Association.

THE Dundee Town Council have reduced the price of gas from 2*s.* 10*d.* to 2*s.* 8*d.* per 1,000 feet, and electricity will be charged for at 4*d.* per unit after twenty units and

3*d.* per unit consumed above 10,000 units. Electrical energy is to be supplied to the tramways at 1½*d.* per unit.

THE Liverpool Select Vestry have decided to entrust the preparation of plans and specifications for the proposed electrical generating station at Brownlow Hill to a certain firm of electrical engineers. The Local Government Board have provisionally authorised the erection of a station at a cost not exceeding 10,000*l.*

IN connection with the installation of electricity at Portsmouth, it has been decided to supply Whale Island with current from the new generating station to be erected in the dockyard, in preference to erecting a power station on the island itself. In this way a considerable saving will be effected.

THE Chicago and Alton Railway Company, U.S.A., have announced that arrangements have been completed for installing wireless telegraph system on all trains running between Chicago and St. Louis. Eventually the trains will be in wireless communication with the larger cities. In the course of preliminary experiments messages were received by a train travelling at a speed of fifty miles an hour.

Fears for the beauty of the Falls of Niagara on the score of the construction of the Canadian power works have proved groundless. The river portion of the works was completed last week, and when the temporary obstructions necessary for the construction had been removed it was found that the water resumed its natural course and the falls are quite uninjured.

THE Court of Common Council have considered a report from the electrical engineer relative to the leakage of electricity from the consumers' lines in cellars under the public ways, and the possible danger of shocks to the public therefrom. The streets committee recommended that the attention of householders should be drawn to the necessity of fixing and maintaining their electric circuits and apparatus in such a manner and condition as to prevent the possibility of the pavements from becoming charged with electricity.

THE Associazione degli Industriali d'Italia, No. 61 Foro Bonaparte, Milan, Italy, invite investors to compete for two prizes offered by it, as follows:—First prize, 1,600 dols. and a gold medal, for a new method to prevent danger

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Queen Anne's Chambers, Westminster, **LONDON.**

which may arise from the contact of high tension with low tension winding of electric rotary-current transformers; second prize, 100 dols. and a gold medal, for a simple, strong and reliable safety device for stopping cars running on an inclined plane in case of the breaking of the wire cable. The device must be capable of adjustment to ordinary cable roads now in use.

THE Bowhill Coal Company, whose average daily output is 2,000 tons, are introducing a new electric-power installation at their colliery, and also intend to light the village of Bowhill, N.B., by means of electricity. The engine is a powerful one—slow speed, compound, high-pressure and low-pressure cylinders, of 500 horse-power, and with ninety revolutions per minute. The high-pressure cylinder is 22½ inches and the low-pressure cylinder 33 inches, while the stroke is 42 inches. The engine drives a three-phase alternator, which generates the power by fourteen ropes instead of belting. The latter machine is 600 horse-power. The utilisation of the power will be wholly underground. A lighting plant is on order, and it is proposed to illumine the pit bottom with electricity, and also the streets of Bowhill.

THE Administrative County of London Electric Power Bill, which seeks power to supply an extensive area with electrical energy at a cost of about 6,000,000*l.*, and which was passed by a select committee of the House of Lords after a protracted hearing, came before the Examiners of Private Bills of the House of Commons on the 22nd inst. for the investigation of standing order proofs. The Bill was opposed by the South Metropolitan Gas Company on the ground that sufficient notice had not been given, "the Bill having had certain amendments made in the House of Lords." The examiners decided that the *London Gazette* and newspaper notices were insufficient, and they therefore reported a non-compliance. The standing orders committee, after considering the matter, decided to dispense with the standing orders, and the Bill will accordingly be allowed to proceed.

THE Dublin Corporation have adopted the following arrangement with Mr. Robert Hammond, the electrical engineer, with reference to the termination of his original agreement:—Mr. Hammond, in consideration of the under-

takings on the part of the Corporation, should release the Corporation from any liability under the agreement of November 1899, to employ or remunerate him in connection with any electric or other works or extensions of the Corporation electric supply system, save and except the works at present in hand and nearing completion under his supervision; but that nevertheless Mr. Hammond shall be bound to see that the works at present in hand or carried out under his supervision, and the contracts in connection with same, are efficiently completed in a proper and workmanlike manner, in accordance with the said recited agreement, and give all necessary assistance and information in laying the accounts connected with the said scheme, and justifying same before the Local Government Board auditor, without any additional fee beyond that set forth in the hereinbefore recited agreement, and the Corporation agree from and after the ratification of this agreement to pay the out-of-pocket travelling and hotel expenses of Mr. Hammond, or any member of his firm whilst engaged instead of him, after June 1, 1905, on the remaining work to be performed by him under the agreement of 1899, as hereby modified.

VARIETIES.

THE Newcastle Corporation loan of 300,000*l.* was subscribed more than four times over, the actual amount offered being 1,165,669*l.*

In view of the already large number of makers of cement block machinery in America, a conference was arranged for June 27 and 28 for the purpose of forming an association.

THE London Corporation have adopted the report of a special committee which we mentioned last week, approving the proposal to widen Blackfriars Bridge or build another bridge, with a view to the linking of the north and south sides of the Thames by electric tramways.

THE Manchester baths and washhouses committee have appointed a special sub-committee to inquire into the expenditure on the Victoria baths, High Street, Chorlton-on-Medlock, in accordance with the decision come to by the City Council, when it was shown that the original estimate for the baths had been exceeded by some 20,000*l.*

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THE OWNER of No. 13 Glebe Road, Hornsey, altered the number to 11A, and the borough council objected. It was then argued by the owner that "there was a difficulty in letting a house numbered 13." The Council now informs the owner "that the alteration cannot be allowed, and that he is required to reinstate the old number."

A PARTY of between sixty and seventy advanced engineering students of the Glamorgan County Council's classes left Cardiff on Monday for a tour around the engineering districts of Manchester and Leeds, returning from the latter city on the following Saturday. The party is in charge of Mr. Arthur Cryer, county engineering lecturer.

AT THE Women's Institute a paper by Miss McClelland was read last week entitled "A Cottage for 150/," and was descriptive of a cottage designed by her for the Garden City Competition at Hitchin. The cottage contains a sitting-room and scullery (with bath) on the ground floor and three bedrooms on the upper storey.

THE members of the Canadian Manufacturers' Association visited on Saturday the works of the Associated Portland Cement Manufacturers (1900), Limited, at Northfleet. The Hon. J. B. Holland assured the cement manufacturers that they might go on increasing their works, as the use of cement in Canada was unlimited.

THE Fulham Board of Guardians have decided by a large majority to replace the infirmary heating apparatus by a low-pressure system in which all exhaust steam will be utilised. Messrs. F. H. Medhurst & Lloyd, whose recommendations have been adopted, have been appointed to prepare the necessary specifications for the work, the cost of which is estimated at about 4,000/.

THE county borough of Salford have announced to builders, contractors and others that plans in duplicate for temporary stands or balconies of any description in connection with the proposed royal visit must be submitted to the borough engineer, town hall, Salford, and the sanction of the Corporation obtained before such structures are commenced.

A LOCAL GOVERNMENT BOARD inquiry has been held at Preston into the application of the Corporation for power to borrow 20,000/ for the erection of an infectious diseases hospital in Holme Stack Lane on part of the Corporation

estate. It was stated that a tender of 19,382/ had been provisionally accepted, the cost per bed working out at 346/.

THE sub-committee of the Scottish National Exhibition, 1907, have reported that satisfactory progress was being made with the guarantee fund, and that a number of subscriptions have been received within the last few days, including 1,000/ from a large manufacturing firm in the city. Several applications for space were intimated, one applicant offering 200/ for the space required.

CAPTAIN MARLIN STUART, who was injured during the construction of the New York subway in 1902 and had in consequence to resign his commission in the British Navy, has lost his suit for 75,000 dols. damages against the Subway Construction Company and the Interborough Rapid Transit Company. While the captain was at an hotel he was injured by an explosion of dynamite caused by the construction company, and his injuries brought about nervous prostration.

AT Partick Dean of Guild Court the Glasgow Corporation—the local authority—last week sought permission to erect a new foreign animals wharf, with lairages and slaughter-house accommodation, on Merkland grounds, Whiteinch. The estimated cost of the scheme is 100,000/. As the Glasgow Corporation had omitted to get the formal sanction of the local Town Council for the erection of a slaughter-house, the case was continued to permit of this being done.

It is definitely announced that the Irish International Exhibition will be opened during May 1907 in the Herbert Park, Balls Bridge, Dublin. It was originally intended to hold this exhibition in 1906, but it has been found necessary to alter the date. The site is within a mile and a half of the centre of the city, and easily accessible by three lines of tramway which will connect the grounds with the various railway termini. The guarantee fund has almost reached 150,000/.

THERE is now in use in America a new railway track-layer which, with a crew of forty men, will lay two miles of track a day. The track-layer has a huge crane 60 feet long, which projects forward over the road, and hauls behind it a train of sixteen flat cars loaded with ties and rails. A continuous double line of cars moves constantly

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over rollers and carries the ties with it. Both rails and ties are seized at the proper time by the machinery and placed on the road in front of the train, where they shortly form part of the track over which it passes.

THE Handsworth District Council's education committee in a recent report stated that they adhered to the Plenum system of ventilation for the Rookery Road and Westminster Road schools. In the discussion by the Council it was moved that the report be again referred back to the committee, with instructions to adopt the natural system of ventilation. On a vote being taken, the committee's report was approved in favour of the Plenum system.

At Sheffield last week a firm of spring makers answered a summons by the Corporation which alleged that they had disobeyed an order to abate a smoke nuisance, but the case was not heard because the magistrates on the bench, themselves cutlery manufacturers, declined to adjudicate. The case was taken first to the second court, and when it had been called on the chairman said, "You had better take it to the other court; you will not get any sympathy from me." The chairman of the first court similarly declined to hear the summons.

THE Walsall Town Council have adopted the report of a committee showing that, owing to variations in the contract and extra works carried out, the cost of the new municipal buildings would be at least 100,000*l.*, and recommending that application be made to the Local Government Board for sanction to the Council borrowing 25,000*l.* in addition to the 75,000*l.* authorised by the Walsall Corporation Act of 1900, and that, if any further sum was required, it be provided out of the amount received under the financial adjustment with the County Council.

The Scottish steel and iron manufacturers have considered the draft regulations proposed to be made by the Secretary of State under Section 79 of the Factory and Workshops Act, 1901, for the use of locomotives and waggons on lines and sidings in or used in connection with premises under this Act. Some of the chief points to which exception are taken are that there shall be a 4 feet clear space between each line of rails, that no material is to be deposited within 3 feet of the lines of rails and the provision of permanent crossings.

A NEW 100-ton electrically-worked revolving crane has been installed in the Dublin Docks at North Wall. Preparations were begun last year by driving into the ground 110 piles to a depth of between 30 and 40 feet. Over these was laid the foundation, consisting of 3,500 tons of concrete, and on this the superstructure was reared to a height of 77 feet. On Saturday the crane was tested with a weight of 150 tons of steel rails, which was raised to a height of 70 feet above the quay, swung around and traversed in and out along the great arm or girder overhead.

THE arbitration between the Humber Conservancy and the Hull Dock joint committee as to the price to be paid for the acquisition by the latter of 147 acres of foreshore at Marfleet, for the purposes of dock extension, was concluded on the 16th inst. before Sir John Rolleston, sitting as umpire, and Mr. Gott (Bradford) and Mr. E. Fowler (Sheffield) as arbitrators. The owners of the land on the last day claimed 200*l.* an acre as the value of the foreshore. Witnesses for the joint committee contended that the valuation should be one-sixth the value of the land behind it, *i.e.* 50*l.* an acre. The award was deferred.

In the supplement of the *African World*, June 3, there is a description of the salving of the *Maine*. The vessel arrived at Durban on February 20, seriously damaged, with leak gaining rapidly on the pumps. As it was essential that extra pumps should be put to work in the least possible time, a 5-inch Pulsometer was fixed in No. 1 hold and set to work within three or four hours. A larger centrifugal pump was brought on board, but it took ten hours to get this to work. As the above-mentioned paper states, "it will be seen how a 5-inch Pulsometer managed to keep that huge vessel afloat for nineteen hours until other and heavier pumps could be fixed and set to work." The tonnage of the *Maine* is 7,924 tons gross. The statement above suggests the value of a pump like the Pulsometer, which can be quickly fixed in cases of emergency.

SIR BENJAMIN BAKER has made his inspection of Union Bridge, Aberdeen, which it is proposed to widen from 40 feet to 60 feet. He had previously expressed doubts as to the advisability of widening the bridge by means of additional granite masonry, lest the driving of fresh piles

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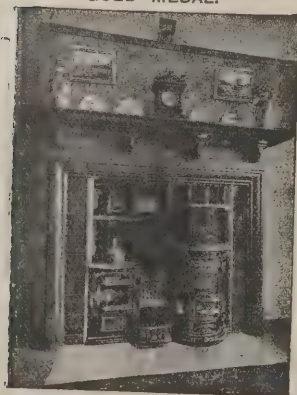
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might disturb the foundations of the bridge, and he suggested as an alternative scheme the erection of iron girders on either side to carry additional foot pavements. As a result of his examination Sir Benjamin expressed himself as thoroughly satisfied with the stability of the existing structure, and better pleased with the foundations than he had expected to be. The foundation at the south-west corner is especially satisfactory, as it has a rock basis. The prospect of granite now being used in the widening of the bridge has given great local satisfaction.

MANCETTER MANOR, Warwickshire, has just changed owners through the agency of Messrs. Tresidder & Co., of Cockspur Street, London. Mancetter was the Manduesedum of the Romans, concerning which Dugdale, in his "History of Warwickshire," gives many interesting particulars. It was given by William the Conqueror to Hugh Lupus, Earl of Chester, and passed from him to Walkeline de Mancetter, who built the fine adjacent church. His descendant, Edmund de Mancetter, died in the reign of Edward III. without issue, bequeathing it to a relative, who married Thomas Harper, who sold it to John Glover, of Baxterly. Robert Glover, the Protestant, who resided many years at the manor-house, was taken away from it to Coventry, and there burnt in 1555. The present residence is a well-preserved and characteristic specimen of an early Warwickshire manor-house, still retaining exceptionally fine hand-worked oak beams, panellings and wide open fireplaces; probably few better specimens of its age remain in the country. The grounds, extending to some 12 acres, also have an interest of their own.

A SETTLEMENT has been effected in the dispute which arose twelve weeks ago at Mungall Foundry, Carron Iron Works, Carron. The cause of the strike of 200 moulders was the imposition of a fine of $\frac{1}{2}d.$ on every pound over the standard weight of the article cast. The men alleged that they could not cast the standard weight with the patterns provided, as these, they stated, were defective. A settlement was arranged on the 20th inst. The terms were that improved plant would be provided; that a fine of $\frac{1}{4}d.$ would be exacted where the excess weight was due to the fault of the worker, or, alternatively, the casting would be condemned, and that the basis of average work would be ex-

tended from one day's work to a week's work. These were the terms of the company, the men having asked that notice of a fine be withdrawn, the plant renewed, and the question of overweight left undecided until a reasonable time after the resumption of work. The company's terms were accepted by the men's representatives, but, on being communicated to the workers on the following day, they were through some misunderstanding refused, and the strikers declined to resume work on the day agreed upon. Another meeting of the representatives was held on the 22nd inst., and the misunderstanding was cleared away and work will be resumed.

DUNDEE CITY CHURCHES.

A REPORT on the repair and restoration of Dundee city churches—St. Mary's, St. Paul's and St. Clement's—has been submitted to the Town Council by the city architect. It suggested three schemes—one by removing and repairing only the parts of masonry which are loose and dangerous on the three churches, and pointing St. Clement's, which is estimated to cost 550*l.*; another to clean and dress down the whole masonry and make up with cement instead of stone, at cost of 2,800*l.*; and a third by treating the subject as one of thorough repair or restoration, which is estimated to cost 7,500*l.* It is pointed out that by the first scheme safety would be secured, although the architectural effect of the fabric would be seriously impaired, whereas by the other methods the buildings, with the exception of St. Clement's Church, would be brought back to their original appearance and all the features of the buildings reproduced. The sub-committee felt that while the Town Council might be willing to go considerably beyond their legal obligations and spend a large sum in endeavouring to thoroughly repair the churches in a manner creditable to the city, they could not face an expenditure of 7,500*l.* The general feeling seemed to incline towards adhering to the legal liability of the town, which would be met by the second scheme. It was stated, however, that if the general public and the churches interested co-operated with the Council in restoration of the churches the Council might be prepared to spend a sum of 5,000*l.*, spread over a period of years.

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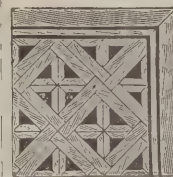
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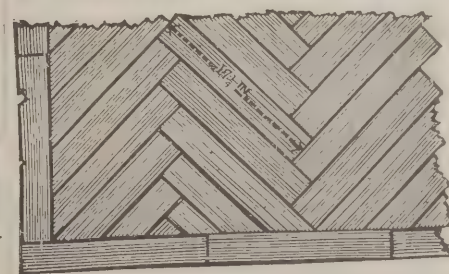
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"RAPID TRAVEL IN LUXURY."

THESE words appear on the cover of the time table issued by the Great Central Railway Company for July, August and September, and a perusal of its contents demonstrates that this enterprising company intends to justify the use of such a phrase. Many important accelerations have been made in the train service affecting all parts of the country. The express train known as the Sheffield Express, leaving Marylebone at 3.25 P.M., will cover the 164½ miles to Sheffield without a stop in 170 minutes, an average speed of 58.14 miles per hour. For 126½ miles of the journey the speed will average 63 miles per hour. To Leicester the journey of 103 miles will be completed in 104 minutes, and to Nottingham, a distance of 126 miles will be run in 134 minutes. Between London and Manchester the journey will be completed in 3 hours 50 minutes, Halifax in 4 hours 13 minutes, Bradford in 4 hours 30 minutes, Harrogate in 4 hours 35 minutes, and York in 4 hours 10 minutes.

The train service between London (Marylebone) and Stratford-on-Avon offers the quickest and most convenient route.

Commencing July 8, through tourist express trains to York, Bridlington, Scarborough and North-East Coast will leave Marylebone at 10 A.M. and 12.15 P.M.

All express trains are vestibuled and have a buffet car attached, available for first and third-class passengers.

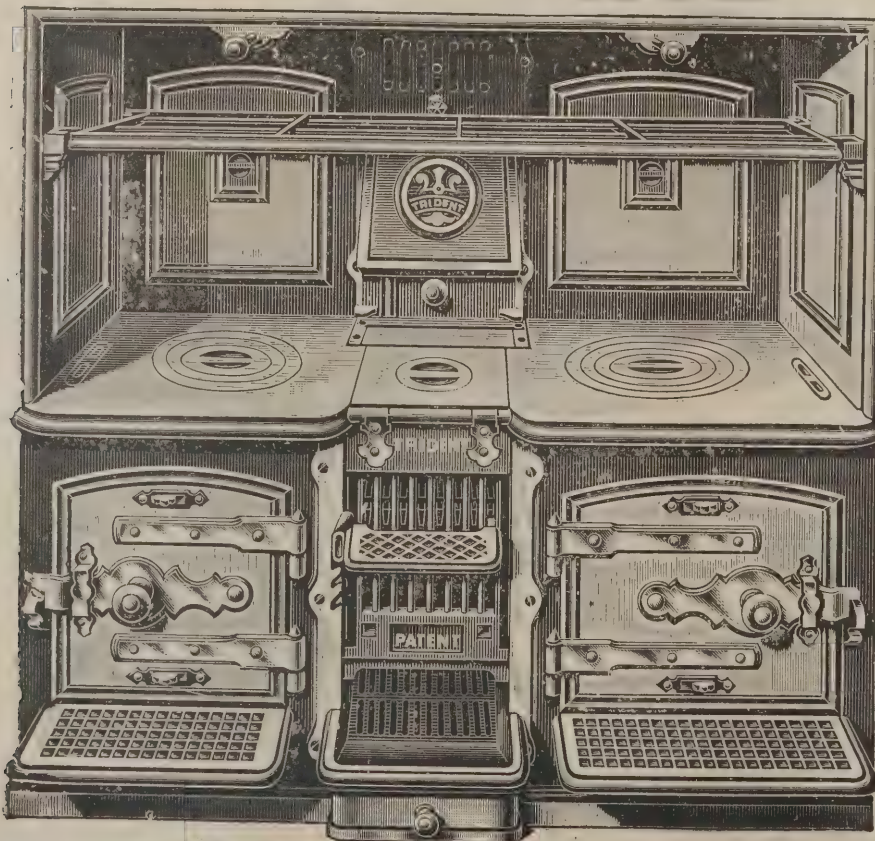
The through service between Newcastle, York, Bradford, Huddersfield, Sheffield and Southampton, Bournemouth, &c., has been considerably improved, and commencing July 10 through express trains will be run between Southampton and Scarborough by the direct route *via* Banbury and Oxford.

In connection with the Great Western Railway the Great Central run through tourist expresses between Leeds, Halifax, Huddersfield, Sheffield, Nottingham, Leicester and Bath, Bristol, Exeter, Torquay, Kingswear, Plymouth and the Cornish Riviera *via* Banbury and Oxford.

THE directors of the Patent Victoria Stone Company, Limited, have declared an interim dividend at the rate of 10 per cent. per annum (being 5 per cent. for the half-year ending June 30).

BUILDING BY-LAWS.

EVIDENCE was given by Mr. Justice Grantham on Tuesday before a committee of the House of Lords on the provisions of the Public Health Acts Amendment Bill, the object of which is to remove some of the difficulties and causes of friction in the administration of building by-laws without impairing their efficiency. The measure is designed to facilitate the erection of cottages and small houses, especially in country towns and rural districts, where the want of accommodation for workmen is acutely felt, and at the same time to free other houses which have plenty of land round them from unnecessary restrictions imposed by existing building by-laws. Sir William Grantham expressed the opinion that the Bill would be most useful, though he confessed that if he had had the drafting of it he would have been inclined to make it a little more drastic. He submitted that there was no reason, from the point of view either of health or of safety, why cottages should not be built without the intervention of the local authority, except so far as might be necessary to secure compliance with reasonable rules of sanitation. Exemption from the operation of the building by-laws of cottages with sufficient space around them would practically obviate the main difficulty which now beset landowners desirous of providing accommodation for rural labourers. He was in favour of giving power of appeal to the County Council from the order of a rural district council before the order could be enforced or proceedings could be taken. Without such an appeal rural councils could pull down houses and apply to magistrates to inflict fines of a most serious character at their own sweet will. An appeal to the County Council would be an inexpensive proceeding, and the fact of there being such a right of appeal would deter rural councils from attempting to enforce unjust demands. Although the new model by-laws of the Local Government Board were a great improvement on the old by-laws, some parts of them which were retained were quite inapplicable to rural districts. If the model by-laws were still further modified and the necessity of sending in plans to the rural district council were abolished there would not be much wrong with them, but in their present form they undoubtedly restricted building in the country.

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